



UNDERSTANDING PERSPECTIVES ON CONSERVATION OF  
INDIGENOUS CATTLE BREEDS IN THE DISTRICTS OF MADURAI AND  
TIRUPUR IN TAMIL NADU

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## **DECLARATION**

I, R.M.Vishnu Karthik, hereby declare that this dissertation entitled “Understanding Perspectives on Conservation of Indigenous Cattle Breeds in the districts of Madurai & Tirupur in Tamil Nadu” is the outcome of my own study undertaken under the guidance of Dr. Lavanya Suresh, Assistant Professor, Tata Institute of Social Sciences, Hyderabad. This dissertation has not previously formed the basis for the award of any degree, diploma or certificate of this institute or of any other institute or university. I have duly acknowledged all the sources used by me in the preparation of this dissertation.

15<sup>th</sup> of March 2017

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## **CERTIFICATE**

This is to certify that the dissertation entitled “Understanding Perspectives on Conservation of Indigenous Cattle Breeds in the districts of Madurai & Tirupur in Tamil Nadu” is the record of the original work done by R.M.Vishnu Karthik under my guidance and supervision . The results of the research presented in this dissertation have not previously formed the basis for the award of any degree, diploma or certificate of this institute or any other institute or university.

15<sup>th</sup> of March 2017

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Any Mistakes in the dissertation will be my own.

Thank You

Sincerely

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## **LIST OF ABBREVIATIONS**

ICDP – Integrated Cattle Development Programme

NBAGR – National Bureau for Animal Genetic Resources

NDDDB – National Dairy Development Board

SKCRF – Senaapathy Kangayam Cattle Research Foundation



## **CHAPTER 1 - INTRODUCTION**

The dissertation entitled “Understanding Perspectives on Conservation of Indigenous Cattle Breeds” aims to bring perceptions of various stakeholders involved in the rearing and conservation of indigenous cattle breeds and the increasing the need for conserving them today. This dissertation tries to look at the importance or significance attached with indigenous cattle and the idea that they belong to a particular environment or ecosystem of a region.

The rural economy had been revolving around indigenous cattle until the 1970s when the Union Government of India introduced the Integrated Cattle Development Programme as part of Operation Flood which aimed at crossbreeding the local indigenous cattle with the exotic European cattle. The crossbreeding policy was supported by the World Bank, which had suggested that the crossbreeding of Indian Zebu Cattle with the European Exotic Cattle would in the long run eradicate rural poverty in India. The non-descriptive local cattle breeds produced hardly 2-3 litres of milk a day which was just enough for the household consumption and the price for a litre of milk was at a very meagre pricing of Rs.4-8. The crossbreeding policy that was aimed to increase the milk production in rural areas due to the increased demand for milk in the urban areas due to the growing urban population, had also enhanced the livelihoods of so many small and marginal farmers and landless labourers for whom dairying provided a source of self-employment and a stable source of daily income. The Integrated Cattle Development Programme was successful to a large extent due to the infrastructural development and the creation of proper marketing channels for the milk produced in rural areas. The increased milk productivity made milk to reach to every corner of the country and made milk an accessible commodity for all the sections of the population and this was beneficial for the malnourished section of the population as milk provided them the required animal protein and the upkeep of dairy cows made them to have access to other proteins such as pulses, cereals and rice as they now had a stable source of income through which they can make their choice of nutritional intakes . (Acharya, K.T., and Vinod K.Huria, 1986)

However after about three decades of operation flood, we have found the population of indigenous cattle breeds that were particular to every state is decreasing at an alarming rate. This dissertation aims to bring suggestions on what can be done by governmental policies or by individual efforts to conserve the fast depleting population of the indigenous cattle and conserve them for the future generations.

### **1.1.Problem Statement**

The population of India's cattle breeds have sharply declined from 137 breeds in the 19<sup>th</sup> century to just 37 breeds that have been recognised by the National Bureau of Animal Genetic Resources, and the non-descriptive indigenous cattle breeds of various states of India

In my problem statement I would like to categorise the problems that have affected the indigenous or the native cattle breeds and why we need to conserve the Indigenous Cattle Breeds. I have given reasons on the need to conserve indigenous cattle breeds and the context of how their decline happened as below :-

*Why should it be done ?*

India is a country which has ratified the 1992 United Nation's Convention on Biological Diversity, which was introduced in Rio. According to that convention, the country which has ratified should take steps in their homeland to conserve the various species of their flora, fauna and agro diversity. Hence conservation of India's native cattle breeds promotes agro diversity because the breed specific to each region has a role to play in the agrarian system of that region. According to the Principles 1, 2 & 3 of the Convention of Biological Diversity – Livestock Keepers are the creators of livestock breeds and custodians of Animal Genetic Resources for food and agriculture.

*What Should Be Done ?*

The government has been emphasising on policies which focus on rearing and breeding of crossbreeds and exotic breeds in order to attain efficiency in dairy production. Currently , India stands as the largest producer of milk in the world , but the government has always neglected the indigenous breeds. So it is essential for the government to bring in a policy for the conservation of these breeds by involving various stakeholders who are engaged in the conservation of these indigenous cattle breeds.

1. Indigenous Breeds were maintained as Draft Animals for Agriculture :-

If we look back at Indian Agricultural History, we can see that milk was never a product to be purchased. It was primarily for the household purposes and farmers were dependent on oxen for draft work and transport. The entire rural economy revolved around trading of bulls , oxen and Cows of native breeds in the weekly markets. The Indigenous female cattle were kept in the household mainly for getting male calves which could be trained and used for draft work

at a later stage and also for the purpose of using their dung and urine in the fields which had high nutritional matter in them.

Why did rural economy shift its focus from indigenous oxen and bulls to cross-bred cows?

This phase came through the green revolution which brought mechanisation along with the hybrid seeds which were said to be of high yielding quality. This mechanisation which came through the use of Tractors, Motor Pumps reduced the draft work of bulls and henceforth the farmers decided there won't be of any use to trade the bulls or oxen anymore and gave up the rearing of bulls and oxen . (Akila, N. & Chander , M., 2010)

## 2. Why Should Indigenous Breed be preferred?

According to the National Bureau of Animal Genetic Resources, a subsidiary organisation of the Indian Council of Agricultural Research, the central agency entrusted with the task of maintaining a livestock biodiversity register, the indigenous cattle breeds mainly fall under three categories of Milch Breeds, Dual Purpose Breeds and Draft Breeds. The Milch Breeds are primarily found in the North Western states of India and comprise the *Gir Breed of Gujarat* , *Sahiwal* , *Tharparkar* and *Red Sindhi* Breeds found in the states of Punjab , Haryana and Rajasthan. The Dual Purpose Breeds are the breeds which excel both in draft (physical work ) and milk comprises the *Kankrej Breed* found in Gujarat and Rajasthan , *Ongole Breed* in Andhra Pradesh , *Krishna Valley Breed* in Karnataka , and *Deoni Breed* in Maharashtra. The Draft breeds are the breeds of cattle who excel in draft work comprises the *Kangayam* , *Pulikulam* , *Umblacherry*, *Alambadi* , *Bargur* breeds in Tamil Nadu and *Amritamahar* and *Hallikar* breeds in Karanataka (Sharma , Arjava & Pundir, R.K, 2014-2015). All these breeds are found in particular parts of the states mentioned above and they are part of the identity of a region which is unique.

## 3. Fodder Requirements & Disease Resistance:-

Furthermore when Indigenous Breeds are reared there is no need for specific differentiation of Fodder requirements vs Food requirements like maize and ragi which are consumed by humans need not be used as fodder crops as indigenous breeds can survive on meagre amount of fodder and they tend to have more of dry fodder unlike the crossbreds, which would require high green fodder for producing high levels of milk. The indigenous breeds also have high tendency of being disease resistant.

However it is also essential to understand what was the need to introduce the crossbreed cows in India and how they helped in the rural economy and the consequences of these on the local breeds :-

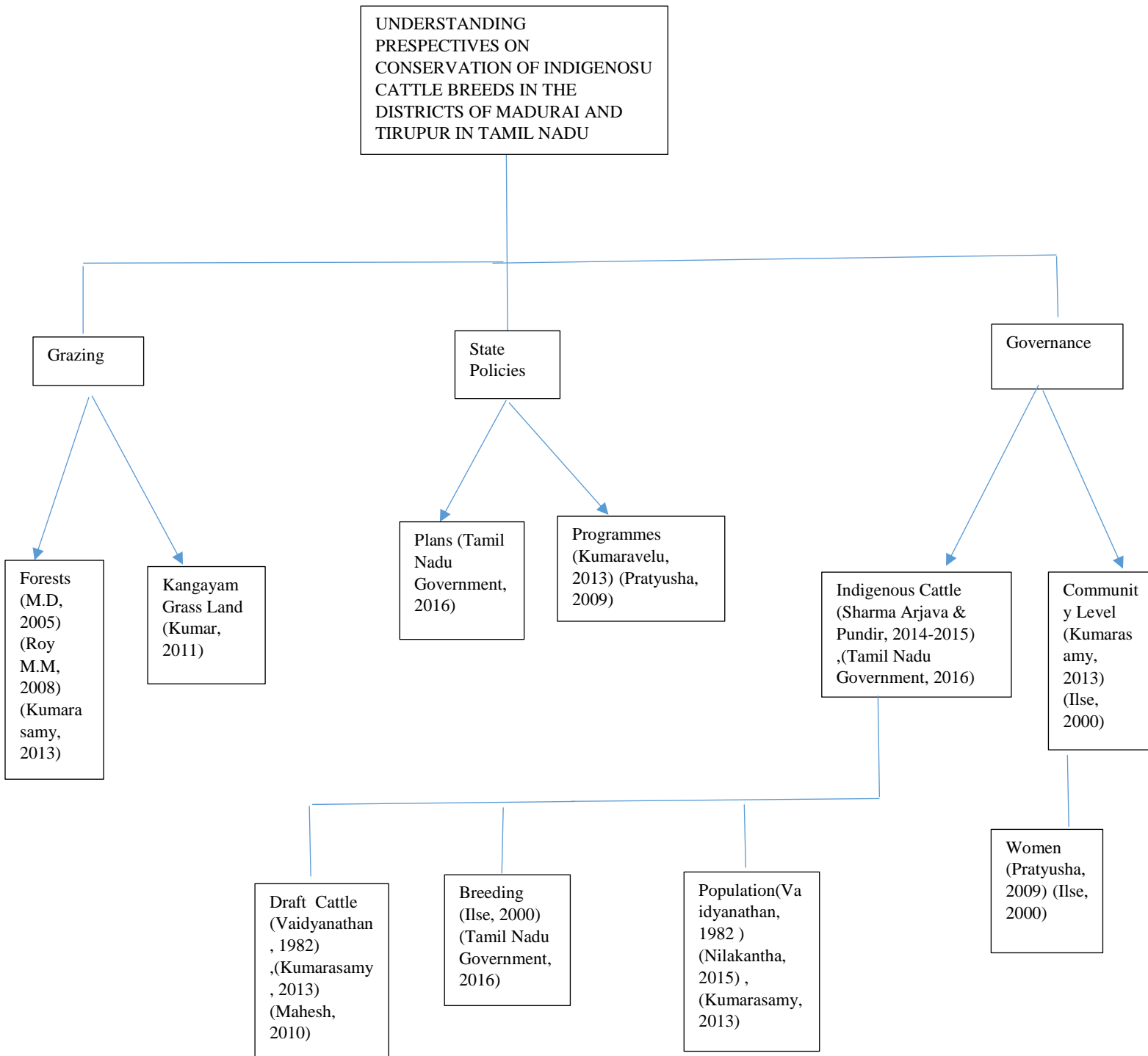
- 1) High Milk Yields :- The growing population ,especially exponential urban growth had an impact on the demand for more milk and this led India to welcome crossbreeds of cattle , hence from the 1970's the livestock policies of various state governments at different times focused on importing of crossbred cattle and crossbreeding policies . (Pratyusha, 2009)
- 2) Stall Feeding :- The crossbreeds can be managed by the method of stall grazing . Stall grazing is a method where the fodder is brought to the cattle shed itself and cattle are not taken out to graze as they cannot withstand heat for long hours . (Kumar, Anil et al , 2011)
- 3) Fast Growth :- The heifers of crossbreeds and exotic breeds generally grow faster and the birth of first calf is by three years compared to the four-five years wait by indigenous breeds .
- 4) Infrastructure :- The introduction of crossbreeds led to an increase in milk production which had to be stored, henceforth the government spent a large amount of capital for creating storage & processing units . (Pratyusha, 2009)
- 5) Transport :- Since the Milk had to be procured from the villages to feed the urban population , transportation became necessary leading to the development of roads and other infrastructures like electricity, irrigation, and others to increase the connectivity of rural areas .

### **1.2.Purpose Statement:-**

The purpose of this case study is to understand the need for conservation of indigenous cattle breeds from the farmers and breeders in the districts of Madurai and Tirupur in Tamil Nadu. At this stage of the dissertation, the conservation of indigenous cattle breeds would be defined as the practice of protection, breeding, development, and enhancing the milking capacity of the indigenous cattle breeds in their respective regions of breeding tracts which would be deeply researched upon , and create awareness among the rural people on conserving the indigenous cattle breeds . Ex:- *Kangayam* breed in its breeding tract comprising the districts of Tirupur , Coimbatore , Dindigul , and *Pulikulam* Breed in its breeding tracts comprising the districts of Madurai , Ramanathapuram and Sivaganagai.

### 1.3.Literature Map

I have classified my literature articles based on the main themes that were occurring repeatedly in the literatures and I have explained each theme in detail in the following section of the chapters.



#### **1.4. Literature Review :-**

During the process of my literature review , I have classified the literatures relating to the conservation of indigenous cattle breeds under the three broad categories of Grazing , State Policies and Governance as cited in the literature map and under each of these broad headings , there are various sub headings as well .This review section will help to understand what has been discussed about importance of indigenous cattle breeds so far and the following chapters would try to bring the understanding from the field for the same .

**1.4.1 Grazing :-** Grazing refers to the cattle being let out in the open fields or forests to feed for themselves , it is when the cattle receive proper feed they are able to convert into milk for the consumption of calves and humans . .

##### ***1.4.1.1.A Case Study of Grazing at Bandipur National Park :-***

Madhusudan (2005) tries bring to us the consequences of this new form of livelihood .The villagers now earn an income through exports of dung, therefore each villager will tend to increase his cattle count as this would fetch him more income and this would affect the large herbivores present in forests directly as previously they shared the same grazing grounds with the cattle. After the cattle count has increased proportionately, they have been forced to look for newer areas. Since the dung left in forest ground during grazing are primarily collected for export, the soil there wouldn't be getting adequate nutrients which would lead to degradation of the forest . (M.D, Madhusudan, 2005) .

The author talked about how the Hangala Village situated in the buffer zone of a national park earned a livelihood through their cattle grazing in the areas bordering the forest and how due to the enhancement of livelihoods through the exports of dung to coffee plantations, villagers will have a rational choice on increasing their heads of cattle as more the dung more the income , but they had failed to understand that the resource will soon cross its carrying capacity limit leaving all the cattle to graze only till a certain level which will then reduce the dung and which shall have a direct impact on the income as less the dung less the income.

##### ***A Case Study of Fodder Resources Spread Across Certain States of India***

The major sources of fodder in India come through forests, grazing lands, wastelands, agriculture lands and fallow lands. In the recent years the area under agriculture & fallow lands have increased whereas areas under pastoral grazing grounds have seen a sturdy decline. In the state of Chattisgarh 51% of the total land area are covered with forests and grazing lands, but

fodder crops are also cultivated which are directly dependent on the rainfall pattern. Fodders crops are cultivated here since there is a high ratio of livestock and the state of Chattisgarh accounts for a fodder deficit of 38%. The Bundelkhand region which is spread across the two states of Madhya Pradesh and Uttar Pradesh, the main fodder resource comes through the forage and residues of crops. The Bundelkhand region is known to have a high presence of livestock and the farmers livelihoods are directly dependent on livestock rearing, only certain districts in Madhya Pradesh that form a part of this region had reported a surplus of fodder in recent years , however most parts of these two states experience a high fodder deficit ratio. (Roy M.M, and Singh .K.A, 2008)

According to (Roy M.M, and Singh .K.A, 2008) , there will be an eminent crisis in India for fodder as the livestock count has been steadily increasing in the last decade, due to their economic value which has enhanced livelihoods of millions living in rural areas of India . The author suggests that there is a need to control grazing by having a village council to frame a set of rules and regulations on the maximum size of cattle that can be owned by an individual household. When the numbers go beyond the carrying capacity there should be a levy fined so that every household will try to keep their cattle population as stable as possible and these measures may be helpful when the village faces a drought as the cattle can still have fodder and give income to the family.

#### *1.4.1.2. Relation of Pulikulam Cattle with Grazing Lands and Forests*

The Pulikulam cattle is a breed that has been completely associated with nomadic pastoralism. They are reared as flocks of hundreds together by community ownership and each family takes turn to take the cattle for grazing. This cattle breed is the breed of origin in the districts of Madurai, Sivagangai and Ramanathapuram in the state of Tamil Nadu .This Cattle breed has witnessed a decline in its population and there has been a sturdy decline of the communities associated with rearing them , this is in direct relation to the shrinkage of grazing lands in the last few years and due to restrictions placed by the forest department , which doesn't allow cattle to be grazed in the forests . Since grazing lands have reduced now, they are being taken to the neighbouring districts for grazing and some of them have started shifting towards the borders of Kerala as well as there is a good market for the dung of the cattle in the coffee plantations of Kerala . (Kumarasamy, P. ,et al, 2013) .

So here we can see how a decline in the number of grazing lands or limited access to forests can restrict the population of a cattle breed completely. The cattle dung would provide a stable

source of income if the number is kept under restriction and how this be sustainable in the long run for the forest animals as well as for villagers.

#### *1.4.1.3.Kangayam Grass Land :-*

The sustainable management of the *Kangayam* Grasslands has evolved through various factors such as taking over of wastelands, an incentive started by the British and by the successive governments after independence .The most crucial aspect we need to see here is how private ownership can lead to effective management of pastures than the common property regime. There is a system of rotational grazings and seasonal restrictions that have been and are in place which contribute in the sustainability of the grazing lands on a long term basis. The data collected by the author indicates that 75 % of farmers own 1-4 cattle or buffaloes, and over 65 % own 15 or more sheep and 85 % of farmers do not own any goat . These grasslands are spread across the western districts of Tamil Nadu, all of which are the breeding tract of the *Kangayam* cattle breed . However in recent times even in this breeding tract of the kangayam cattle, a person tends to find that more than 43% of the crossbred and exotic cattle. There has been a restriction on rearing of goats in these districts since they would damage the fence and the other forage which are reserved for cattle. This restriction was put in place long time ago by the village councils of those days and since the rule is practised even today, we can find that the population of sheep is high, whereas population of the goats are very low.(Kumar et al, 2011).

The author puts forward a suggestion here through his case study of the *Kangayam* Grass Land that this concept can be replicated elsewhere as well, and mentions how it is far better than a grazing land under the common property regime which often creates a lot of stir among villagers for the battle of ownership. We can also see how an effectively joint decision taken by the village council years ago is still being practised to ensure that these pastoral lands do not get damaged by the entry of goats into the grass lands.

**1.4.2.State Policies :-** A Policy is said to be a vision or a mission statement prepared by the Government for a certain period of time for achieving a particular goal . In this context, we would be discussing about Policies made by the Government of Tamil Nadu which aimed at conservation of Indigenous Cattle Breeds.



*1.4.2.1.Plans* :- Now let us see what is explained in the 11<sup>th</sup> & 12<sup>th</sup> Five Year Plans in terms of Livestock rearing & conservation of Indigenous Breeds.

There is a need for creation of more bull mother farms in the state, the 2015 conservation policy envisages this view and provides funds for the creation of the bull farms and ensuring that these bull farms select the best of bulls and the germsplasms of the best bulls are transferred towards the process of making the next progeny. The government has also envisaged a plan of collecting these germsplasms and using them for the artificial insemination of indigenous cattle to ensure that the breed is maintained as such and that the population of the indigenous cattle can be enhanced. The Government of Tamil Nadu in its conservation policy for indigenous breeds in 2015 also aims to conserve the indigenous cattle breeds of the state by establishing an infrastructure that would be sufficient to breed a herd of kangayam , bargur and pulikulam breeds with twenty heads of each breed . (Tamil Nadu Government, 2016)

*1.4.2.2.Programmes* :- A programme is something which is done keeping in mid the long term vision & the end goal.

According to Kumaravelu (2013),diary development in Tamil Nadu was a programme launched with a long term vision to develop the state's dairy sector.

Dairy Development in Tamil Nadu :- The contribution of livestock sector to the state's Gross State Domestic Product is around 2.60 % and the contribution towards agriculture and allied sector is 24.80 % . The annual growth rate from livestock sector to the state is estimated to be around 13.50 %.

The State Government formulated major strategies that aimed at the dairy development of the state which were that of price fixation, breeding technologies, feed and fodder, infrastructural development towards processing of large capacity of milk procured, and veterinary extension services. A detailed swot analysis of the dairy development of the state will give the picture of how the entry of crossbred and exotic cattle had enhanced the dairy sector of the state and what impacts they have given in the long run. (Kumaravelu, 2013)

SWOT Analysis of Dairy Sector Development in Tamil Nadu :-

*Strength* :-

The growing urban population due to urbanisation and creation of new employment or economic opportunities that resulted in migration from rural areas , led to an increased demand

for milk from the urban centres . The Union Government of India introduced the Integrated Cattle Development Programme with the support of the National Dairy Development Board . This programme aimed at crossbreeding the local cattle in the villages with the semen of the European exotic cattle which had a record of high milk productivity by importing the semen from the European nations. This was possible due to a method known as the Artificial Insemination where the semen of a bull is broken down into multiple volumes and kept in a frozen state. The crossbreeding was done to ensure that the progeny that is born through the cattle will have a high milking capacity and this can help to meet the increased demand for milk in the urban areas. This crossbreeding policy had also enhanced the livelihoods of many farmers and provided them a stable source of income from livestock rearing and this had made livestock rearing profitable to an extent.

*Weakness:*

The livelihoods of the farmers were enhanced and the demand for the increase milk in urban areas were met through the crossbreeding policy. But this policy came with its own side effects such as outbreak of deadly diseases which proved fatal for the cattle population of a region. The climate here made it difficult for the progeny that were born through the crossbreeding to survive in the initial years. The crossbred and exotic cattle tend to be affected by the foot and mouth disease , which is spreading disease and it is non curable at times . During these times , close to 60,000 of a region perish due to the outbreak of this disease . Hence this directly affects the livelihoods of the farmers who were earning a stable source of income through livestock rearing. The process of Artificial Insemination can also lead to an increased factor of inbreeding as we will never know the characteristics of the bull, whose semen we use for the insemination and that the same bull's semen can be used across generations of cows , henceforth the future progeny will mostly comprise of the same blood .

*Opportunities:-*

A few years after the implementation and aggressive promotion of the crossbreeding policy , there was a surplus of milk production which led to the creation of dairy processing industries which provided employment and economic opportunities for skilled and unskilled people .

*Threats:-*

The entry of the crossbred and exotic cattle through the crossbreeding policy after the introduction of Integrated Cattle Development Programme led to the reduction in the

population of the indigenous cattle breeds. Since the inception of the ICDP , the Government of Tamil Nadu had made an aggressive push for the crossbreeding policy and today the state is in the verge of losing its precious indigenous cattle breeds. While the crossbreeding policy enhanced the livelihoods of many a farmer in the short term ,in the long term they began to cause burden for the farmer due to the high investment or high maintenance cost associated on the concentrate additional feeds and purchase of green fodder at times from the market ,in recent times . The concentrate feeds and green fodder help in the increased milk productivity of the cattle. (Kumaravelu, 2013)

So here , we can say that how the Development in the dairy sector has increased the contribution by Animal Husbandry sector to the state's GSDP , as well as what those implications had for the future and due to the dairy development , what problems or threats the state is likely to face soon have been described here.

#### **1.4.3 Governance :-**

Governance can be described as a process of making key decisions by involving stakeholders of a particular project in drafting of a plan or while making decisions and ensuring continuous monitoring for the implementation of policies ,made , by members of a government organisation , or the organisation which has framed it .

##### *1.4.3.1. Indigenous Cattle :-*

Indigenous Cattle has been described as native or local cattle of a particular region of a State. The Indigenous or native cattle of each region have developed naturally by adopting to the environment of the particular region by changing their characteristics according to the environmental conditions prevailing in that particular region. According to the National Bureau of Animal Genetic Resources (NBAGR), a subsidiary organisation under the Indian Council of Agricultural Research (ICAR). During the time of Independence, India had nearly 137 cattle breeds and now it has reduced to 37 cattle breeds. NBAGR is an institute which engages in undertaking research on livestock and descriptor of any livestock breed of India and these 37 cattle breeds have been recognised and registered in the livestock biodiversity register of the institute. Apart from the 37 recognised cattle breeds across various states of India , there are also many breeds which have not yet been recognised by the NBAGR and these are known as non- descriptive cattle.(Sharma , Arjava & Pundir, R.K, 2014-2015).

The Purebred Indigenous Cattle Breeds have been selectively developed over the years by castrating the scrub bulls and retaining the bulls with high pedigree, virility and valour traits by testing their progeny so that only the best germsplasms go into the creation of the next generation. Further the NBAGR has classified the breeds into three categories based on their ability and characteristics , they are “*Milch Breeds*” :- Indigenous Breeds which excel in the milk yields are *Gir* , *Sahiwal* , *Tharparkar* and *Red Sindhi* , “*Dual Purpose Breeds*” :- Indigenous Breeds which excel both in draft (physical work ) and milk are *Kankrej* , *Ongole* , *Krishna Valley* , and *Deoni* ,and the “*Draft Breeds*” :- Indigenous Breeds which excel only in draft capacity are *Kangeyam* , *Pulikulam* , *Umblacherry* , *Amrita Mahal* , *Hallikar* , *Alambadi* , *Vechur* , *Kasargode* , *Bargur* . (Sharma , Arjava & Pundir, R.K, 2014-2015) .

Now I will be going into context of introduction of the crossbred cattle in India and what the policies that aimed at promotion of the crossbred cattle do to these various indigenous cattle breeds.

Since 1970’s , policies of the central government and various other state government’s focused on the introduction of crossbreeds and crossbreeding policies to develop high milk yielding cattle breeds by importing bulls and semen from European Nations , to meet the increasing demands for milk from the growing urban population .Due to those crossbreeding policies many states neglected their indigenous cattle breeds ,but have realised the importance of them only when their numbers have gone to the verge of extinction .

In these scenarios, Tamil Nadu had aggressively pushed the crossbreeding policy. These policies led to the development of the crossbred cattle with high milk yielding capacity resulting in the growth of the state’s dairy sector. Six breeds of Tamil Nadu have been recognised by the NBAGR, namely the *Alambadi* , *Bargur* , *Kangayam* , *MaalaiMadu* , *Pulikulam* ,and *Umblacherry* have been recognised by the breed descriptor of NBAGR .

Since 2015 , Tamil Nadu has implemented a conservation policy for the indigenous cattle breeds under the 12<sup>th</sup> five year plan .A new programme has been formulated by the Tamil Nadu Government to conserve its native cattle breeds by establishing a infrastructure to breed the indigenous breeds of the state. (Tamil Nadu Government, 2016)

Under Indigenous Cattle ,I would be focusing on the following :-

1. Draft Cattle.
2. Breeding .

### 3. Population.

1.4.3.1.1 Draft Cattle :-According to the NBAGR , those Indigenous Cattle Breeds which excel in their physical ability to work hard and without any time limit are known as draft cattle . The breeds of draft cattle in India are *Kangayam , Umblacherry , Hallikar , Amrita Mahal , Bargur* and *Pulikulam* . All these breeds belong to the southern regions of India and it is said that all these originated from Amrita Mahal of Mysore and so all these breeds are also collectively known as the Mysore Cattle.

#### Utilisation of Draft Power :-

According to Vaidyanathan (1982), various farm management surveys indicate that an average pair of bullock works only 65-165 days for 8hrs in a year. This indicates a underutilisation of 17-68 %. However ownership of these bullocks are very essential during the peak season of one month for land preparation in wet land regions. In the regions of arid land, the bullocks or oxen are essential for a period of a few days or hours after the rains . Hence it is considered better for the farmer to own a pair even though they will be idle on rest of the days. However when the size of the landholding of a farmer shrinks , then the farmer would tend to give up his bullocks as he has to incur the cost of their maintenance on a daily basis even though they might stay idle for many days. The small and marginal farmers as well will not rear bullocks or oxen as they cannot afford for the maintenance of them(Vaidyanathan, A. , et al, 1982).

A general belief that exists is that draft cattle need to be selected after studying their physical appearance, swirl hairs, their ability to obey the commands , their behaviour , the size of the tail , length of the legs , the length and shape of their horns and a few more characteristics. A farmer makes sure he chooses only the best from those available by studying all these characteristics of the bullocks or oxen. Majority of the small farmers (65%) Medium Farmers ( 71%) , and large farmers (74 %) select animals based on these characteristics . The farmers who are not able to afford the rearing of bullocks or oxen due to the cost of maintenance that is associated with them, use their female indigenous cattle for plowing and other small farm works. However the female indigenous cattle cannot be used for work during the times of their pregnancy and their initial lactation period (Akila, N . , & Chander, M, 2010).

So we can understand here that Indigenous Cattle breeds are reared mainly to be used as draft animals and not for the trade of milk.

**1.4.3.1.2. Breeding** :- Breeding is described as the process through which we get the next progeny and to ensure that we get only the best progeny, selective breeding has been practiced over a long time in different regions by selecting bulls with the most valour, hair whorls at the right position, the shape and length of the horns, and their behaviour. Breeding is the most important part involved in the process of conservation of Indigenous Cattle Breeds.

There are some characteristics to be followed for selecting the breeding male, which have been described below :-

*Breeding Goals* :- The traditional community systems were far better in breeding than today's intense farming systems as they practised the system of community rearing of animals, taking the profits earned for the entire community unlike the present day where we focus on individual profits only and take care of only our livestock. The breeding was done through selective breeding by carefully selecting the cow or a bull through their characteristic such as the best colour, right positions of hair whorls, rightly shaped horns, ability to lead a group.

*Breeding Practices* :- There is a restriction placed on sale of the female breeding animals outside the community as when it goes to a different environment the cattle changes its traits and adaptability. The stock needs to be exchanged between the communities at some points of time so that inbreeding is prevented or fresh blood can be added to the existing stock, this is mostly done with male breeding animals. The male breeding animal in a stock is changed or replaced at a regular interval period of three or four years so that when their progeny comes to reproductive age, there shouldn't be a case of inbreeding. In the villages of India, communal ownership of a breeding animal is highly prevalent by having a temple bull or a mosque or a church bull depending on the religion and faith of a village. The entire village pools the money required to buy a breeding bull, take turns in feeding fodder to the bull and allotting a budget or payment towards a permanent keeper (Rollefson- Kohler, Ilse, 2000).

Castration is a process followed by almost all pastoral communities engaged in livestock rearing across the globe in order to ensure that only the best males get retained for breeding and others which show docileness, laziness, or do not have the prescribed physical body size are castrated and sent for work. Bulls are castrated and used for transport and ploughing, while horses and camels are castrated and used for transportation. (Rollefson- Kohler, Ilse, 2000).

Most of the states in India which had aggressively pushed for the crossbreeding cattle policy during the 1970s castrated the breeding bulls of the indigenous cattle breeds of a particular region as they wanted to ensure that only the crossbred calves are conceived through the process of artificial insemination so that the progeny would have a high milking capacity.

**1.4.3.1.3. Population** :- The term population in this context refers to the number of cattle, and the size of cattle owned by a community, farmer or a breeder.

There are many factors affecting the cattle population in India. Those factors are mentioned below with the distribution levels of cattle of various breeds among few states of India which have witnessed an increase in the population of crossbred cattle and decrease of genetically pure indigenous cattle breeds in the last few decades.

In Maharashtra, the decline was mainly seen due to reduction in the rearing of the cross bred male and the indigenous male cattle, In a period of five years the crossbred female cattle increased by about six lakhs, however at the time of birth, the sex ratio between male and female calves were in an equal proportion, the sex ratio between male and females at the time of birth is in the ratio 50:50. This is because the crossbred males do not have the potential to do any draft or physical farm works like ploughing, transportation and drawing water from the well, these factors make the crossbred male calves to be disposed or sold off at a very early stage. In the case of indigenous breeds both the male and female have declined and this should be attributed to the policy of the state promoting crossbreds as they have high milking capacity and mechanisation of agriculture which has reduced the demand for draft animals.

In Odisha, the decline in the crossbred cattle was primarily attributed to the decline in males. The Indigenous male cattle didn't witness a decline but the indigenous female witnessed a decline as farmers preferred rearing the crossbred female cattle for milk and the indigenous males for draft work in fields.

In Gujarat, the decline was seen in the population of crossbred male cattle as well as indigenous male cattle. The total population of cattle in Gujarat increased by over 25%, the highest record in a five year period between 2007-2012. This can be attributed to the Gir and Kankrej cattle indigenous cattle breeds of Gujarat. Both the breeds are known for their high milk yield but are not suitable for draft work, hence the farmers prefer to rear the females of both crossbred cattle as well as indigenous cattle and dispose off the male crossbred cattle and male indigenous cattle and prefer machinery for agricultural works.

Tamil Nadu has witnessed a high potential and growth for the crossbreds from the early period as the indigenous breeds of the state were drafts breed and are suitable only for field work and give very low milk . In 2012, the cross breeds comprised 72% of the total cattle population ,the indigenous male and female together declined at an alarming rate of 35% whereas the crossbred male declined at a rate of 14% . This has been attributed to the state government's policies of promoting crossbreds for higher yields of milk and the negligible care of indigenous breeds. (Nilakantha, 2015) .

The Pulikulam Cattle breed has witnessed a decline in the population in the last few years. This has been attributed directly to the reduction in the grazing lands which have been taken over by the real estate development in the state that had boomed during the last decade and also the common water resources such as village lakes, ponds, and temple tanks that have depleted over the last decade. (Kumarasamy, P. ,et al, 2013).

The population of indigenous cattle breeds will be directly related to the proportion of cattle used as draft animals. The primary function of indigenous cattle were always for the purpose of physical work and not for the consumption of milk. The density of draft animals is said to be high in Assam and reduces off sharply in the states of West Bengal, Kerala, Bihar. Gujarat is the only state where the population of female buffalo is higher than the population of female cattle and this has been attributed to the availability of large areas of natural grazing lands which are best suited for buffalo breeding (Vaidyanathan, A. , et al, 1982) .

#### **1.4.3.2. Community Level :-**

Refers to the level of community management in rearing of indigenous cattle breeds. We need to see how communities in various parts of the world have successfully conserved a breed of that region due to the economic value realised from them.

#### **1.4.3.2.1. Processes Undermining Community based management of Animal Genetic Resources :-**

The Promotion of the crossbreeding policy have dealt a blow to the population of indigenous breeds as they were all crossbred at an aggressive pace. To ensure that the crossbreeding policy becomes successful the indigenous males breeding animals were castrated so that only the males of exotic breeds will breed with females to ensure a high yielding progeny was the thought. This policy resulted in an economic growth or value for the crossbreds or the exotic breeds which have the characteristics to produce high milk yield, and enabled a creation of



dairy processing industries to make use of the surplus milk production that had been achieved. However this resulted in a loss of economical value for the indigenous cattle breeds that rearing them was not an economically viable option as they would not fetch good returns in the markets, which resulted in a depletion of the population of these breeds and led to a decline of the pastoral communities associated with the rearing and breeding of indigenous cattle.

#### 1.4.3.2.2. Community based conservation of livestock breeds :-

Requirements that would impact rearing of Indigenous Breeds

(a) Stimulation of Niche markets : An awareness needs to be created for a product that can be given only by particular breeds. This is very essential since this would have a direct relation to the market value of the product and due to the product, those particular breeds would be fetching a good economic return. This has been successfully done in Brazil and US, both these countries had sheep breeds that were particular to their region, which produced a good amount of wool for the wool industries, which were a major contributor for the economy of these two nations. When Brazil and US brought the crossbreeding policy, the progeny of the crossbred sheep did not have the ability to produce thick wool and this made the market value for the sheep and the wool to deplete leading to a dent in the economical growth of the countries. Hence both the countries then took an effort to conserve their indigenous livestock breeds by giving importance to the views of the pastoral communities.

(b) Speciality Food Products :- There are certain livestock breeds which have the ability to produce a unique food product. Italy had a cattle breed known as the *Italian Reggiano Cattle* , reared by the pastoral communities. These communities produced parmesan cheese from the milk procured through this cattle which was considered nutritious and the parmesan cheese had a good market value due to its special taste. When the Italian Government had tried to bring in the crossbreeding policy to further enhance the milk productivity of their cattle, the pastoral communities showed resistance and influenced the country on policies to be developed to conserve the *Italian Reggiano Cattle Breed* due to the parmesan cheese market.

Policy and Institutional Support :- There needs to be a policy brought by respective governments of various states in initiating plans to conserve the indigenous breeds of the state. This can be achieved if stakeholders, who are the pastoral communities, farmers , breeders rearing indigenous breeds , experts and organisations working on conservation of indigenous breeds can give their views while drafting the plan . These stakeholders should then provide institutional support to the government like conducting a research on the relevance of

indigenous breeds in the world at present and initiation of farmer friendly schemes such as providing heifers free of cost to farmers to enable the conservation process to reach everyone.. (Rollefson- Kohler , Ilse, 2000) .

However, to ensure a community is involved in the successful conservation of a breed, it is necessary for the state to provide the community with incentives and other types of rewards to encourage them and involve them in drafting of a plan for the conservation of indigenous breeds. The communities should also be given access for grazing in the forests and common grazing lands , which shall enable the community to conserve the indigenous breeds.

In the context of Tamil Nadu, even today there are some pastoral communities engaged in the rearing of indigenous breeds which has been their tradition and livelihoods for several generations. The Pulikulam Cattle are reared together in large herds in a community system of ownership primarily by the Thevar & the Konar Communities. The family members of these communities take turns in taking the cattle for nomadic grazing. This breed can be found in the districts of Madurai, Sivagangai and Ramanathapuram in the state of Tamil Nadu. (Kumarasamy, P. ,et al, 2013)

#### 1.4.3.2.2. Role Of Women In Conservation of Local Breeds :-

Women's Role in the rearing of livestock has been recognised widely across the World. While rearing native or indigenous cattle breeds ,women of the households used to participate in the activities of milking , making value added products such as butter, ghee, etc , but when crossbred cattle emerged in prominence in rural india , the activities of women became restricted as the entire milk was taken by the agencies , which made it impossible for them to make the value added products .

*1.4.3.2.2.1.Kangayam Stud Bulls* :- The mechanisation in agriculture , use of electrical and diesel pumps have reduced the need for draft bullocks in modern times . However there are some who are still passionate about conserving indigenous breeds . In one such case Sundaram Ramasamy and his wife Soundra of kangayam taluk in Tirupur District rear kangayam stud bulls for breeding. Most of the farmers of the region prefer to breed their female cattle with the stud bulls of the ramasamy family. Soundra has been passionate on rearing the bulls , she cares for it as though it was her child. The bulls reciprocate their affection to her that when she gives a whistle, all the bulls come to her. Her passion for the breed has been meeting success as when the calf is born for the cows that have been serviced by the bulls, they have a pure genetically inheritance of the kangayam breed and she has been one of the important breeders in the region

who has played an important role in enhancing the population of the kanagayam cattle which was about to be extinct in a few years due to the alarming reduction in their population level.

*1.4.3.2.2. Vechur Cattle Conservation* :- The vechur cattle is a dwarf cattle breed of Kerala. The movement to conserve this dwarf cattle breed of Kerala began in the late 1990's when they had almost disappeared from the scenario of Kerala. Professor Sosamma Iype started the process of conservation with some of her students and colleagues in the Kerala Agricultural University . They went in search of few surviving cattle of this breed which were left and they had found eight of them .They started with those eight and gradually began to look across the state and started their efforts to conserve them and today Vechur Conservation Trust headed by her has brought the cattle population close to two thousand. Professor Sosamma Iype has done research on the effectiveness of dung and urine of this cattle for agriculture which showed positive results and she has been distributing the vechur cattle free of cost to farmers who are interested in practising Zero Budget Organic Farming , a term used to refer to farming where very low level of input is required to practice farming in a sustainable manner.( Sivasenapathy , Karthikeya & Rollefson - Kohler ,Ilse, 2010)

From these two examples of women playing a role in the conservation of breeds that were on their way to extinction, we can recognise the potential of women in the conservation of local livestock breeds .

## **1.5. Gaps In The Literature**

During the period of my literature study , I had gone through fifteen scholarly articles and I have drafted my literature accordingly which will focus on the details of types of indigenous cattle breeds classified by the National Bureau of Animal Genetic Resources , use of indigenous cattle breeds as draft animals , physical characteristics and traits of these breeds , the context of introduction of crossbred cattle in India , and other factors which contributed to the decline of Indigenous Cattle Breeds such as mechanisation in agriculture and the role of women in the process of livestock rearing .

However my literature does not take into account the following factors such as sports which involve bulls in the state of Tamil Nadu being Jallikattu or Manjuvirattu and Rekla Races. Jallikattu and Manjuvirattu contributes in a way towards the conservation of the Indigenous Breeds as the bulls which are used in the sports are used as the breeding bulls for that particular

region. The Supreme Court had imposed a ban on these sports in May 2014 and the literature does not go into the details of economical benefits of both the crossbred cattle as well as indigenous cattle breeds, the relevance of these cattle breeds in agriculture ( concept of organic / zero budget farming which is booming in Tamil Nadu ) that is still prevalent in some places.

My Dissertation Research aims to cover these gaps through the case study approach in the districts of Madurai and Tirupur in the state of Tamil Nadu through the form of structured interviews with farmers and breeders to know about their perspectives on indigenous cattle breeds and government officials to know about the various policies brought at the central and state government levels with a aim for the conservation of indigenous cattle breeds.

#### **1.6.Research Questions :-**

- 1) How are indigenous cattle breeds conserved in the Districts of Madurai and Tirupur in the state of Tamil Nadu?
- 2) What are the views of the farmer's and breeder's on the indigenous cattle breeds compared to crossbred cattle breeds?
- 3) When did the concept of Kangayam Grass Land assume significance and what are the practices being followed to maintain the grasslands as pastoral grazing field for cattle ?
- 4) Why is the sport of Jallikaatu very significant in the district of Madurai and how does it relate to the conservation of indigenous breeds . ?

#### **1.7.Research Objectives :-**

This dissertation is to Understand the Perspectives of Farmers and Breeders on Conservation of Indigenous Cattle Breeds in the Districts of Madurai and Tirupur in the State of Tamil Nadu. The research objectives of this dissertation

- 1) Aims to understand the views of the farmers and breeders on the indigenous cattle breeds on their respective breeding tracts or areas of origin ( Kangeyam Breed – Tirupur , & Pullikullam Breed – Madurai )
- 2) To analyse the importance or significance of the indigenous cattle with the views of farmers and breeders.
- 3) To capture the views of farmers and breeders on crossbred and exotic cattle breeds.

- 4) To capture the various problems or policies that led to the introduction of crossbreeds in India.

### 1.8.Methodology :-

The dissertation is a qualitative research as the aim of the research is to capture the Perspectives of farmers and breeders on the conservation of indigenous cattle. This qualitative research is based on open ended questions which played a major role in capturing the perspectives of the respondents and bringing them as they are into the research. As part of my research component I conducted research on indigenous cattle breeds in the districts of Madurai and Tirupur in Tamil Nadu. I met a total of fifty one respondents for my research, the composition being as twenty five farmers and one breeder in the district of Tirupur , in the district of Madurai the composition being fifteen farmers, two campaigners of jallikattu and three breeders , two government officials of the Animal Husbandry Department , Government of Tamil Nadu and three experts namely Karthikeya Sivasenapathy , Managing Trustee of Senaapathy Kangayam Cattle Research Foundation , Himakiran Anugula, Secretary ,Senaapathy Kangayam Cattle Research Foundation and Raja Marthandhan , Trustee , Biodiversity Conservation Council of India.

Table 1– Composition and Comparison of Farmers Tirupur & Madurai District

Category	Tirupur District	Madurai District
No. of Farmers	24 Farmers , 1 Breeder	15 Farmers , 2 Breeders
Gender Composition	Men – 22 Woman – 2	Men – 15 Woman -1
Caste / Class Breakup	Gounder / Kongu Vellar – Most Backward Castes (OBC – Tamil Nadu) – 20 Farmers SC Community – 4 Farmers	Naickar / Thevar – Mukkalathur (MBC ) – 12 farmers SC Community -3 farmers
Educational Levels	Above 8 <sup>th</sup> Std – 16  Below 8 <sup>th</sup> Std – 3	Above 8 <sup>th</sup> Std - 4  Below 8 <sup>th</sup> Std - 3

	Degree & Higher Education – 5	Degree & Higher Education – 7
Avg Size of Total Landholding	166 Acres of Cultivable Land & 219 Acres of Korangadu ( Grazing Lands)	128 Acres of Cultivable Land
Type of Farmers	Marginal – 5 Farmers  Small – 5 Farmers  Large – 14 Farmers	Marginal – 5 Farmers  Small – 3 Farmers  Large – 6 Farmers
Ownership of other Livestock	Goats / Sheep – 14 Farmers  Horse – 1 Farmer	Goat / Sheep – 7 Farmers
Average level of Income	Above Rs.2,00,000 per annum	Above Rs.1,00,000 per annum

### 1.8.1. Classification of Farmers :-

The above table explains the composition of the farmers in the districts of Tirupur & Madurai. The farmers have been classified into three broad categories of Marginal, Small & Large according to the size of their landholdings, such that persons holding below five acres of land are classified as marginal farmer, persons holding between five acres to ten acres of land are classified as small farmers and persons holding above 10 acres of land have been classified as Large Farmers.

In the district of Tirupur, large farmers dominate the landscape. Whereas in the district of Madurai there was an equal composition of the small and marginal farmers .number of marginal and large farmers was almost equal.

### 1.8.2. Livestock :-

Table No :1 shows that in Madurai , most of the farmers focused only on the rearing of cattle and have either reduced their other livestock or have given up on them . There are only seven farmers who rear goats , which can linked to the shrinkage of grazing areas in the last few years

which is forcing many farmers to give up rearing of livestock completely whereas in Tirupur , most of the farmers tend to rear a flock of sheep as well , which can be linked to their size of land holdings and the unique concept of private grazing lands known as the Korangadu . Another feature noted in the district of Tiupur was that most farmers had owned horses till the recent years and only recently they had given them up due to the increased cost of maintenance due to the drought in the last few years .They use the horses to ride in the farms and sometimes they go for long distance rides as well.

### **Case Study Approach :-**

Case study is a method of approach under the strategy of enquiry for qualitative research. In this approach the researcher goes in depth to understand the relevant activities, events of individuals and the groups pertaining to the topic they have chosen. A case study is bound by the location and a limited time period (Creswell, 2009, p. 30).

In a case study, the researcher has the advantage of narrowing down to his / her particular topic and asking relevant questions pertaining to their topic and collecting the information for the required data (Creswell, 2009, p. 30).

A case study also tries to particularly focus on research questions of how and why primarily as those type of question makes the participant to give the particular information, policy or problem which had led to its current state (Baxter, 2008).

I had chosen the case study approach as

1. My research would contain questions of how and why.
2. The behaviour of the farmers or breeders did not change due to my research or questionnaire
3. A context was very necessary to understand the perspectives on conservation of indigenous cattle breeds.

I have spent a considerable time of my study in the respective breeding tracts of the breed of that district in both the districts where I have used the structured interview pattern to connect with the farmers and breeders and this has been focused on the context of conservation of indigenous cattle breeds.

.Data Collection Procedure:- I have used the Purposive Interview Method as I have to substantiate my research with the survey undertaken for my study by having one on one interviews with the respondent and being a participant observer of the activities he does during

the time of the interview. The respondents have been chosen through the snowball sampling basis where Karthikeya Sivasenapathy sir gives a few contacts to be contacted and these contacts then help me in reaching a larger number of respondents. Before conducting the personal interviews I would be taking prior appointments a day before the interview and go for the interview at the time of convenience of the respondents.

### **1.9. Field Description :-**

My study has been based in the villages that fall under the Kangayam Taluk and Melur Taluk in the districts of Tirupur and Madurai respectively. I have captured the views of the farmers , breeders of these taluks on the need for conservation of indigenous cattle or the importance of indigenous cattle today.

#### ***1.9.1.Kangayam – Breed of Origin in Tirupur District***

Tirupur District was once part of the Kongu Mandalam Region sharing the territories with Coimbatore , Karur , Salem , Namakkal and Dindigul districts. This region is also known as the breeding tract of *Kangayam* Cattle Breed, which is considered as the mother breed of native cattle breeds in Tamil Nadu . The formation of this breed has been credited to the initiatives of the Pattagar of Palayakottai Sri Rai Bahadur N. Nallathambi Sarkarai Manradiar, who had developed the present *Kangayam* breed with the practice of selective breeding by breeding the female kangayam cattle with the bulls of *Amrita Mahal* and *Ongole* Breeds(Dr . Pattabhiraman, 1958) .

##### ***1.9.1.1.Festivals in Tirupur District:-***

In the western region of Tamil Nadu , which comprises the districts of Coimbatore , Tirupur , Karur , Salem and Erode. During the Pongal Festival and Village Festivals the Rekla races ( Bullock Cart Races ) are held as part of the celebrations and the oxen in these regions are trained very hard from a very young age for these races . The oxen are fed with special diet for the entire year before the festival season kick starts , their diet comprises boiled eggs , fresh vegetables , green fodder , concentrate feeding like cotton seeds , maize , rava mixture .

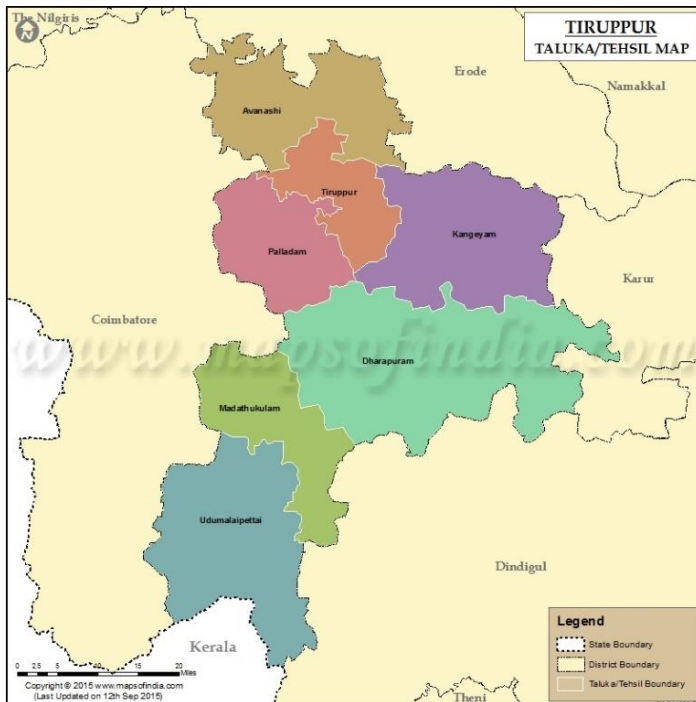
##### ***1.9.1.2Kannapuram Car Festival:-***

Every year during the Tamil month of Chitirai , in the village of Kannapuram there happens to be a car festival for one week for the deity of the temple . During this period, the area around the temple gets converted to a cattle shandy mainly focusing on Kangayam Cattle where



persons interested in rearing the native cattle breeds can come and buy them in whichever age group they want. This festival has been attracting high profile persons towards the rearing of native livestock breeds.

Map 1 - Taluk Map of Tirupur District :-



Sourced From:-[www.mapsofindia.com/maps/tamilnadu/tehsil/tirupur](http://www.mapsofindia.com/maps/tamilnadu/tehsil/tirupur)

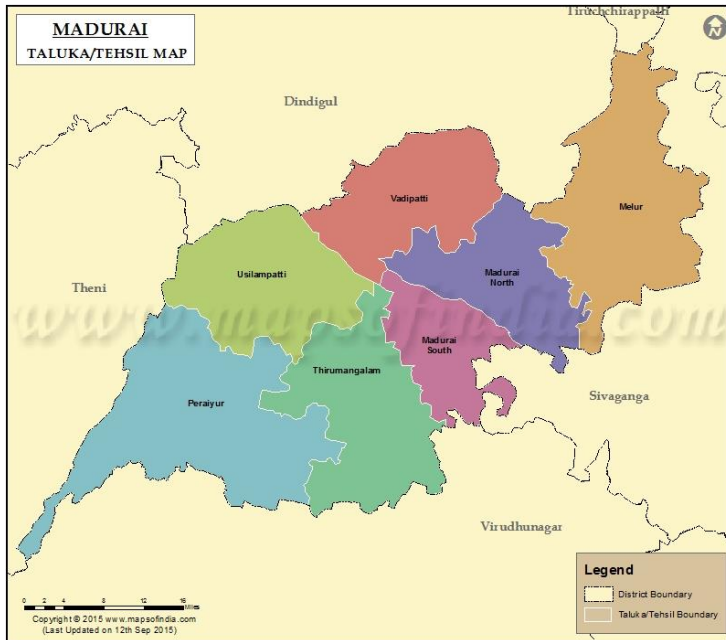
### 1.9.2. Pulikulam Cattle – Breed of Origin in Madurai District:-

Madurai district is located in the south central region of Tamil Nadu and Madurai is a prominent region of Tamil Nadu for the reason of Tamil Literature and for the ancient sport of Jallikattu or Ert Thazhuvuthal (Embracing the Bull). The *Pulikulam* cattle breed is the breed of origin in Madurai district. The Pulikulam Cattle are reared by pastoral communities and these communities earn their livelihoods through the sale of male calves are for ploughing ,transport and for bull baiting sports like Jallikattu and manjuvirattu . The communities engaged in the rearing of livestock , never sell the female animals outside the community and the income earned through the sale of male calves are used for the upkeep of the entire herd. The *Pulikulam* breed got recognised as the 35<sup>th</sup> indigenous cattle breed by the National Bureau for Animal Genetic Resources. (Kumarasamy, P., et al, 2012)

1.9.2.1. Festivals in Madurai District :- In the Month of January , the Pongal Festival is celebrated with great pomp and glamour. In this region, the sport of Jallikattu is an integral part of the Pongal celebrations. Jallikattu is a sport in which the stud bulls are sent to show their

strength and vigour through their participation and the bulls that remain untamed throughout the event are adjudged as the best bull and they are used for breeding the female indigenous cattle of a particular village or region.

Map 2 - Taluk Map of Madurai District



Sourced From:- [www.mapsofindia.com/maps/tamilnadu/tehsil/madurai](http://www.mapsofindia.com/maps/tamilnadu/tehsil/madurai)

### 1.10.Events:-

I, was a non-participant observer in a number of events that are relevant to my research topic. They are listed as below.

Living Lightly Conference, New Delhi :-

As part of my research , I had attended a conference on World Pastoralism Practises & the Path ahead for Pastoralism , held in New Delhi for a period of three days between 8<sup>th</sup> of December – 10<sup>th</sup> of December , 2016 , Met some of the leading researchers in the areas of native livestock . Dr. Ilse Kohler Roffelson, who works extensively on documentation of Bio – Cultural protocol for each livestock breed . In India , she has released a bio cultural protocol for camels , raika sheep and she is currently working on releasing one for the Kangayam Cattle Breed . This conference brought forth a sense of reality about how livestock rearing is a livelihood for a particular community based on a particular breed of livestock that belongs to an particular region.

Condemnation Meeting :- Naam Tamizhalar Katchi & Tamil Nadu Jallikattu Pervai :-

My contact persons in Madurai district , who helped my meeting with the farmers of melur taluk , were active members of a political party of the state , known as Naam Tamizhalar Katchi headed by Director Seeman . Hence on 27<sup>th</sup> December , there was a protest meeting organised by the Tamil Nadu Jallikattu Peravi at Azaganallur , a village famous for official jallikattu events for which Mr.Seeman was the special speaker and I was invited for the same to cover the event to get the views on the campaign for jallikattu and why is it essential for the survival of native cattle breeds.

Save Jallikattu Walkathon :-

On the Morning of 8<sup>th</sup> January , 2017 , a walkathon was planned to be held at Chennai's Marina Beach from 7 AM – 9 AM . Since it was in a metropolitan city like Chennai , I had gone there to cover the views of the people residing in the cities about jallikattu and their knowledge of livestock . It was an event which expected a drawout of 500 people but in the end it turned out to be a people's movement with the participation of over 25,000 youngsters and they were all sent invitations only through social media platforms of Facebook & WhatsApp . This shows the significance of the reach of social media and this same social media platforms were also responsible for organising the jallikattu revolution across the state of Tamil Nadu for a week between 17<sup>th</sup> of January – 23<sup>rd</sup> Of January.

The observations recorded through the documentation of the events would be discussed in the chapters that will follow.

### **1.11. Limitations of the Study:-**

The most important challenge in my field work included the documentation of jallikattu protests. Since I was working closely with livestock experts of the state, I could capture the views on the consequences of the ban imposed on Jallikattu by the Supreme Court of India in may 2014 but I was not able to capture the perspectives of animal rights activists. There were also some other problems faced during the field work such as the demonetisation policy announced by the Prime Minister of India on the evening of 8<sup>th</sup> November 2016, since I was working in the rural fields I could feel the panic of the farmers as this announcement came during the agricultural season and the farmers were not willing to give an appointment for their interviews atleast for three days since the announcement .The last limitation came through in the form of the passing away of the Chief Minister of Tamil Nadu on the night of 5<sup>th</sup> December

2016 and the field work could not be done atleast for about a week as there was a fear of a law and order problem breaking out anytime. These were the limitations I had faced during the period of my field study.

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## CHAPTER 2

### Understanding the views of Farmers And Breeders on Indigenous Cattle Breeds in the Breeding Tracts of Kangayam & Pulikulam Cattle Breeds

The farmers view indigenous or native cattle breeds as something which has existed with them for centuries and that which is strongly associated with the nativity of a particular region and family tradition that has binded them with rearing of native cattle breeds for generations .

#### Box 1 – Cattle as Community Property

Expert Take :- Karthikeya Sivasenapathy , Managing Trustee , Senapathy Kangayam Cattle Research Foundation :-

“Any livestock breed of India will belong to the community of a particular region, by community we refer to the people of the region, and not the caste . A livestock of a region becomes the intellectual property of the community . Ex- Kangayam Cattle belongs to the people of the Kongu Mandalam or the Western Districts of Tamil Nadu and Pulikulam Cattle will belong to the people of the South Central Districts of Tamil Nadu . They have been in existence with us for about 6000 years in the specific regions and any breed has been formed through the interplay of Nature & Humans “

#### 2.1.Views of Farmers And Breeders on Indigenous Cattle in Tirupur District :-

The twenty four farmers who have been taken as the respondents in the Kangayam Taluk of Tirupur District have various narratives of the importance of indigenous cattle breeds. In this around fifteen farmers are engaged in the rearing of both species of cattle , the crossbred or what is known as the *Jersey* , *Holstein Freistein* , etc and the *Kangayam* Cattle which is the native cattle breed of this region and this is also known as the *Naatu Maadu* (Local / Native Cattle ) or the *Kannapuram Maadu* , the latter name comes because of the religious festival of *kannapuram* temple festival that is associated with the cattle shandy every summer which becomes the place of interaction between various farmers and breeders .The Western districts of Tamil Nadu are considered developed in the state owing to the industrialisation that was focused here .The farmers in this region were highly developed and some of them were having high business profiles but still they practice farming and livestock rearing .

Mr.Muthusamy who is 68 year old is a Petrol Bunk owner in the town of Vellakovil responded in Tamil saying, “*Thambi, naama enna thaana sothu sambathithalum, indru valkaiya oru race aga odi konduirukirom. Ellarum nagarathuku poi vella pakkuranga ana kadasila sooru yaaru poduva*” ( Translation in English – Dear Brother, how much ever wealth we have attained, today’s life has become a fast paced race that everyone wants to shift to the cities and lead an urban life , then ultimately where will your rice / food come from ) .

Another farmer & a well known breeder in the region , Mr.Guhan Ram , who is 39 years old and the Managing Director of an export company responded in tamil saying “ *Naan maadu velakurathu, enaku pidicha hobby mattrum en kulandhaigalum manviyum A2 Paal kudichu nalla irukunam. A2 paal naamaloda naatu maadugal mattum thaan tharum , inga naamaluku kanagaym maadu thaan naatu maadu* ( Translation in English – Rearing of cattle and livestock is my hobby since childhood and I am very passionate about them . I am rearing kangayam cattle for its A2 Type of Milk that provides nutritional and health benefit for my children and wife in the long term . Only Indigenous Cattle produce A2 Type of Milk and hence I am rearing the *kangayam* cattle which is the indigenous breed for this region )

Both Mr.Muthusamy and Mr.Guhan Ram are high profile entrepreneurs in the region. However they have a view that tradition should not be taken away at the cost of development and there is a necessity to maintain a proper balance between both. They both believe that they have achieved this development only through doing farming primarily and hence it should never be given up.

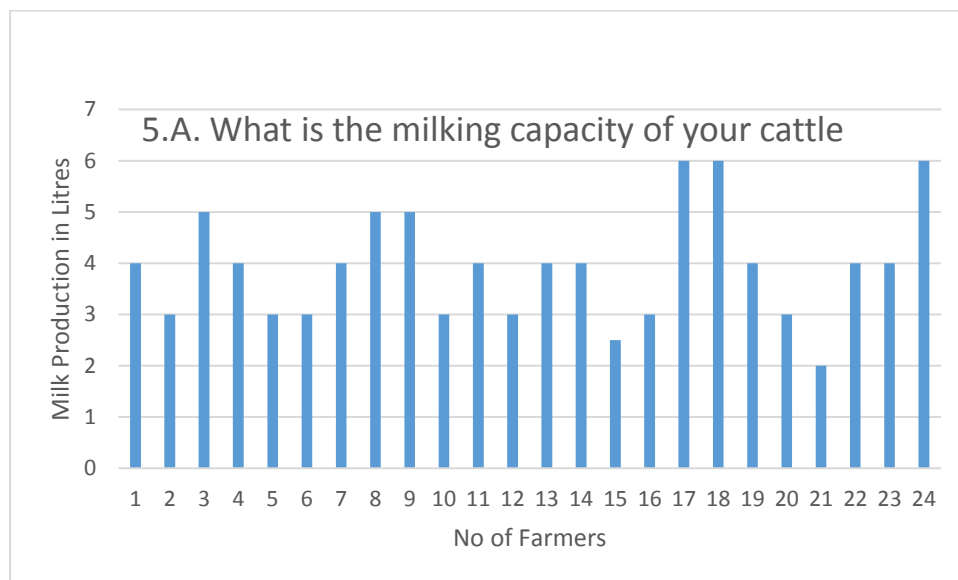
What made them to change their stand and start shifting to the rearing of native cattle breeds?  
– 2010 Cattle Show – The Change maker

Duaraismy & Vivekandhan ,both being excellent generational livestock keepers echo the view jointly that – “*ithukulam mukiya karanum mum pagum tharavandiyathu Karthikeya ayya avargalkku thaan , 2008am varsham avar neenga vellapakkara araichu mayamtha arambithar , appo irundhu college ku lam poi pesuvaru ,apram 2010am varsham avar muttal muraiyaaga cattle show nu onnu avar mayam nadathiyathu , ithai thorandhu vaiku DMK MP Kanimozhi avargal vandhar, ithu tamil sangam festival la oru angam aga vidaikapattathu , ippo 6 varsham aga 15 cattle shows nadanthiruku , tamil nadu arasagam oru thani show varsham varsaham kangayam town la nadathum, mattrum intha araichu mayam erode il varsaham varsahm nadathuvargal , ithula kadaikura prizes thaan farmer’s ku support ah irukkuthu*“(Translation in English – The main reason for the awareness or people shifting back to rearing of native livestock was due to the efforts of Karthikeya Sir, who started the research foundation you are working with today in 2008. Since then, he has been giving lectures at various educational institutions, and in 2010, his foundation organised an event known as Kangayam Cattle Show for the first time and to inaugurate this show , DMK’s MP Kanimozhi had come and this cattle show became a part of the Tamil Sangam festival that was celebrated that year, and now in the last six years atleast 15 cattle shows have been held altogether . Some were organised by the

Government of Tamil Nadu at Kangayam Town every year and some were organised by the foundation every year in Erode District ) .

These cattle shows serve as a moral or social boost to the farmers to shift to the rearing of kangayam cattle breed as there were incentives provided in the form of cash prizes under various categories and this has led to the increase in the number of kangayam cattle in each household of the region and has contributed significantly to the household consumption of A2 Milk or development of market for A2 Milk. I have tried to analyse the views on the cattle show through the lens of the farmers and they feel that only due to the efforts of the Senaapathy Kangayam Cattle Research Foundation, that the population of the kangayam cattle has seen a tremendous increase in the last few years since the organisation was established.

**Figure 1 – Explains the total milk output met through Kangayam Cattle Breed.**



Source – Farmer Survey done by Vishnu for 24 farmers in Kangayam Taluk

The above graph indicates the average milking capacity of the Kangayam cattle . The maximum milk capacity of Kangayam cattle has been recorded as 6 litres per day and the minimum milking capacity was recorded at 3 litres per day based on the interactive sessions with farmers of the Tirupur District.

## 2.2.Views of Farmers And Breeders on Indigenous Cattle in Madurai District :-

In Melur Taluk of Madurai district, there were fifteen farmers as my respondents and their views on indigenous cattle breeds were completely different to the views of farmers of Tirupur district . In Madurai, rearing of indigenous cattle breeds were mainly for draft work and only a few of them were rearing the cattle as part of their family tradition or to protect the nativity of the region. Out of the fifteen farmers, two farmers were professionals from agricultural families and had left their cattle herd for herding to the *kithari's* (local name of community) , a pastoralistic community and five farmers had already shifted to the rearing of crossbred cattle as they viewed crossbred cattle as a source of stable daily income.

The Pulikulam cattle breed is highly known to be associated with the concept of nomadic pastoralism or nomadic herding . They are also known by the local name of Kidaai Maadu(Translation – Penning Cattle ) , this name comes about because the communities who rear them take the cattle to graze in the forests and hills during the crop sowing season after the monsoon, and they return to the plains during the harvest season . Once they return , farmers of that region request the community to pen their cattle at their farm for a period of fifteen days – thirty days. This is a practice primarily done for removing the leftover forage which serves as fodder and rejuvenation of the soil with rich nutrients through the cattle dung after the harvest so that the land will be fertile for the next cropping season. Usually for the practice of cattle penning , the farmer who has asked for them pays an amount proportionate to the number of cattle on a daily basis , ex – at the rate of Re.1 per head of cattle , hence Rs.500 per day if there are 500 cattle in the herd . The *pulikulam* cattle can be found in the districts of Madurai , Sivagangai , Ramanathapuram . (Kumarasamy, P. ,et al, 2013)

The *pulikulam* cattle breed is predominantly reared by pastoralistic community known as the *kithari* who are engaged in cattle herding for few generations and this is their only source of livelihood. However the community is also going through its own difficult times as Senthil Murugan, an engineering graduate and cattle herder says that the “Decline of rainfall during the recent years is forcing a lot of people to move out in search of other livelihood and there has been a huge decline in the area of grazing lands and heavy restrictions from the forest department over the recent years”. Some cattle of this breed are reared in individual households and the reason for this is the sport of Jallikattu which is predominately played in the district of Madurai and the adjoining districts.

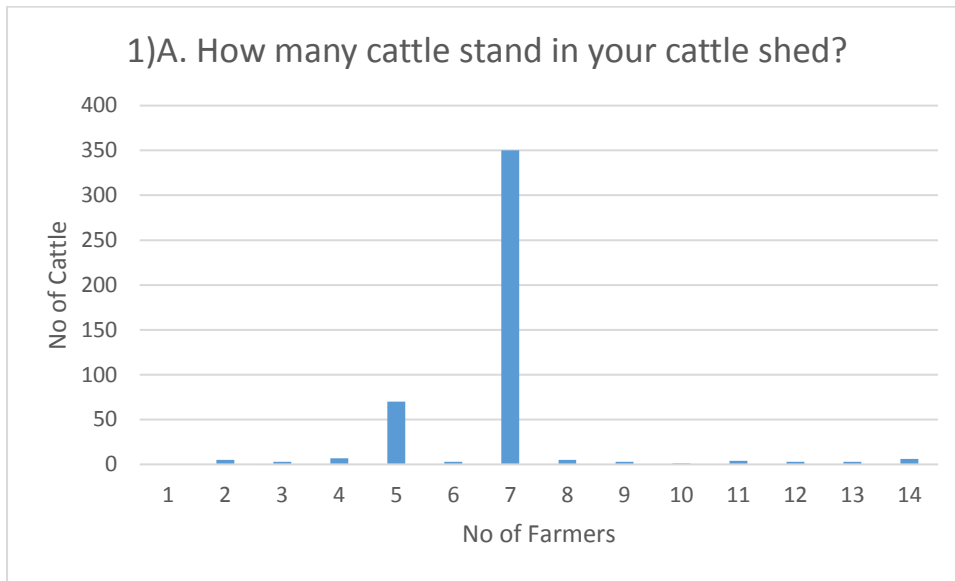


As Pradeep ,42, Lawyer and owner of a cattle herd, when asked about significance of jallikattu being attached to Madurai , responds in Tamil as “*inga innum naatu maadu valakurathuku oru mukiya karanam aga irukkurathu jallikattu mattum than, Madurai district la evalovo villages la, jersey maadugal than irukuthu, ana oru silla areagal palamedu, avaniapuram, azaganallur, melur lam innum naatu maadu than irukuthu*” (The only reason why people are rearing native cattle here is because of jallikattu . If you see most of the villages of Madurai district, jersey cattle have penetrated but in certain areas such as Palamedu , Avaniapuram , Azaganallur ,and Melur , native cattle will be found mostly ) .

When I ask is there any particular reason for this , then Subaiah a 48 year old breeder responds in tamil saying “*engaluku oosi la irundhu vara kanukattigaloda kaalai maatula irundhu vara kudiya kandrugal than pidikum , athu than nalla arokiyamagavum irukuthu, intha kaalai maadu eh jallikattu ku pogum aprom ennodaya madugaluku enamperuka seiyathan vachirken,munnadi veliya irundhu aluga varuvanga, ana ippo namma madugalku mattum than ennathu kaalai maadu ,ithoda kandrugal perusa ana , kaalai maadu mathiruvan*” (“Translation in English – We do not prefer calves that are born through artificial insemination and that the calves born through the bull are preferred by us and those calves are very healthy when compared to those born through artificial insemination . We take our bull for all jallikattu events that are held in a year in the nearby or closely proximate areas. I was rearing the bull mainly for breeding the cows of other farmers but of late I have stopped letting my bull to breed outside and use the bull only for breeding my own cows and when the calves born through this bull become old, I change this bull) .

The *pulikulam* cattle gives a very low capacity of milk, the average being not more than three litres in a day , and most of the farmers use the milk only for their home consumption as they say “*Naatu Maadu Paal romba suvaiagavum sathuagavum irukkum*”(Translation – Milk from Native Cattle is said to be more tasty and good for our health too ) . My analysis from the views of Pradeep and Subaiah would be that the preference for the natural breeding is very high among the farmers of this region and events such as jallikattu help them to identify the best bull of the region to sire the cows of the particular region say .The only economic value generated in rearing *pulikulam* cattle or owning a *pulikulam* cattle herd is the income earned through the sale of male calves in a year and there is no stable source of income through the sale of milk . It is also a strong indication of why events such as jallikattu helps to conserve the indigenous cattle.

**Figure 2 – Analysing the number of Pulikulam Cattle breed in Melur taluk .**



Source – Farmers Survey done by Vishnu for 14 farmers in Melur Taluk

The above graph shows that the community herders of *pulikulam* cattle have reduced in the melur taluk of Madurai District with only three farmers holding onto their cattle herd and it also shows only a few cattle of this breed are reared by farmers in their households , at times even only one cow of the breed to just meet the household’s milk requirements .

**Box 2 – Farmer’s Perspective**

**Facts – Rearing of Pulikulam Cattle**

The farmers of Madurai district reared mainly the male animals of the breed .They were rearing the bulls for the purpose of breeding and jallikattu and ox for the farm work.

The Special trait that is associated with Pulikulam Cattle Breed is that they obey to the commands of only one individual .

The farmers view the indigenous cattle breeds as an integral part of their agricultural practices. There needs to be incentive given to rearers of native cattle breeds as this will boost them up never to shift to the rearing of crossbred cattle.

## CHAPTER – 3

### **Importance or Significance of the Indigenous Cattle Breeds with the views of Farmers and Breeders**

This chapter will talk about the significance of indigenous cattle breeds and why most of the farmers continue to rear them or have shifted back to the rearing of indigenous cattle from crossbred & exotic cattle.

The farmers in Madurai and Tirupur district have differing views on the significance of indigenous cattle breeds. The farmers of Tirupur district have a view that having indigenous cattle will increase access to A2 Milk , which has high nutritional and health value attached with it . The significance the farmers of the Tirupur district have associated with A2 Milk has been described in chapter 1 of the dissertation ,where as farmers in Madurai district view that their primary reason of still holding on to indigenous cattle in few pockets of the district is only for the reason of Jallikattu , Manjuvirattu , Eru Thazhuvuthal ,and Erthu Vidum Thiruvuzha. This chapter will address how the cattle herders, breeders and farmers rearing native livestock feel the difficulties in the recent years due to a ban on Jallikattu enforced by the Supreme Court and the chapter will elaborate on how farmers of both the districts have views on how the ban is affecting their livelihood which is dependent on the sale of male calves.

#### **3.1. What is Jallikattu ?**

Jallikattu is a bull baiting sport practised in the southern and central districts of Tamil Nadu . The sport has different names across different regions of the state. Manjuvirattu is a version in Sivagangai & Ramnathapuram District, Jallikattu or Eru Thaluvahal is a version in Madurai District. Vada Manjuvirattu is a version popular in Trichirapalli District .In these sports a bull is released into an open arena where a person has to tame the bull by embracing the hump and run for a distance of about 15 – 30 meters by holding on to the hump of the bull . If a tamer cannot embrace a bull or run for the particular distance, then the bull is adjudged the winner and if the bull is tamed the tamer is adjudged the winner. The prizes include gold coins , silver coins, bikes, fridges . There are two perspectives towards the whole argument on the ban on Jallikattu .One perspective is from the animal rights activists and the other side of the perspectives is from the livestock keepers point of view . Since I have extensively worked with livestock experts and livestock rearers, this chapter would be with focus on the perspective of livestock rearers.

### **3.2. Perspective of Animal Rights :-**

From 2006 , the sport of Jallikattu and Rekla in Tamil Nadu has been facing legal hurdles and every year during the Pongal Festival ( Harvest Festival of the State) , the people have to await judgements each year on whether the sports would be conducted or not . The case had started in 2006 when a lawyer had filed a petition seeking permission from the district magistrate to conduct rekla races at kovilinjipatti village ,in Madurai Bench of Madras High Court . However the then magistrate Mrs.Banumathy took the case on her own hands and invoked the Prevention of Cruelty to Animals Act,1960 and implemented a ban on Jallikattu and Rekla races citing that cruelty is meted out to the bulls . This case progressed further and reached the Supreme Court of India in 2008. The bench of Justices asked the state to follow certain guidelines to enable the conduct of the sport, prompting the then DMK government pass the Jallikattu Rules and Regulations Act, 2009 that paved the way for conduct of jallikattu with regulations.

#### *3.2.1.Major Legal Hurdle :-*

Since the sport got regulated in 2009 , there were no major hurdles for the sport until 2011 , when the then Union Minister for Environment and Forests Jairam Ramesh added bulls into the list of performing animals , which meant that bulls cannot be trained or exhibited henceforth following which in 2014 , in a video evidence submitted by People for the Ethical Treatment of Animals (PETA) , revealing alcohol being given to some bulls , and chilli powder / lemon being forced on their eyes to agitate them and citing this as a cruelty the Supreme Court of India banned all kinds of sports associated with bulls across the country .

#### *3.2.2. The Argument :-*

During the interactions with livestock experts who have been working on the conservation of indigenous cattle breeds and also fighting the legal battle for revoking the ban on Jallikattu , bring forth a common point of view that “Cattle were domesticated by humans about 8000 years ago and so how can Jairam Ramesh include bulls into the list of performing animals , the other animals in this list being , lions , tigers , monkeys and bears all of which are wild animals. They also bring a point that if there was a cruelty meted out to any particular bull, then the organisations should fine the owner of the bull as they have the list stating the identification number of the bull and the name of the owner instead of seeking a blanket ban on the sport which the experts say would lead to the disappearance of the indigenous cattle breeds of Tamil Nadu (Sivapriyan, 2017).

### **3.3. Tamil Nadu Makkal Movement 2017 – What led to this Movement for Jallikattu**

Recently the world was watching the peaceful revolution that was happening all across the state of Tamil Nadu with the main epicentres being the Azhagnallur Village of Madurai District where the jallikattu supporters assembled for a peaceful march on 16th January and after the march, most of the students who had assembled there wanted some bulls to be released as a ritualistic symbol. But the police resorted to detaining of the students and the news spread about this in social media platforms. This resulted in protests across the state from the next day to demand the release of the detained students and also for the demand to revoke the ban passed by the Supreme Court. This protest saw a large participation of woman, I strongly believe this is the indication of the awareness on A2 Milk being undertaken in the last few years and how Jallikattu helps to thrive A2 Milk by identifying the best bull for breeding the cows to produce the A2 Milk. The Jallikattu Revolution was a result of patience running out from the public as for two years, the harvest festival of the state, Pongal festival was not celebrated due to the ban on Jallikattu events, however this year the protests caught the attention of the entire world. The protest is also coupled with the fact that the Jallikattu campaigners had visited educational institutions across the state for delivering lectures on importance of indigenous cattle towards the environment and participated in numerous reality debate shows of tamil television channels.

Jallikattu revolution acted only as a trigger and within the protests slogans were erupted against cooperate soft drinks and how they are plundering the water resources of the state. Various farmer issues such as the cauvery dispute, drought and farmer suicides were also brought in the discussion in the protests. Many of the media channels and persons from the older generation compared this revolution to the Anti Hindi agitation in 1962 which also saw a large scale of participation from students. The role of social media has become much of appreciation as the protests across the state were mobilised through social media platforms of Whatsapp, Facebook and Twitter through the groups and pages of the respective cities. This also brings in a sense that Tamil Nadu is a state which shall not give up on its culture come what may. The revolution prompted the state government to bring in an ordinance for the conduct of Jallikattu and amended the Prevention of Cruelty to Animal Act, thereby on 23<sup>rd</sup> of January which enabled the conduct of Jallikattu events across the state with strict regulations to be followed. The events which became restricted only to certain pockets of Madurai District in the last decade, were being held across the state now. The protests across the state was conducted in a very peaceful manner for close to a week, except for a few violent incidents reported in

certain districts where the police had lathi charged the protestors on 23<sup>rd</sup> January when the bill was being tabled in the Assembly . (A.Kalaiyaran, 2017)

### 3.4. Context of Livelihood :-

Mrs.Soundaram Ramasamy , a woman livestock keeper and recipient of the breed saviour award for Kangayam Breed , an award constituted by the Union Ministry of Environment and Forest and the National Biodiversity Authority when asked about how has her livelihood been affected by the ban on jallikattu , she responded in tamil saying “*Naan velakura kaalaigalam jallikattu irukumbothu naan sandhai la vitha , rendu kaalai ku rendu lacham varai kidaikum , aanal 2014 la thadai vandhathu la irundhu , eluvathu ayiram la irundhu oru lacham varaikum thaan poguthu , intha kaalaigalailam jallikattuku payanpadathamattangal annal ithula irundhu pirakum kandrukalai anupuvarungal appo antha jallikattu kaalai ku ippo enna vellai ku pogumnu neengala yosinga thambi . Kalaikandrugal ellame ippo karikaga mattum thaan thambi poguthu , apdi pora kandrugal la silla time nalla kandrumpoiguruthu , ithu enna viruthiya kandipa bathikum*”( Translation in English – The bulls I rear fetches me a prize of Two lakhs for two bulls together when I take them to the cattle shandy for sale . However since the ban on jallikattu enforced by the Supreme Court of India in 2014 , the rate for my bulls have reduced drastically that it is fetching me anywhere between Rs.70,000 – Rs.1,00,000 only. Although I do not rear bulls for the purpose of jallikattu and I rear them only for the purpose of breeding , people buy my bulls for those high prices because they will use the calves born through these bulls for all bull baiting events as the bulls I rear have great characteristics, so you can see yourself brother that when my bulls fetch such a high price, what would be the prize of a bulls that is primarily reared for Jallikattu and has won prizes . Most of the male calves are bought enmass in markets and taken to slaughter houses , the problem is that there could be some calves born to highly pedigreed bulls and these calves could be the best bulls for making the next progeny , so when they are gone , it tends to affect the breeding after a few years ) .

Mrs.Soundram Ramasamy presents a view of how the livelihoods of farmers dependent on native livestock are affected by the norms introduced by the ruling establishments and the Judiciary. Jallikattu is seen as a traditional and cultural festival of the state and a sport of bravery which tends to portray male masculinity by most people .However Soundram presents a view that Jallikattu and all other types of bull baiting events. They act as a social incentive for farmers and breeders engaged in the rearing of native cattle as these sports encourage them

towards the upkeeping and maintenance of the male calves and acts as a process of conservation of the native cattle mainly because the bulls that are used here are the ones that are preferred for breeding of the female cattle of the particular regions. Soundram also emphasises that it encourages a good market value for the male calves as without social incentives like Jallikattu , Rekla and Manjuvirattu the farmers may not rear male calves at all as they are no longer preferred even for farm work since tractors have replaced them across the state . The ban is forcing the farmers either to abandon the rearing of native livestock or to sell male calves to traders at low prices who will then transport them to slaughter houses and this shall affect the breeding in a few years as there might be no young stud bull in about five years and the present stud bulls would need to be replaced by then as it may lead to an inbreeding if the old stock is maintained for breeding.

Mr.Senthil Murugan , 26 year old engineering graduate and a member of the pastoral community rearing the *Pulikulam* cattle in Madurai District , when asked about the significance of jallikattu responded in tamil saying “ *Naangalam parambariyama maadu valkuragu , enga kitta irukurra maadu pothuva kidai maadu nu solluvanga . Naangal kidari kandrugali veli alugaluku vikka mattom , kaalai kandrugalai mattum than vippom , varshutthukku oru 20 la irundhu 30 kaalai kandrugal lathu vitha than , enagaluku labam kidaikum . Ana ippo intha jallikattu thadai nalla , jaarum kaalai kandrugali vanga matigurrgal , vaibari ta vitta kaasu romba kami ah kudupan. , Naanga vithal ooru vaiysu kaalai kandru jodi iruvathuayiram rupai ku vippom , jallikattu la mukiyama pulikulam kidaai maadu than use pannuvanga , athu nala intha maadu innathuku than romba pathipu*” (Translation in English – We are rearing this cattle from generations , we call this cattle as *kidai maadu* . Pastoral communities like us never sell the female calves and heifers. We keep them in the herd and sell only the male calves .Only if we sell atleast 20-30 male calves in a year , we can have some profit made and we sell the calves when they are one year old at a price of Rs.20,000 for a pair of male calves . However due to the ban we are not able to sell the male calves for this value at present and the traders who come and buy them, pay us a very meagre amount. The main breed used for Jallikattu is *Pulikulam* and hence due to the ban, this cattle breed will be the most affected ) .

Mr.Senthil Murugan brings a view about livelihoods of pastoral communities, engaged in the rearing of *kidai maadu* and they get their main source of livelihood through the sale of a certain number of male calves in a year. He tries to bring in a view that only because of events such as these will people be ready to buy male calves and take care of their upkeep. He says pastoral communities never sell out the female calves or adult breeding females and they relate it with

a cultural norm that if a community sells the female heifers or breeding females outside the community, then god shall punish them. However this is just a belief and any pastoral community associated with rearing of any livestock breed will never sell the female stock of their herd outside the community, it is because in a few years the old cattle of the herd might perish . Hence through this ritualistic belief they make sure that all female stock is associated only with the community and will replace the old stock of the herd and only if they can sell a certain number of male calves from the herd, can they have an income to support them as the income they get from cattle penning at private farms is only a meagre part .

### **3.5. Is there any politics / class divide in the sport ?**

When I ask this question during my interview with Karthikeya Sivasenapathy Managing Trustee of Senapathy Kangaayam Cattle Research Foundation he responds that, “Yes it could have been practised once upon a time when it was a event where the person who tames the bull would be married to the daughter of the bull’s owner , hence at that point of time the Mukkulathorthevar and the Thevar community did not want someone from the lower sections of the society to marry their daughters ” . He retairtes that now there is no such divide and that he knows persons from all communities who are engaged in the rearing of the jallikattu stud bulls. When I ask him the question of “Why do all the political parties of the state support this issue on a united basis? he responds that “ Political Parties tend to be the representatives of the people , henceforth any party for that matter will support sentiments of the people “ .

We can understand through this context that caste and marriages were associated with these sports in the earlier versions of the sport and hence these sports were described as veeravilayatu or bravery sport which tries to associate with male masculinity and how the ownership of a stud bull was seen as an ideal of supremacy over other communities of a village. However as we developed over time and as the sport itself evolved into different versions , the class divide was gone except in a few areas where even today people from the lower community are never allowed to play in these sports and in these areas the Mukulathorthevar and Thevar communities still play an important role in the rearing of stud bulls and have dominance over other communities in this sport .



### **3.6. Relation of Jallikattu towards Conservation of Indigenous Cattle Breeds :-**

During Interactions with livestock experts Karthikeya Sivasenapathy, Managing Trustee , SKCRF and Himakiran Anugula , Secretary, SKCRF both of whom are working on conservation of native livestock breeds of Tamil Nadu for years share a common view that “Jallikaatu is called as bull taming or bull fighting which is wrong, but the actual name is bull baiting and it is called by different names such as Manjuvirattu , Eruthu Vidum Thiruvuzha , Eru Thaluvuthaal , etc across different regions of the state and they say that in these events the virtility of the bull is tested and the bulls which are not able to get caught by the tamers will be identified as a bull with good virtility and will be sent for breeding” . Both of them also pointed out that this “arena becomes a social place for people from all communities to come together and select a best breeding bull for breeding their cattle and also acts as a market arena as the winning bulls would be getting offers for purchase from prospective breeders immediately after the event”.

From what I have observed during my field interactions is that apart from the arguments of tradition and culture , we need to understand Jallikattu acts as a conservation process as these bulls are used for breeding the cattle of the village , and I should note here that they are used to breed both types of cattle, the native female cattle and the crossbred / exotic female cattle as farmers prefer to have a calf born through the best bulls so that they could have a few cattle in the near future with the pedigreed characteristics of the bull .We can also say that Jallikattu and all other bull baiting events are a practice associated with the process of selective breeding.

## CHAPTER 4

### Views of Farmers and Breeders on Crossbred and Exotic Cattle Breeds

This chapter shall give us a perspective of the farmers and breeders towards crossbred and exotic cattle breeds and the difference of opinion that exists among the farmers regarding this. Before getting into the details it is important for us to know when crossbred cattle was brought into the Indian scenario and why they were brought in :-

In the Early 1970's the Government of India had initiated "Operation Flood" by setting up the National Dairy Development Board (NDDB) which would be heading this program . As part of Operation Flood , a program named the Integrated Cattle Development Programme (ICDP ) was launched by the NDDB , which aimed at crossbreeding of the local indigenous cattle with the semen of exotic breeds in order to produce a progeny which would have an increased milk yield , the trait that comes from the exotic breeds . This was done with a main objective of increasing the milk production of the country so as to meet the demands of milk from the rapidly growing urban population. This programme has been discussed in detail in the next chapter.

#### 4.1. Views of Farmers And Breeders on Crossbred and Exotic Cattle in Tirupur District

During the interactions with the twenty four farmers of this region regarding their views on crossbred / exotic cattle , the farmers have described them as below :-

Mr.Duraisamy . a 68 year old farmer and generational livestock keeper responded in tamil "*Oru nalaiku enaku ippo 80 rupai ovaru maddukum selvaguthu . Enkitta mottam 15 maadugal irukundradhu ,ippo en kitta kalpinam maadu irundhurndhal ,ennaku oru nalaikku 170 rupai la irundhu 200 rupai varaikum selvauairkum ,athu poga anthuku marundhu ,apram oosi podurathuku doctor ah rendu maasathuku oru tharava vara vaikanum ,ovaru vattium avaru varapa 300 la irundhu 500 rupa ovaru maadukum selvavuayirkum ,aana naatu maadu ku entha oru noiyum varathu ,ennatha marundha oosiyo poda doctor kupuda thevaiilla ,aprom ithulathodaiyum mukiyamanathu ena vendral inga irukurra kangayam maadugal thaana namaluku selvangal ,apdi irukuropa namma ethuku veli naadula irundhu vara maada velakanum*" ( Translation in English – Today , I am spending Rs.80 a day per head of cattle. There are a total of 15 cattle in the shed . If I had reared crossbred or exotic cattle now , my daily expense would have been anywhere between Rs.170-Rs.200 per head of cattle easily and , apart from that at regular intervals of two months I would have to give them the required vaccinations and injections for which I have to ask the doctor to come here and I have to spend

anywhere between Rs.300-Rs.500 per head of cattle . However,since the indigenous cattle are highly disease resistant , I don't have to spend anything for regular vaccinations and hence no need to call the doctor and Kangayam Cattle is our traditional wealth , why should we then bring and rear the imported crossbred and exotic cattle ) .

Mr.Duraisamy gives us a view that he prefers to rear indigenous cattle breeds so as to be sustainable in the long run as he doesn't want to incur any medicinal expenses . He doesn't earn an income through the supply of milk from the indigenous cattle. However the milk given to the calves becomes a value added product as after a year, he sells the calves for a good value in the market or through traders to prospective and passionate farmers who rear native livestock . He incurs minimum expenses on daily basis on additional feeds such as wheat dust , groundnut waste ,etc which are consumed by the cattle in a small proportion and Mr. Duraisamy associates the *kangayam* cattle as the traditional wealth bringing in a sense of identity and belongingness.

However some other farmers who are gradually returning back to the rearing of indigenous cattle present a view about how crossbred cattle are providing them a livelihood .

One such farmer is Mr. A.Muthusamy , who is about 65 years old and does farming on a leased land of 3 acres with a method of integrated livestock management (I call it as integrated because in that small proportion of land , he maintains a few cattle , few goats and around 100 country chicken ) responds in Tamil that “ *En Kitta naalu maadu irukutthu , ithulla rendu periya maadum kalapinam paasu thaana , intha rendu kidari kanru la onnu naama maaduku thaana perandhadhu , athu vandu gir ragam nu doctor soldrar , aprom oru kangayam kidari irukutthu , enaku mukiya varumaname paal la irundhu thaana , athunala naan intha kalapinam paasu vachirundha mattume dhaana ennala pilaika mudiyum , athunaal thaana innum kangayam maadu nerya vangikala , enna athula paalu kandrukum nammakum sariya podium , apram naatu maadu onu irundha nallaurkkum nu ellarum sonnanga , athukandi thaana antha kidari ah oru sonthakarangkita irundhu vangittuvandhen*” ( Translation in English - I have four cattle in my shed , the breakup being two milch animals and two heifers , one heifer was a calf of our cow and the doctor says that it is a cross of gir breed and the other heifer is the kangayam breed . I am not shifting completely to the rearing of native breeds unlike most of the others here because I am earning a stable income through the supply of milk and only if I have jersey cattle, I can earn a stable source of income as the kangayam breed , produces hardly 5 litres per day which will be enough only for my household purpose and the calf . However the people of my village told that rearing native breed is always good , so then I thought of rearing one

cow of the native breed and got this kangayam heifer from a relative of mine.) and when I asked him about the expenses he responds in Tamil as “*Naanga motha mothola kalpinam paasu oru iruvathu varshathuku munnadi vangunom , appo perumbalim selvu athuku kidaithu . Anaal ippo oru rendu varshamathan punnaku velai aprom thovudu velai ellam eripochu , analam paravala oru alavukuthau semika varmanam varuthunu solli than pa innum kalpinam paasugal vachirken. Ana ippo maadugala kuruchiten enna thivanathuku romba selva agutha , ippo enaku ella selvum poga varathukku kaila 500 rupa labama varum*” (Translation in English – We had first bought jersey and crossbreed cattle twenty years ago, at that time dairy farming or livestock rearing was not expensive at all. However during the last two years the cost of the additional feed has increased. I continue to rear crossbred cattle, because I get a little income from them, which I save. However, I have reduced the number of cattle I own, due to the constant increase in the cost of fodder and feed. From all of this I get Rs.500 per week in hand after I spend on input cost for fodder and feed ) .

In this context Muthusamy makes his errands through the stable source of income he receives every week after all the expenses and he feels that although there is an expense, there is still a good level of return which he can receive as income. He has slowly started accepting the opinions of people in his surrounding environment by getting an indigenous heifer through their advice and he also believes that if at all any disease or infection occurs to the cattle , he can develop the farm once again using the indigenous cattle that would remain unaffected as they have high rate of disease tolerance. He also views that both breeds need to coexist in a farm because it will promote the agrodiversity of the farm .

We can see here that both Mr. Duraisamy and Mr. Muthusamy are engaged in livestock rearing since a long time and this is their main source of livelihoods. While Duraisamy compares indigenous cattle breeds as better to crossbreed or exotic breeds for the reason of the expenses that needs to be incurred on their medicine, vaccination, fodder and feed where he earns his source of livelihood through the sale of calves every year and views this as sustainable in the long run , whereas Muthusamy contends with a view that yes all though there are expenses involved , he gets a stable source of income , ex- Rs.500 per week after all the expenses and he is contended that if he rears only indigenous cattle like other people of this region he can't earn that stable income of Rs.500 per week as he says that milk from indigenous cattle shall only be enough for his household purpose and the calves .

#### **4.2.Views of Farmers And Breeders on Crossbred And Exotic Cattle in Madurai District**

During the interactions done with about fifteen farmers in Madurai , regarding their views on crossbred and exotic cattle breeds , the farmers respond in the following manner.

Kandivan , a livestock keeper who is about 58 years old , when asked about his views on crossbred or exotic cattle and how much he earns as monthly income , responds in tamil “*Naan oru aanch varshamathan maadu velkuran , edale oru varsham maadu ellathiyum kudututen. Aprom ippo oru oru varshama than thirumbavum maadu valarkurom , pothuva ve kalapinam maadugal naala paal kodukum athu naala namma kum nalla varumanam kidaikum , ana ipo Ennoda tholuvathula motham munnu urupadi irukkuthuga , athulla onnu than ippo paal kudukuthu , mithi rendu kidari kandrugal . Ippo enaku oru litre paal ku iruvathinaal rupa aavin la kodukuran , en maadu oru nalaiku naal litre karakuthunga , apo oru naliaku oru 100 kitta therum , varathuku oru 800 varum thambi , ana varathuku oru thivana mudai vanga 750 rupa selvu aguthu thambi , apo pathukonga thambi enna varumanam varum endru*” (I have been rearing cattle since the last five years and had given up cattle rearing for some period and just before a year , I began to rear cattle again . Usually crossbred cattle are supposed to be good milch animals and tend to give us a stable source of income . However at present I have three crossbred cattle in my shed , two of which are heifers and only one is a milch cow which gives around four litres per day for which Aavin society pays me Rs.24 / litre . So I earn Rs.100 per day and I get Rs.800 in my hand per week , but I spend Rs.750 for the additional feed sack itself , so you can see brother how the stable source of income is no longer available ). and when I ask him why is it that the income levels have gone down he responds in Tamil as “*Ippo konja varushamathan velai vaisaigal ellam eriduchu , meichal nilagal kurunchiduchu , aprom malaiyum kurunchiduchu* ( Translation English – In the recent years , the prices have spiralled up , the number of grazing lands have been reduced and the rainfall has also reduced ) .

The views of kandivan echoes that the rearing of crossbreds or exotic were considered as profitable always and this had brought many persons like him to take up livestock rearing as a full time career about five years back . We can actually see that the drop in the milking capacity and income level is directly related to a variety of external factors such as rainfall , the reduction of grazing lands , reduction in the agricultural yield which results in reduction of forage that would be stored as dry fodder and that the income is just sufficient enough for the expenses on feed and fodder , as all these reasons have forced many farmers to shift to the mode of stallfeeding instead of the conventional grazing method in which cattle were taken to a common grazing place and let to graze the whole day , so my analysis from this would be that a change

of behaviour of the cattle towards this new environment of stallfeeding could be the reason for the reduction in their milking capacity and that after some period the cattle might produce a better milk yield once they get accustomed towards them .

When I ask Kamal , a 24 year old BBA Graduate and who has taken up farming , about his views on crossbred or exotic cattle , he responds in tamil as “ *Kalapinam maadugal paal athigakamaga karukum enbathu unmai thaam,anaal antha maadugalum oyima noipidichiruthu ,aprom antha noila irundhu romab kastapattu kapatha vendiyathaga irukkuthu .Maadugaluku komari noi vandrukku nu news la vanthaala ,makkal romba payapiduvanga , enna intha noi la irundhu maadugala kapathurathu romba seramam ,athumatiri innoru paaka vendiya vishayam enna na kalapinaam maadugal oru 4 – 5 kandrugahay potathu kaprom , antha maate thiruma Sinai pidaikavakuruthu romaba sermo , sinai um nikathu .* “( Translation English – It is true that crossbred cattle produce a higher milk yield , but the crossbred and exotic cattle are prone to diseases and it is very hard to save these cattle from diseases such as *komari noi* ( foot & mouth disease ) especially . If there is an announcement in news that cattle in this region of the state is affected by the disease immediately people begin to panic and give their cattle prior vaccinations . A recent trend in crossbred and exotic cattle is that after their 4<sup>th</sup> or 5<sup>th</sup> calving , they do not come to heat on time or even if they come to heat and get inseminated , the pregnancy is not successful and keeps failing for number of times ) .

Kamal gives a strong view here that it is becoming very difficult to save the cattle of a region from the spread of the foot and mouth disease and also brings a factor that the cattle are not successful in the insemination or pregnancy after the 4<sup>th</sup> or 5<sup>th</sup> calving my analysis is that this has happened primarily due to artificial insemination as we don't even know the characteristics or the traits of the particular bull and without our knowledge , a high level of inbreeding would have taken place as most of the cows of the village are inseminated with the same semen , this factor not only affects a farmer but it affects the livelihoods of the farmers of the region as these cattle would have high rate of being affected by a spreadable disease or infection .

#### **4.3.Experts views on Crossbred And Exotic Cattle :-**

During the process of my research I also happened to meet few experts who have been working on the conservation of native livestock in Tamil Nadu for the last few years . So when asked about his views on crossbred cattle Mr.Raja Marthandan , an MBA Graduate from XLRI Jamshedpur , who has been working on native livestock for eighteen years and an agropastoralist by profession puts his views as “Yes Crossbred cattle tend to produce more

milk but what our government had forgot and has failed to propagate for years is that India has its own milch breeds , all of which are in the North Western states comprising Gujarat , Rajasthan and Punjab , the breeds being *Gir* , *Kankrej* , *Sahiwal* ,*Red Sindhi* ,etc” .

Hence he told about his objective of running a model diary farm at Chennai based on Indigenous Cattle Breeds of North Western India such as *Gir and Kankrej of Gujarat and Sahiwal* of Punjab where his primary emphasis is to prove that Indian Cattle breeds can also provide milk equivalent to their European counterparts and thereby educating the community that the Indian cattle breeds can even survive during the times of spread of the foot & mouth disease or the udder disease as they have a high rate of disease resistance . When I intervened and asked him what about their maintenance , in the sense of their behaviour given their long shaped horns then Mr.Marthandan responds that the *Gir* and *Kankrej* cattle are the most docile and easy animals to be maintained by anyone and responds again that please do not go into conclusions by just looking at the size of their horns .

This chapter brings together the views on crossbred and exotic cattle from different stakeholders in their own perspectives. The common factors that were emphasised in the chapter were about spread of foot and mouth disease in a year ,in which some farmers completely lose their livelihoods due to the death of their cattle and that the crossbred or exotic cattle are something which is not part of a region and another factor that should be taken into account is that amidst the comparison with indigenous cattle . We can't neglect the role played by Operation Flood / White Revolution which boosted the livelihoods for many a farmer.

## CHAPTER 5

### **Various Problems or Policies that led to the Introduction of Crossbreeds in India:-**

This chapter shall focus on the various policies that had led to the introduction of crossbred cattle in the Indian scenario and will suggest some policy interventions that can enhance the conservation of the indigenous cattle breeds. This chapter shall focus on the Indian scenario for bringing the crossbred and exotic cattle breeds, the distribution of the milk production pattern and what needs to be done in order to conserve the indigenous cattle breeds in the coming years.

Indigenous Cattle Breeds were reared primarily for their draft capacity / work capacity and milk was not a primary product for sale at all. The main purpose of rearing few female cattle in the household was to get a male calf through them and use them for farm activities like transportation through use of bullock carts, ploughing of the farm, etc and the dung from these cattle were used as natural manure for the fields, the Green Revolution came along with various mechanisation process and slowly agricultural systems were completely mechanised. (Akila, 2010). Based on my field learnings and analysis I strongly believe that Green Revolution was the first phase which led to the reduction in the number of indigenous cattle, as mechanisation replaced indigenous cattle completely from their work such as Motor sets were installed in the well, where previously a pair of ox were used to draw the water out of the well, Tractors replaced them from use of bullock carts and ploughing and when the ox became idle as their work was completely replaced with mechanisation, the farmers started to give up the rearing of indigenous cattle and the rural economy which was dependent on the trade of indigenous cattle, primarily the trade of ox slowly shifted to focus on crossbred and exotic cows.

However the introduction of crossbred cattle in the Indian scenario came only during the 1970's through what is known as the "operation flood" or White Revolution and this shows that although Green Revolution which began in early 1960's resulted in the reduction of indigenous cattle, there is a huge time space between Green Revolution and White Revolution.

#### **5.1.The Mission of Operation Flood :-**

When I asked the question of what was the aim or mission of operation flood to Mr.Karthikeya Sivasenapathy, Managing Trustee of Senaapathy Kangayam Cattle Research Foundation and a former nominated member in the livestock committee of the Planning Commission of India during the interview session, responded as "The Government of India



had set up the National Dairy Development Board to increase the milk production by trying to increase the milk yield of the cattle through a program known as the Integrated Cattle Development Programme (ICDP) which aimed at crossbreeding the indigenous or the local female cattle with semen of exotic European cattle breeds in an aim to increase the milk yield of the next progeny, the traits of which are transferred from the European breeds” .

“The aim of Operation Flood was to enhance the milk production from the rural areas so as to meet the increasing demands for milk from the rapidly growing urban population and a major emphasis was given on crossbreeding rather than a complete shift to exotic breeds as they would not be suitable for our climatic conditions and that the crossbreeds will have the characteristics of the local cattle as well which would make it adaptable for our climatic conditions, and the Government of India imported few exotic European breeds which were sent to hill stations across the country and a farm was setup in the hill station of Ooty in Tamil Nadu to maintain these breeds. However they died very soon and the Government then had to resort to slowly start the crossbreeding from the local indigenous cattle in the hills before they were bred with the local indigenous cattle in the plains”.

Operation Flood was initiated to meet the increasing demands for milk that came from the rapidly growing urban population and the government had decided to import the exotic European cattle breeds such as Jersey and Swiss Brown. However when they had kept them for a period of initial observation at hill stations of the country where the temperature would be close to European climatic conditions so as to understand how they will be adapting to the new environment. But as these cattle breeds couldn't even survive in the cool climatic conditions prevalent in the hill stations. Hence a plan was made to gradually crossbreed the Indian Zebu Cattle or the Bos Indicus Cattle with the semen of Exotic Male Bos Taurus Cattle, so that the next progeny would have the characteristic of both the cattle and this would make them suitable for the climatic conditions over here and as well as their milk capacity would be slightly increased. When the next progeny that has been developed through crossbreeding gets bred with the Bos Taurus cattle, then the next generation would have an even more increased milking capacity and in about three generations, the progeny developed would be an exotic breed.

## 5.2. Breakup of Milk Production Pattern

When I ask the question of how much of milk production is met through crossbred and exotic cattle to Mr. Karthikeya Sivasenapathy, Managing Trustee of Senaapathy Kangayam Cattle Research Foundation he responds that “ Even today after about 40 years of the white revolution , the breakup of the milk distribution is such that only 30 % of the milk production is met through the crossbred and exotic cattle , 40 % of the milk production of the nation is met through buffaloes and the remaining 30 % is met through the indigenous cattle” .

So I believe that the notion of India’s milk production had increased to such high levels making India to be the World’s largest milk producer after the white revolution cannot be true as only in the states of Tamil Nadu , Punjab , Haryana , the number of Indigenous Cattle and the Breeds of Indigenous Cattle have gone down “ . Tamil Nadu is a state which had aggressively promoted the ICDP of the NDDB and ranks as the highest milk producing state of India and being a person from Tamil Nadu . I have a strong belief that over 93 % of the cattle in the state are complete exotic breeds at present and in every village I can see that about 97 % of the cattle are crossbreds and exotic and hardly about 5 % are indigenous cattle , and that too in some places would be the male indigenous cattle such as ox and some breeding stud bulls .

## 5.3. Policy Interventions Needed :-

The Government of India had launched a mission to protect the remaining indigenous cattle breeds in June 2014, known as the *Rashtriya Gokul Mission* where the Government has emphasised on creating two cattle research stations , one each in Andhra Pradesh and Madhya Pradesh which would aim in conservation of the indigenous cattle breeds . The research station at Andhra Pradesh would focus exclusively on breeds of South India such as the *Hallikar* , *Amrita Mahal* , *Kangayam* , *Pulikulam* , *Ongole* , *Umblacherry* , most of which are the Mysore cattle or the draft cattle and the draft breeds such as *Punganur* , *Vechur* , *Kasargode* and *Kanchi* . The research station at Madhya Pradesh shall focus on breeds from North Western states such as *Gir* , *Kankrej* , *Red Sindhi* , *Sahiwal* , *Tharparkar* , all of which are milch breeds and breeds from Central states such as *Deoni* , *Rathi* , *Khillari* . Both the research stations aims to enhance the breeds through selective breeding and maintenance of the best stock. One of the major aim of this policy is to upgrade the several non descriptive indigenous cattle breeds by breeding them with milch breeds such as *Gir* , *kankrej* , *Sahiwal* and *Tharparkar* so as to enhance their milking capacity and due to this the farmer might get an enhancement of his livelihood as well.

(Government of India - Ministry of Agriculture : Department of Animal Husbandry , Diaring and Fisheries )

Although this might seem as a good move by the Government in enhancing the conservation of indigenous breeds , I believe that since this is a method of ex situ conservation where the cattle are taken away from their own breeding tracts and maintained in a different climatic condition along with various other breeds and since this method has been one which has been tried by many governments including the Government of Tamil Nadu which aimed to conserve the Kangayam and Red Sindhi Breeds in the Hosur District Livestock Farm , however soon the emphasis changed to improve the milking capacity of the kangayam breed and make the breed as a dual purpose breed and this emphasis led to a complete failure of the entire farm with the pedigreed and best cattle of both breeds gone in a few years . I believe that instead of setting up a centralised cattle stations like these , the government should divide the funds and disperse them to the states and ask the respective state governments to set up a cattle research station / cattle centre at the breeding tract of a particular breed and for this the government could partner with likeminded organisations and likeminded individuals and conserve the breeds at the respective breeding tracts . An emphasis should be given to promote the rearing of native cattle among the farmers of that region , the native cattle rearing should also be aggressively promoted by the Agricultural Universities which have played a role in enhancing the livelihoods of farmers by training them in dairy farming , a similar kind of training could be given on native livestock based diary and farming and an awareness created on the benefits of native cattle over the crossbred and exotic cattle .

During an interaction with Dr.Kumaravelu , a professor in Tamil Nadu Veterinary and Animal Sciences University , he emphasised that the Government of Tamil Nadu in collaboration with TANUVAS, has established a Cattle Research Station at Anthiyur of Erode District exclusively for the *Bargur* cattle breed in it's own breeding tract and the aim of this centre is to produce 100 good quality calves through selective breeding every year and give the heifers free of cost to the farmers of this region ,thereby playing a direct role in promotion of the breed as well as encouraging rearing of native cattle . The understanding that we could get from the idea is that such an initiative will be sustainable in the long run and shall also increase the population of the breed and the livelihoods of farmers would be enhanced as the native cattle requires a very minimum level of fodder and additional feed , apart from that they are heat tolerant which is much needed for today's climatic conditions and they have a high rate of disease resistance.

## CHAPTER 6– POLICY PRESCRIPTIONS

My dissertation research has been focused on understanding the perspectives of various stakeholders ( farmers , breeders , government officials , livestock experts ) on the conservation of indigenous cattle breeds in Madurai and Tirupur districts in Tamil Nadu . In today's fast paced world, there is an increasing need to have a balance between tradition and development , the indigenous cattle is something which has been part of the biodiversity wealth in the rural households .Each state or region have their own indigenous cattle breeds and these cattle breeds become a part of the nativity or part of the ecosystem of that particular region . Based on the field learnings with the stakeholders of both the districts I would like to conclude with few facts on the relevance or significance of indigenous cattle breeds.

### **6.1..Zero Budget Natural Farming :-**

There is a booming concept of organic farming , where the main emphasis laid is to reduce the dependence on chemical fertilisers and pesticides as these tend to have an negative effect on the crops which we consume as our food . There are various types of organic farming and the zero budget natural farming or the native livestock based farming is the most important . Here an emphasis is given for conservation of the indigenous / native cattle breeds of each state and the farmer is encouraged to use the dung and urine from the cattle as a natural manure in the form of *Panchagavya* (a mixture of dung , urine , curd , ghee and few fruits ) , *jeeva amirtham* ( a mixture of dung , urine, jaggery),vermicomposting method , in which dung and fodder waste are mixed together in a tank to or just using dried dung . It is advised to practice this type of farming based on native livestock because there is a higher percentage of nitrogen in the dung of native cattle , which is beneficial for soil enrichment . This method has been propagated by Padmashri Subash Palekar of Maharashtra. If the Union Government and the respective state governments can lay an emphasis or give an importance to this method of farming , then eventually the farmers shall start shifting back to the rearing of indigenous cattle breeds , which will give a boost to conserve the indigenous cattle breeds present today .

### **6.2. Health Aspect – Promotion of A2 Milk :-**

The experts I have worked with view that the government needs to promote A2 Type of Milk as this is the milk produced from our indigenous cattle breeds . This milk is considered to be very healthy and nutritional . The farmers argue that people in Tirupur District , have started to demand milk produced only by the *kangayam* cattle and they are even ready to pay a price of Rs.100 / litre as they want to be healthy . In order to increase the milk yield of certain

indigenous breeds , the government can upgrade the local indigenous cattle by crossing them with breeds from north western India such as *Gir , Kankrej ,Sahiwal ,and Tharparkar* , which are high milk producers and in this way it can result in more population having access to A2 Milk .

A provision could be enacted in the National banks , for providing loans to farmers or persons interested in setting up of dairy farms based on indigenous breeds . This would also serve as a promotion of social entrepreneurship as if a role model dairy farm based on indigenous cattle breeds can be established , as the maintenance expenses spent on the cattle of this farm would be very minimal ,then the farmers of that region would start shifting to indigenous breeds soon

### **6.3. Regulate Bio Cultural Sports –**

Tamil Nadu had recently witnessed a revolution led by the youth of the state demanding the conduct of Jallikattu , Manjuvirattu , Eruthu Vidum Thiruvizha and Rekla Races which were banned by the Supreme Court of India in 2014. All these sports are associated with the native or indigenous cattle of the state due to which the Government of Tamil Nadu had to pass an amendment to the Prevention of Cruelty to Animals Act,1960. Similarly every state during their harvest festival , have sports associated with bulls . All these sports are banned by the Supreme Court in 2014 citing the Prevention of Cruelty to Animal Act, 1960 . From the learnings from the field I had learnt that all these sports were strongly associated with the practice of selective breeding to determine the best bull and many depend on these sports for their livelihoods, so my analysis would be that every state should have a regulation in place to conduct these sports so that there wouldn't be any aspect of cruelty meted out to the animals involved . Some parties bring a fact here that the lower most castes are never allowed to play in this sport , but since this revolution turned out to bring a sense of sub nationalism there is hope that these parameters will soon be gone as this evolution brought people from various backgrounds together so my analysis would be that the notion of Jallikattu being a sport involving caste supremacy would be gone completely very soon .

### **6.4. What Steps the Governments need to do for Conservation of Indigenous Cattle**

#### **Breeds :-**

The Government of India and the various state governments should have an in situ conservation model , where the aim would be to establish a cattle research station for a particular cattle breed in its own breeding tract in collaboration with the agricultural and veterinary universities , like minded organisations who are working in this arena instead of an

ex situ conservation model . An ex situ conservation model is when a cattle breed is removed from their own breeding tract and relocated to another state or region along with various other cattle breeds. This might be successful in the initial years , however after a certain period of time , the emphasis in these ex situ model institutions would be to crossbred the various breeds and this might result in a loss of the best breeds that were brought to the research station . The various governments should also provide incentives for farmers who are continuing to rear indigenous cattle breeds and thereby, contributing in the conservation of a state's precious livestock resources .

In some states , the forest departments have placed restrictions on the entry of pastoral communities into the forests for grazing their cattle citing the reason of low green cover . Little do they realise that cattle grazing actually leads to the density and thickness of the forests as when the cattle grazes a few shrubs , after the digestion, some seeds fall back to the ground as part of the dung and this results in the growth of more shrubs , the other reason for not allowing these communities to graze into the forests is believed to be due to the increased emphasis laid on monoculture plantations which bring revenue to the state which is sustainable only for a short term .

The government needs to involve the pastoral communities as a stakeholder when certain policies are made regarding access to the forests and while establishing an in situ model based cattle research station as the cattle the communities own would be the most accustomed cattle to that particular region.

## CHAPTER 7 – CONCLUSION

This qualitative research aims to get the perceptions of the farmers and breeders towards the indigenous cattle. Cattle has been an important livestock resource since the time they were first domesticated by humans and Cattle play an important role in the functioning of the rural economy. This paper tries to bring out the significance attached with indigenous cattle of a particular region, in this case the paper aimed to bring out the views of farmers and breeders of Tirupur and Madurai districts about the significance and what is the need for indigenous cattle to be conserved and both had differing views with each other.

Indigenous Cattle has been part of the ecosystem of a particular geographical location. Each region of each state of India had their own indigenous cattle breeds, the breed of a region would have some distinct features than the breed of the neighbouring district. Ex- from what I had observed in the field the *pulikulam* cattle has a slight resemblance to *kangayam* cattle, however what makes them distinct is that they have long legs and they look lean , and this can be a natural physical attribute for them as they walk for long distances and graze in the forests and hills for most of the period unlike *kangayam* cattle which are taken for grazing for a few hours and brought back to the shed . The world pastoralism conference which I had attended in Delhi also gives me a view here that *Pulikulam* cattle are associated with nomadic pastoral and *kangayam* cattle are associated with the concept of sedantry pastoralism.

The entry of crossbred cattle and exotic cattle in the Indian scenario had enhanced the livelihoods of many farmers. However this paper has brought out why and what needs to be done to conserve indigenous cattle breeds in terms of environmental ecosystem, agrodiversity of a farm, the survival in times of disease outbreaks and this research has also covered the recent jallikattu revolution of Tamil Nadu that the world was watching in awe recently .

## **APPENDIX 1 – CONSENT FORM**

### **Understanding Perspectives on Conservation of Indigenous Cattle Breeds in the Districts of Madurai and Tirupur in Tamil Nadu**

#### **Consent for Interview**

Vanakkam, My name is Vishnu Karthik . I am pursuing my Master’s in Natural Resources and Governance from Tata Institute of Social Sciences, Hyderabad . I am conducting a study about “Understanding the perspectives on conservation of indigenous cattle breeds in Madurai and Tirupur district”. The information gathered in this interview will help me analyse farmer’s / breeder’s / government officials views on conserving the indigenous cattle . Therefore I would like to ask you a few questions about indigenous cattle breeds. The interview will be for just an hour or so. The answers collected from you would be confidential and will not be shared with anyone except my supervisor. Your participation is voluntary and any question if irrelevant according to you please let me know as I can go to the next question . You can stop the interview at your convenience.

If you have any questions regarding this study please feel free to ask me.

Signature of Interviewee \_\_\_\_\_

Date \_\_\_\_\_

Signature of Interviewer \_\_\_\_\_

Name of Interviewer :

R.M. Vishnu Karthik

M.A. Natural Resources & Governance

Tata Institute of Social Science ,Hyderabad



## APPENDIX 2 :- Questionnaire for farmers of Madurai District

Basic Questions / Background Details :-

1. Name :-
2. Age :-
3. Gender –
4. Education :-
5. Main Occupation :-
6. Size of Landholding :-
7. Crops:-
8. Size and Number of Fodder Crops :-
9. Income from the Farm :-
10. Income from Cattle in a Year:-
11. Any Other Livestock :-

### Research Question 1 :-

How are Indigenous Cattle Breeds Conserved in the districts of Madurai & Tirupur ?

*Sub Questions :-*

- 1) How many cattle stand in your cattle shed ? And what is the breakup ratio in the cattle shed ?
- 2) Why have you preferred to maintain Indigenous Cattle Breeds ?
- 3) What are characteristics that needs to be taken care of while purchasing cows or draft animals?
- 4) Is the cattle of your shed a purebred Indigenous or does it have some ratio of mixture with crossbreds or has been crossed with another indigenous breed ?
- 5) What is the milking capacity of your cattle , age of the cattle and how many calves have been delivered ?
- 6) Do You Use the Cow Dung as a manure for your fields ? Has it been effective? .
- 7) Do you use the Milk only for household or do you pour the milk to Aavin or Private Companies ?

**Research Question 2 :-**

What are the views of farmers and breeders on the Indigenous cattle breeds compared to crossbred cattle breeds .

*Sub Questions :-*

- 1) Maintenance cost involved in the rearing of crossbreds vs rearing of indigenous cattle?
- 2) Comparison of the fodder requirements and the quantity of fodder?
- 3) Will the quantity of fodder be proportionate to the milking capacity of the cow?
- 4) Why do you prefer indigenous cattle compared to the exotic cattle?
- 5) How do you cope with livestock rearing during drought ?

**Research Question 3 :-**

Why is the sport of Jallikattu very significant in Madurai & does it relate to the conservation of indigenous breeds ?

*Sub Questions :-*

- 1) How do you see the Interim Ban on the sport?
- 2) How has the ban on the sport affected your livelihoods?
- 3) The number of bulls in your cattle shed and their breeds?
- 4) Maintenance cost incurred on each bull ?
- 5) The time period required in training of a bull ?
- 6) If the ban on the sport is not lifted, what will it lead to and how will the breeding be affected?

### APPENDIX 3 – Questionnaire for Farmers in Tirupur District

Basic Questions / Background Details :-

1. Name :-
2. Age :-
3. Gender –
4. Education :-
5. Main Occupation :-
6. Size of Landholding :-
7. Crops:-
8. Size and Number of Fodder Crops :-
9. Income from the Farm :-
10. Income from Cattle in a Year :-
11. Any Other Livestock :-

#### Research Question 1 :-

How are Indigenous Cattle Breeds Conserved in the districts of Madurai & Tirupur ?

*Sub Questions :-*

- 1) How many cattle stand in your cattle shed ? And what is the breakup ratio in the cattle shed ?
- 2) Why have you preferred to maintain Indigenous Cattle Breeds ?
- 3) What are characteristics that needs to be taken care of while purchasing cows or draft animals?
- 4) Is the cattle of your shed a purebred Indigenous or does it have some ratio of mixture with crossbreds or has been crossed with another indigenous breed ?
- 5) What is the milking capacity of your cattle , age of the cattle & how many calves have been delivered ?
- 8) Do You Use the Cow Dung as a manure for your fields ? Has it been effective? .
- 9) Do you use the Milk only for household or do you pour the milk to Aavin or Private Companies ?

**Research Question 2 :-**

What are the views of farmers and breeders on the Indigenous cattle breeds compared to crossbred cattle breeds .

*Sub Questions :-*

- 1) Maintenance cost involved in the rearing of crossbreds vs rearing of indigenous cattle .
- 2) Comparison of the fodder requirements and the quantity of fodder ?
- 3) Will the quantity of fodder be proportionate to the milking capacity of the cow?

**Research Question 3 :-**

When did the concept of Kangayam Grass Land assume significance & what are the practices being followed to maintain the grasslands as pastural grazing fields for cattle .

*Sub Questions :-*

- 1) Area Under Cultivation & Area maintained as pastural grazing fields ?
- 2) The carrying capacity of the pastural grazing field ?
- 3) Time Period for rotational conversion of the fields ?
- 4) Significance of Korangadu ?
- 5) Management of Korangadu ?

## APPENDIX 4 - QUESTIONNAIRE FOR BREEDERS

### Basic Questions / Background Details

1. Name
2. Age
3. Gender
4. Main Occupation :-
5. Number of Bulls Owned
6. Number of Total Cattle
7. Income from Services of each Bull in a year .
8. Other Livestock owned
9. Size of Landholding
10. Crops

### Research Question 1 :-

How are Indigenous Cattle Breeds Conserved in the districts of Madurai & Tirupur ?

#### *Sub Questions :-*

- 1) Selection Practices followed for the selection of Indigenous Breeding Bulls ? .
- 2) How do you see yourself helping in the process of conservation of indigenous breeds .
- 3) How much do you earn through the services of the bull ?
- 4) Cost of Maintenance of the bull ?

### Research Question 2 :-

What are the views of farmers & breeders on the Indigenous cattle breeds compared to crossbred cattle breeds ?

#### *Sub Questions :-*

- 1) Maintenance cost involved in the rearing of crossbreds vs rearing of indigenous cattle .
- 2) Comparison of the fodder requirements and the quantity of fodder ?
- 3) Will the quantity of fodder be proportionate to the milking capacity of the cow .

### **Research Question 3 :-**

Why is the sport of Jallikattu very significant in Madurai & does it relate to the conservation of indigenous breeds ?

*Sub Questions :-*

- 1) How do you see the Interim Ban on the sport .
- 2) How has the ban on the sport affected your livelihoods .
- 3) The number of bulls in your cattle shed and their breeds ?
- 4) Maintenance cost incurred on each bull ?
- 5) The time period required in training of a bull ?
- 6) If the ban on the sport is not lifted , what will it lead to & how will the breeding be affected .

## APPENDIX 5- QUESTIONNAIRE FOR EXPERTS

### Basic Questions / Back ground Details :-

1. Name
2. Age :-
3. Gender :-
4. Years of Experience :-
5. Position :-.

### Research Question 1 :-

How are Indigenous Cattle Breeds Conserved in the districts of Madurai & Tirupur ?

### Sub Questions :-

- 1) Policies framed for ensuring conservation of indigenous cattle breeds by the Union Government of India ?  
.
- 2) Policies framed by the state government of Tamil Nadu for conservation of indigenous cattle breeds?  
.
- 3) How is the state ensuring that the Indigenous Breeds such as Kangayam , Umblacherry , Pulikulam , Bargur ,Malai Maadu and other non descript breeds are very well maintained in the farms established for this purpose?
- 4) Which method of conservation does the state lay the emphasise on and which has seen success ? In - situ Conservation or Ex – Situ Conservation ?
- 5) Selection Practices followed for the selection of Indigenous Breeding Bulls ? .
- 6) How do you see yourself helping in the process of conservation of indigenous breeds?
- 7) How much do you earn through the services of the bull ?
- 8) Cost of Maintenance of the bull?
- 9) Total Livestock Population in the district of Madurai and in the district of Tirupur?  
Can you please give us the details of the breakup in the ratio of cattle & buffaloes?
- 10) Can you please let me know the speciality and unique characteristics of the Kangayam Cattle Breed ,and why it is a much sought after breed ?

## **Research Question 2 :-**

When did the concept of Kangayam Grass Land assume significance & what are the practices being followed to maintain the grasslands as pastoral grazing fields for cattle .

*Sub Questions :-*

- 1) Documented History of Kangayam Grass Lands ?
- 2) Significance of the Grass land ?
- 3) How does it contribute to the maintenance of the overall ecosystem or environment of that particular region ?
- 4) Governmental Policies or efforts aimed in the conservation of the kangayam grass land?
- 5) Government Incentives or rewards given to the farmers who preserve the Korangadu (Kangayam Grass Land ) ?

## **Research Question 3:-**

Why is the sport of Jallikattu very significant in Madurai & does it relate to the conservation of indigenous breeds ?

*Sub Questions :-*

- 1) History of the Sport?
- 2) Rules & Regulations of the sports .- TN Jallikaatu Rules & Regulations Act 2009
- 3) The Guidelines by the Supreme Court in 2011 .
- 4) The reasons behind the judgement by the Supreme Court putting an interim ban on the sport ?
- 5) Significance of the Bull in the Sport .
- 6) Is there any class divide in this sport ?
- 7) Politics behind the sports ? Why do all the parties support this on a united basis ?
- 8) Is there any documented history to prove that this sport was prevalent even from the times of Indus Civilisation?
- 9) How has the ban affected the livelihoods of people living in the rural areas of Madurai, which forms the Jallikattu Belt ?
- 10) If the ban on the sport is not lifted , what will it lead to and how will the breeding be affected ?



**Research Question 4 :-**

What are the key challenges faced by the farmers and breeders involved in rearing of indigenous cattle breeds ?

Sub Questions :-

1. The Most Important Challenge ?
2. How to raise awareness or change the mindsets of the people to shift from the rearing of crossbred cattle to indigenous cattle once again ?
3. Do the farmers or breeders who are helping in the conservation process take efforts to make their children aware of the importance of the indigenous breeds and thereby help in taking the process to the next generation ? .

**Research Question 5 :-**

Role played by traditional communities in the rearing and conservation of indigenous cattle breeds ?

Sub Questions :

1. Name a few communities and the cattle breeds associated with them from Tamil Nadu who are involved in rearing of indigenous cattle breeds as a tradition ?
2. How the rearing of indigenous cattle breeds enhance the livelihoods of the people from the community ?
3. Documented History of the time period from when the communities were rearing the indigenous cattle ?

## APPENDIX 6 - QUESTIONNAIRE FOR GOVERNMENT OFFICIALS

### Basic Questions / Back ground Details :-

1. Name :-
2. Age :-
3. Gender :-
4. Years of Experience :-
5. Position :-

### Research Question 1 :-

How are Indigenous Cattle Breeds Conserved in the districts of Madurai & Tirupur ?

### Sub Questions :-

- 1) Policies framed for ensuring conservation of indigenous cattle breeds at the central government level ?
- 2) Policies framed by the state government of Tamil Nadu for conservation of indigenous cattle breeds ?
- 3) Fund Allocations for conserving the indigenous cattle breeds?
- 4) How is the state ensuring that the Indigenous Breeds such as Kangayam , Umblacherry , Pulikulam , Bargur ,Malai Maadu and other non descript breeds are very well maintained in the farms established for this purpose ?
- 5) Which method of conservation does the state lay the emphasise on and which has seen success ? In - situ Conservation or Ex – Situ Conservation?
- 6) Total Livestock Population in the district of Madurai and in the district of Tirupur ? Can you please give us the details of the breakup in the ratio of cattle & buffaloes , and at what rate has the crossbred cattle increased over the years & at what rate has the Indigenous cattle breeds seen a decrease over the years in Madurai District and Tirupur District .
- 7) Can you please let me know the speciality and unique characteristics of the Kangayam Cattle Breed ,and why it is a much sought after breed ?

## **Research Question 2 :-**

When did the concept of Kangayam Grass Land assume significance & what are the practices being followed to maintain the grasslands as pastoral grazing fields for cattle .

*Sub Questions :-*

- 1) Documented History of Kangayam Grass Lands ?
- 2) Significance of the Grass land ?
- 3) How does it contribute in the maintenance of the overall ecosystem or environment of that particular region ?
- 4) Governmental Policies or efforts aimed in the conservation of the kangayam grass land ?
- 5) Government Incentives or rewards given to the farmer's who preserve the Korangadu (Kangayam Grass Land ) ?

## **Research Question 3:-**

Why is the sport of Jallikattu very significant in Madurai & does it relate to the conservation of indigenous breeds ?

*Sub Questions :-*

- 1) History of the Sport ?
- 2) Rules & Regulations of the sports .- TN Jallikaatu Rules & Regulations Act 2009
- 3) The Guidelines by the Supreme Court in 2011 .
  - 1) The reasons behind the judgement by the Supreme Court putting a interim ban on the sport?
  - 2) Significance of the Bull in the Sport ?
  - 3) Is there any class divide in this sport ?
  - 4) Politics behind the sports ? Why do all the parties support this on a united basis ?
  - 5) Is there any documented history to prove that this sport was prevalent even from the times of Indus Civilisation ?

## **APPENDIX 7–Non Participatory Questionnaire for Jallikaatu Campaigners**

Madurai – Campaigns for the ban on Jallikattu to be revoked before the upcoming pongal season

- 1) What is the significance of Jallikaatu towards the conservation process of indigenous cattle breeds ?
- 2) Income earned through the sale of jallikaatu bull .
- 3) What happens to the bulls if they lose in the sports ?
- 4) Do you allow the bulls to breed with crossbred cattle as well or allow them to breed only with purebred indigenous cattle?

## **APPENDIX 8–Non Participatory Questionnaire for Markets**

1. Significance of the markets towards the conservation of the indigenous cattle breeds?
2. Do these markets attract prospective and passionate live stock rearers from other parts of Tamil Nadu and neighbouring states like Kerala , Andhra Pradesh , Karnataka ,etc ?
3. The income earned through sale of a bull / cow and a calf / female heifers and male calves ?
4. How has the ban on the sports events like jallikattu and rekla affected the sale of bulls and male calves?

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