

# **Report of the Fact Finding Committee on Amrit Mahal Kaval, Challakere, Chitradurga District, Karnataka**



Submitted to

**National Green Tribunal-South Zone  
Chennai**

**July 2013**

**National Green Tribunal - South Zone, Chennai**

**Report of the Fact Finding Committee on  
Amrit Mahal Kaval, Challakere, Chitradurga  
District, Karnataka**

**Dr. S. Ravichandra Reddy  
(Chairman)**

**Dr. K. V. Anantha Raman  
(Member)**

**July 2013**

**Report of the Fact Finding Committee on  
Amrit Mahal Kaval, Challakere,  
Chitradurga District, Karnataka**

**Submitted to**

**National Green Tribunal – South Zone  
Chennai**

**On**

**26<sup>th</sup> July 2013**

**Dr. K. V. Anantha Raman  
(Member)**

**Dr. S. Ravichandra Reddy  
(Chairman)**

## Contents

<b>Sl. No.</b>	<b>Title</b>	<b>Page No.</b>
1.	Introduction	1
2.	Terms of Reference	3
3.	Visit to Amrit Mahal Kaval and examination of the claims of petitioner	63
4.	Interaction with local population/stakeholders	65
5.	Observation of Fact Finding Committee	72
6.	Literature Referred	78

## Introduction

National Green Tribunal – South Zone, Chennai in response to litigation pertaining to Amrit Mahal Kaval grasslands at Challakere, Chitradurga District, Karnataka constituted a Two member Fact Finding Committee consisting of Prof. S. Ravichandra Reddy (Chairman) and Dr. K.V. Anantha Raman (Member) to assist the Tribunal. The Committee was required to carry out the study as per the Terms of Reference given by the Honourable Tribunal and submit the report to the Tribunal. The Tribunal had directed the Chief Secretary, Government of Karnataka to extend the required administrative and other support to the Fact Finding Committee members to complete the report.

After receipt of the appointment order from the Hon'ble Tribunal, Fact Finding Committee members met the Chief Secretary, Government of Karnataka and sought assistance and support of administration to initiate the study and complete the report. Shri. K S Sai Baba, Secretary, Department of Forest, Ecology and Environment, Government of Karnataka was authorized to coordinate the meetings and visits of the committee.

As Karnataka State Assembly Elections were scheduled for 5<sup>th</sup> May, 2013, the committee initiated its work from 7<sup>th</sup> May 2013. Schedule of work carried out by committee is given below:

### Work Schedule of Fact Finding Committee

Date	Details
24 <sup>th</sup> April 2013	Meeting with the Chief Secretary to Government of Karnataka
7 <sup>th</sup> May 2013	Visit to Amrit Mahal Kaval, Challakere – Inspection of Land allotted to DRDO, BARC, ISRO, IISc, KSSIDC and Sagitaur Ventures India Pvt. Ltd.
8 <sup>th</sup> to 15 <sup>th</sup> May 2013	Interactive meeting with officials of Animal Husbandry and Veterinary Services, Forest, Ecology and Environment, Karnataka State Pollution Control Board, Karnataka Biodiversity Board, Karnataka State Remote Sensing and Application Centre, DRDO, BARC, ISRO, IISc, KSSIDC and

	Sagitaur Ventures India Pvt. Ltd. – For procuring information with regard to terms of reference of NGT.
16 <sup>th</sup> May 2013	Visit to DC office Chitradurga – Interaction with heads of various Departments pertaining to Amrit Mahal Kaval land. - For procuring information with regard to terms of reference of NGT.
18 <sup>th</sup> May 2013	Interactive meeting with Petitioners of the case.
23 <sup>rd</sup> May 2013	As per the request of the petitioner, spot visit to Amrit Mahal Kaval land was conducted to examine the issues raised by the petitioners.
24 <sup>th</sup> and 25 <sup>th</sup> May 2013	Interactive meeting with people of villages around Amrit Mahal Kaval: People of 35 Villages held at 4 Gram Panchayats.
13 <sup>th</sup> June 2013	Interactive meeting with DRDO, BARC, ISRO, IISc, KSSIDC and Sagitaur Ventures India Pvt. Ltd. – to obtain remarks on issues raised by the villagers.
29 <sup>th</sup> June 2013	Meeting with Chief Secretary, Government of Karnataka – To discuss about the future plans of Government in regard to Amrit Mahal Kaval, Challakere.

Committee members have made a detailed physical examination of the Amrit Mahal Kaval lands allotted to various organizations looked into their present developmental activities and examined the issues of concern in the Kaval lands indicated by the Petitioners. The Committee also perused the relevant documents produced by Departments associated with Amrit Mahal Kaval and other Departments of the Government of Karnataka, beneficiaries of land and the petitioners. Further, the committee interacted with the people/stake holders of villages located around Amrit Mahal Kaval, obtained information on their issues of concern and examined the representations given by them.

After gathering the facts and required information for the Terms of Reference, the Committee has prepared a detailed report for the perusal of National Green Tribunal (SZ), Chennai.

## Terms of Reference

### 1. Historical information in respect of the Amrit Mahal Kaval and Cattle:

#### History of Amrit Mahal Kaval:

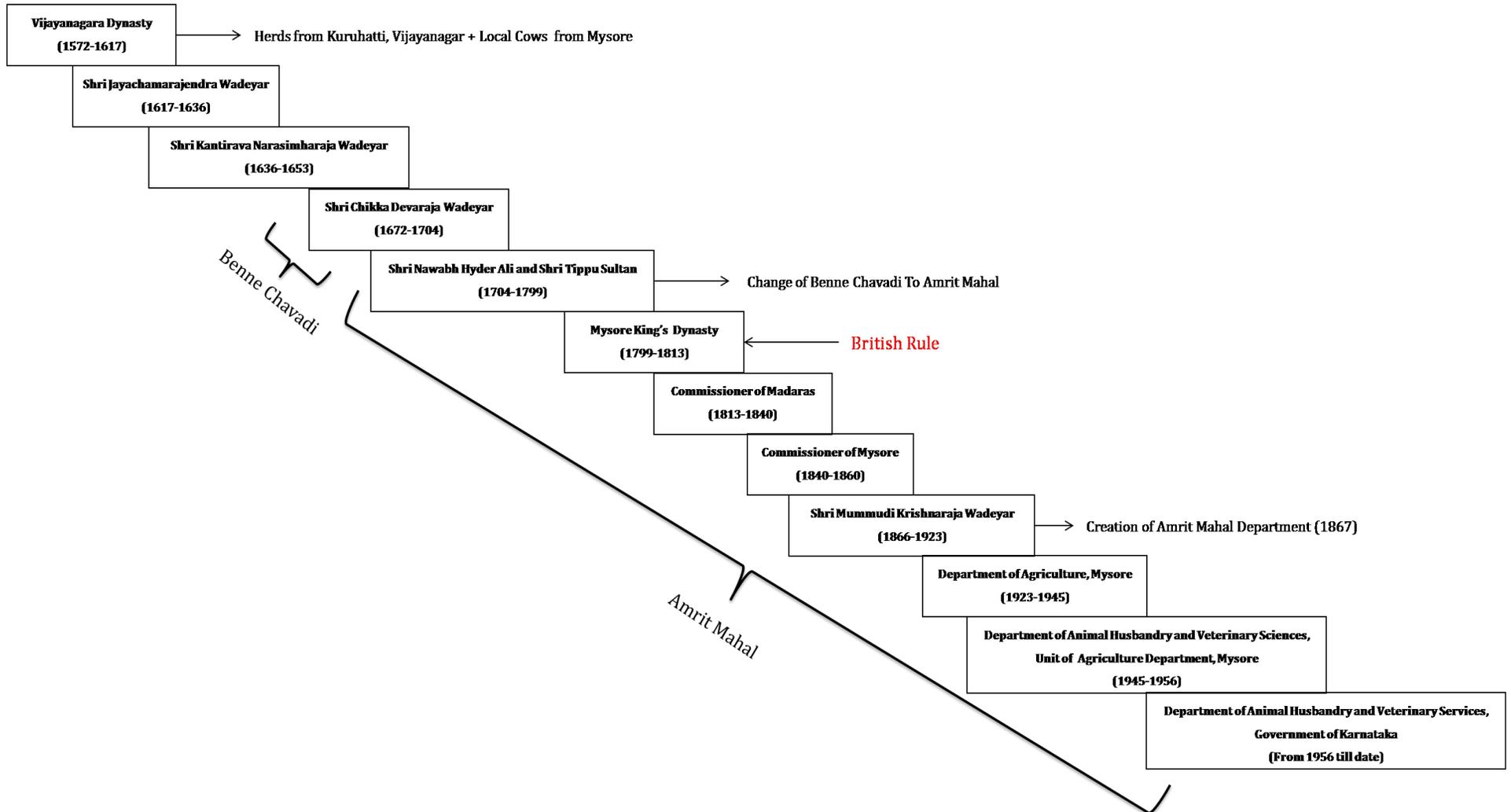
The erstwhile rulers of Mysore State Shri Jayachamaraja Wodeyar VI (1617-1637), Shri Raja Wodeyar II (1637-1638), Shri Narasaraja Wodeyar I (Ranadheera Kanteerava) (1638-1653) and Shri. Dodda Devaraja Wodeyar (1654-1672) reserved large grasslands available in different parts of Mysore State, for grazing by the herds of cattle comprising the local varieties and those brought from Vijayanagar Empire. Such lands were called “Amrit Mahal Kaval” (Kaval=Pasture land). Amrit Mahal Kavals are located in places like hillocks, slopes of hills and catchment area of various tanks and in areas of limited rainfall so that ecology and biodiversity are maintained (Figure 1).

**Figure 1: Amrit Mahal Kaval land in Challakere Taluk**



Such reserved grasslands were 240 in number and their total area was 4,13,529 acres. After the dynasty of Wodeyars, Nawab Hyder Ali, to his existing stock of 60,000 cattle, added cattle brought from the newly conquered regions (Figure 2). Subsequently, his son, Tippu Sultan utilized vast Kavals for grazing and training the selected breed of cattle from the herds for using them during wars for pulling canons. He changed the name from “Benne Chavadi” (= Herd of Cattle; given by the erstwhile ruler Shri Chikka Devaraja Wodeyar) to “Amrit Mahal” and brought “Hukamnama” or administrative rules for the first time.

**Figure 1: Chronological Ownership and Maintenance of Amrit Mahal Kaval**



After the 4<sup>th</sup> Anglo-Mysore War (1798-1799) between the Kingdom of Mysore (Tippu Sultan) and British East India Company, these kavals came under the jurisdiction of British rule. Captain Harway, the Commissioner of Madras was appointed in 1813, to look after these kavals. However, in 1840 it was transferred to the Commissioner of Mysore State. With the permission of Government of India, Madras Government renamed this Amrit Mahal as Amrit Mahal Department in 1867. Sri Mammudi Krishna Raja Wodeyar re-established Amrit Mahal breed of cattle (5,935 in numbers) and utilized the Kavals for grazing. Majority of Kavals were utilized from various parts of erstwhile Mysore State.

In the year 1915-16, Government ordered the District Officer and Superintendent of Amrit Mahal farm to jointly conduct the survey for giving land to local farmers for Agriculture in each district. After survey, out of 3,95,062 acres, 69,007 acres of Amrit Mahal Kaval was given to farmers as *darakasth* land. In 1918, Government ordered the transfer of 1,24,903.35 acres of land to revenue department. These Kavals were transferred to the Director of Agriculture Department in 1923. The Department of Animal Husbandry and Veterinary Services started functioning independently from 1945. Amrit Mahal Wing (Amrit Mahal breed of Cattle and Kavals) was separated from Department of Agriculture and transferred to Department of Animal Husbandry and Veterinary Services in Mysore State. These Kavals were exclusively utilized for grazing by the cattle maintained by the Department. During 1956, out of 1,65,000 acres of Kaval lands, a total of 92,801 acres of land in the entire state were taken back for distributing them to landless agriculturists and other developmental works.

At Present, Department of Animal Husbandry and Veterinary services claims possession of 65,925.36 acres (27,468.9 ha) of Amrit Mahal Kaval lands in 62 locations in 6 districts - Chikkamagaluru, Chitradurga, Hassan, Tumkur, Mandya and Davanagere and the land area varies from Kaval to Kaval. The cattle were divided into 30 herds each containing from 200 to 700 head of cattle, which were allowed to graze in every Kaval. In 1982, the Kaval area was reduced to 54,000 acre and in 1996 it further came down to 30,000 acres. Nearly 45.58% of the landmass has disappeared due to different pressures. With the help of

Department of Forest, around 15.60% of the land is protected through afforestation, leaving only 23.92% of land for grazing and fodder development.

According to the seasons of the year, Kavals are divided into hot weather, wet weather and cold weather Kavals. Hot weather kavals are generally the beds of tanks in which grass springs up during hot month and in which there are trees for affording shade to the cattle during heat waves. These are very valuable Kavals and are reserved solely for Government Cattle. Cold and wet weather Kavals are those which during those seasons have plenty of grass and water, but during hot weather dry up and are little useful for the department.

Each Kaval land was divided into Tax Levied Kaval and Juli Kaval. In Tax levied Kavals farmers were permitted to allow their cattle to graze for a fixed time on payment of a specified tax amount. Juli Kavals were exclusively meant for grazing by Amrit Mahal cattle maintained by Government. Tax levied Kaval was generally around the Juli Kaval.

Kavals, for centuries have kept the natural vegetation without disturbance. Existence of grass land fauna like wolf, black bucks, fox etc. in these Kavals have been observed from time to time. Till date, as per records and practice, the Kavals have come under the jurisdiction of Animal Husbandry and Veterinary Services for their maintenance and protection. Thus, they have never been under the jurisdiction of Department of Forest either for maintenance of the Kaval or for the protection of the wildlife as per the Wildlife Act, 1972.

#### **Maintenance of Kaval land:**

Kaval lands were basically meant for grazing by Amrit Mahal breed of Cattle owned by Maharajas of Mysore. This practice was continued by the Government. Kavalagaras were appointed for watch and ward of these Kaval lands. While 113 of them were working in 37 out of 59 villages, there was no watch and ward for 24,919.50 acres (45 per cent) of Kaval lands in the remaining 22 villages. According to the conditions prescribed (February 2008) by the Government for appointment of Kavalagaras, each Kavalagara was to be appointed for every 400 acres of land and was to be allotted two acres to make a living by growing crops

other than commercial crops. Every Kavalagara was to be engaged in fodder production, besides maintenance of the farms. However, it was seen that the distribution of the Kaval lands among these Kavalagaras in 37 villages was uneven and as a result, the extent of land entrusted to a Kavalagara ranged from 9.08 acres in Chikkathekkalpatti village to 1,907.28 acres in Hirekere village. As the department failed to implement Government guidelines, 45 per cent of the Kaval land had no watch and ward. It was also observed that encroachment had taken place even in villages where Kavalagaras were appointed, indicating ineffective watch and ward arrangements and ineffective monitoring by the department.

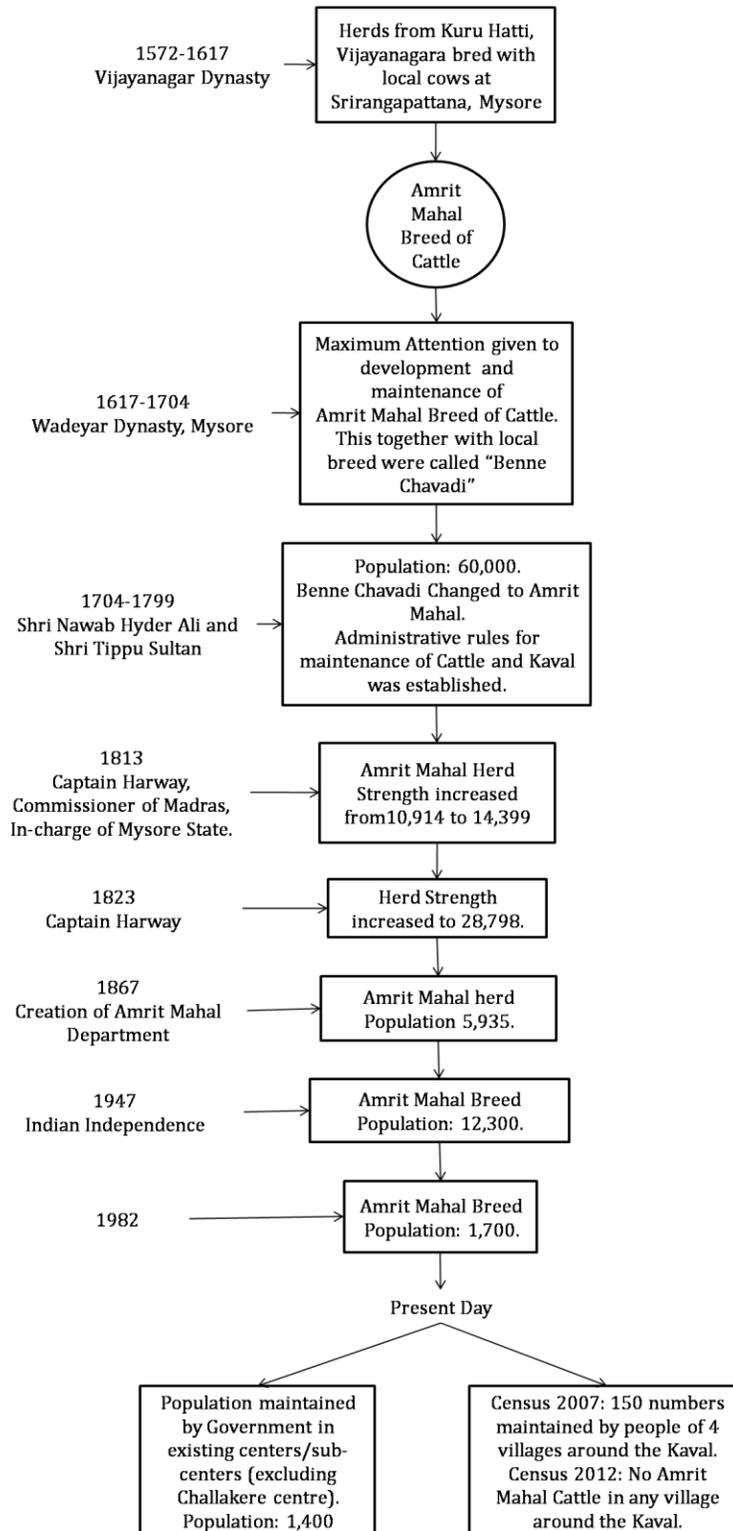
The land which was not utilized by Government Amrit Mahal cattle were used for grazing by the local cattle after paying a nominal fee. This amount was used as salary for Kavalagaras. Over the years, the strength of Amrit Mahal breed of cattle decreased and as conditions in the Kaval Areas of Challakere became non-productive due to repeated failure of monsoon and subsequent drought, the strength of Amrit Mahal breed of cattle further decreased. The Department of Animal Husbandry and Veterinary Services shifted these cattle to Ajjampura (Tarikere Taluk, Chikkamagaluru District), where original breed of Amrit Mahal are maintained. Since, Challakere area is basically a sheep rearing place, the Department of Animal Husbandry and Veterinary Services established a large scale sheep breeding farm at Amrit Mahal Kaval lands (Khudapura, Varavu and Ullarti) in 1970 to meet the demands of the farmers for supply of Rams (Male Sheep). Under the Australian Aid, 8000 sheep were maintained. Later on, after the establishment of Karnataka Sheep Development Board, these farms along with sheep breeding activities were temporarily handed over to Karnataka Sheep Development Board for sheep and goat development and were later converted into Karnataka Sheep and Wool Development Corporation which is presently, functioning under the said name. Over the years due to repeated failure of monsoon and depletion of underground water, the herd strength got reduced and also there was lack of sufficient funds for expansion of activity of the farms.

## History of Amrit Mahal Cattle

The history of Amrit Mahal breed of cattle is parallel to the history of Amrit Mahal Kaval (Figure 3). During the 16<sup>th</sup> century, Vijayanagar Empire Ambassador (1572-1600) at Srirangapattana, Mysore, for his administrative security and convenience selected best breeds from '*Karu Hatti*' of Vijayanagar, brought them to Srirangapattana and mixed them with the then existed local varieties of Mysore. The successive rulers of the Wadeyar family Shri Jayachamaraja Wadeyar VI (1617-1637), Shri Raja Wadeyar II (1637-1638), Shri Narasaraja Wadeyar I (Ranadheera Kanteerava) (1638-1653) and Shri. Dodda Devaraja Wadeyar (1654-1672) maintained this stock. During 1672-1704, the ruler Sri Chikka Devaraja Wadeyar named this herd of cattle as "*Benne Chavadi*". Further, he also established a department for these cattle maintenance and designated it as "Amrit Mahal" (Milk Department). For purpose of identification, each cattle of *Benne Chavadi* was marked with the special symbol "Dhe" (ಢ) and based on their use classified as agriculture, breeding and transportation. The bullocks were utilized for the movement of army equipment and weapons.

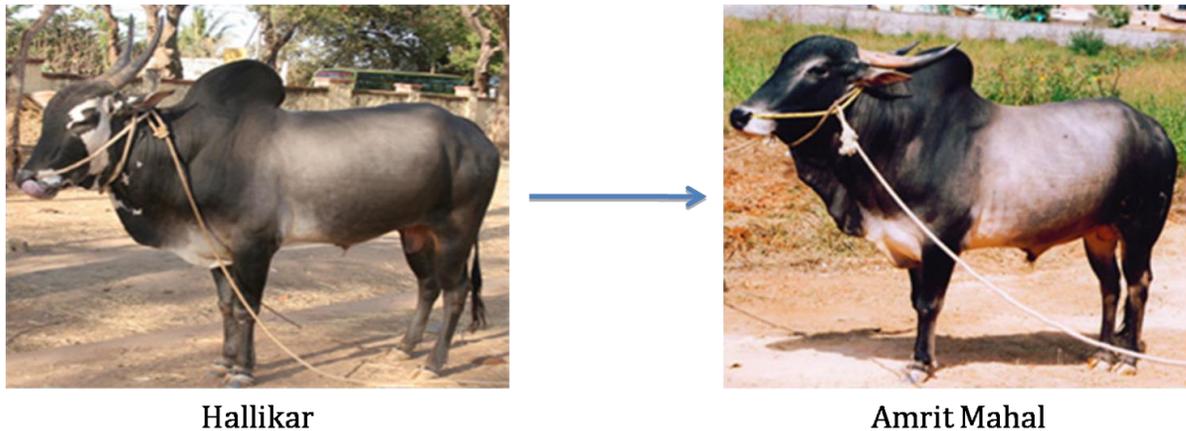
During the rule of Nawab Hyder Ali (1704), he added more stocks into the stock of 60,000 (Figure 3). The new stocks were basically from the areas like Chitradurga, Tarikere and Tiruchinapally which were conquered by him. It appears that he seems to have introduced small Brahmani bulls noted for endurance and fast trotting powers from Trichy. After Nawab Hyder Ali, his son Tippu Sultan conquered Hagalwadi (Tumkur District) from the Palegaras, acquired all their cattle and added them to his existing herd of cattle. He changed the herd's name from "Benne Chavadi" to "Amrit Mahal". Amrit Mahal Cattle establishment originally comprised of three distinct varieties Hallikar, Hagalwadi and Chitaldroog. It seems that these three varieties were maintained separately from each other. For administrative purposes, he rejuvenated Amrit Mahal Department and once a year carried out the census of Amrit Mahal Cattle.

**Figure 3: Chronology of the Population of Amrit Mahal Cattle**



During the 4<sup>th</sup> Anglo-Mysore War (1798-1799) between the Kingdom of Mysore (Tippu Sultan) and British East India Company, Srirangapattana was conquered by British. They had taken over the maintenance of the cattle owned by Tippu Sultan. After 13 years of British rule, on certain conditions of receiving a known number of Amrit Mahal cattle from the government, the Amrit Mahal Department was handed over to the administration of Mysore. To look after the administration of this department, the Commissioner of Madras, Captain Harway (1813) was appointed. In 1840, the administration was transferred to Commissioner of Mysore. However, due to reasons of economy, in 1860, the British Commissioner, Sir Khouls Travallian, split the herd and sold it to Egypt Pasha who took them to his country. In 1866, Shri. Mammadi Krishnaraja Wadeyar of Mysore, by his selective process, re-established Amrit Mahal herd. Thus, the Hallikar and closely related types formed the foundation cattle from which Amrit Mahal breed was developed.

**Figure 4: Photograph of Hallikar (*Bosindicus*) and Amrit Mahal (*Bos sp.*) breed of cattle**



**Hallikar**

**Amrit Mahal**

However, the purity of the original breed could not be maintained. These cattle, numbering 4,000 and 100 bulls were taken over by Madras Government in 1870 and were sold back to Mysore Maharaja in 1882 for a sum of Rupees 2,25,000. The Maharaja of Mysore, maintained these cows and bulls with training depot at Hunsur. In 1920, Amrit Mahal Department was transferred to Director, Agriculture Department. In 1945, Animal Husbandry and Veterinary Services were established as an independent body. The administration of Amrit Mahal Department was separated from Agriculture Department and transferred to Directorate, Animal Husbandry and Veterinary Services, Mysore. The

Directorate opened branches at Ajjampura, Hebbala, Hesaragatta, Koodige, Kuriguppe, Munirabadh, Bankapura and Tooguru for the scientific research, development and improvement of Amrit Mahal Breed. In 1956, the Department of Animal Husbandry and veterinary Services, Mysore was renamed as Department of Animal Husbandry and Veterinary Services, Government of Karnataka. These Amrit Mahal Kaval animals were maintained by protecting them in accordance with the climatic changes in these Kavals with recording of calves born. They were documented by putting the identification marks and there were regular enumeration of these cattle every year about the birth, death and recording of other details. These details were reported to the government.

Amrit Mahal breed of cattle were basically wild in their appearance and required large land area for grazing. Hence, these cattle were maintained in open grasslands located in different parts of Mysore. Such grass lands were designated as Amrit Mahal Kavals. Amrit Mahal Cattle were taken from one Kaval to another for rotational and seasonal grazing. During Nawab Hyder Ali and Tippu Sultan's period these cattle were used in wars for transportation of cannons and other ancillaries. However, after rapid urbanization and movement of heavy vehicles on roads, the movement of Amrit Mahal animals on foot was prevented.

During the rule of Maharajas of Mysore, the Amrit Mahal breed of cattle has played an important role in the development and protection of the Kingdom of Mysore. It appears the kings used to personally visit the farm and take stock of the health and growth of these cattle. During that tenure, lands were reserved in 9 districts of Mysore for exclusive grazing by these cattle. The decline started from 1945. This has been attributed to improper management and non-availability of enough fodder. As a result, the quality of the breed started deteriorating and as the Kavalagaras who were supposed to take care of the kavals and prevent other cattle entering the area started allowing other cattle to graze in the land, their purity was altered and the breed became mixed.

During pre-independence the Amrit Mahal breed number was 12,300. By 1982, the number came down drastically to 1,700 and in 1996 it was reduced to 1,200 only. Presently,

around 1,343 Amrit Mahal Cattle are being maintained in 7 sub-centres in 3 districts of Karnataka (Table 1). Every year 60-70 Amrit Mahal male calves will be auctioned from the Ajjampura Centre for the farmers to meet their needs. The farmers of Challakere Taluk, in and around the kavals also participate in the auction to get their Amrit Mahal stock. Amrit Mahal Bull frozen semen is made available in veterinary institutions to carry out the artificial insemination. Table 2 details the Number of Amrit Mahal Cattle owned by villagers around the Kaval area (Census 2012). As per the census records of 2012, Amrit Mahal Cattle is not found in the villages located around the Kaval area.

**Table 1: Number of Amrit Mahal Cattle maintained in various Sub-centres of Animal Husbandry and Veterinary Services Department in Karnataka**

Sl. No	Village Name	Number of Amrit Mahal Cattle
1	Ajjampura	322
2	Birur	51
3	Baasur	179
4	Lingadahalli	215
5	Habbanaghatta	254
6	Chikkaeemmiganur	157
7	Ramagiri	165
	<b>Total</b>	<b>1343</b>

**Table 2: Status of Amrit Mahal Cattle present in the villages around Amrit Mahal Kaval, Challakere**

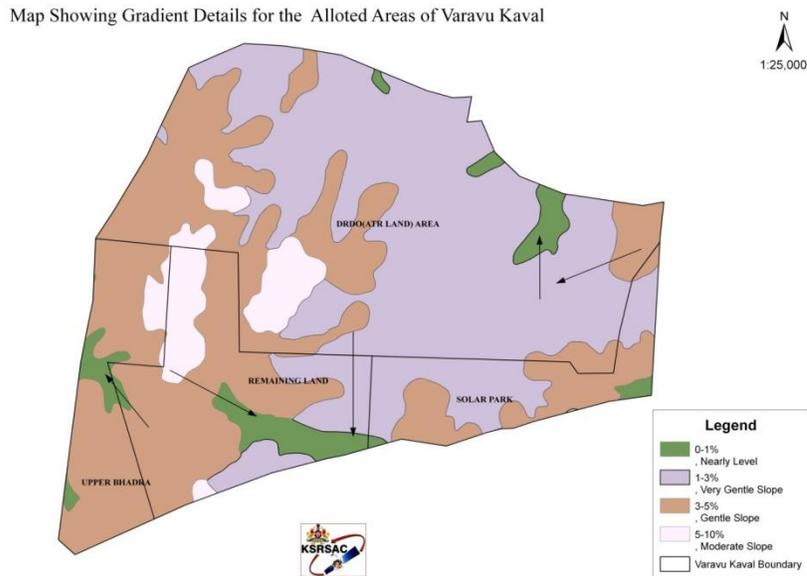
Sl. No.	Name of the Village	Amrit Mahal Cattle	
		2007 Census	2012 Census
1.	Sheep Breeding Farm of Khudapura	0	0
2.	Gowripura	0	0
3.	Khudapura	0	0
4.	Manumainahalli	14	0
5.	Ramadurg	0	0
6.	Sarjavvanahalli	47	0
7.	Nayakanahatti	87	0
8.	Nelagetalahatti	2	0
9.	Varavookaval	0	0
10.	Neralagunte	0	0
11.	Katappanahatti	0	0
12.	Katrikenahalli	0	0
13.	Varavoo	0	0
14.	Nannivala	0	0
15.	Gorlakatte	0	0
16.	Veeradimmanahalli	0	0
	<b>Total</b>	<b>150</b>	<b>0</b>

**2. Ecological nature of the landscape**

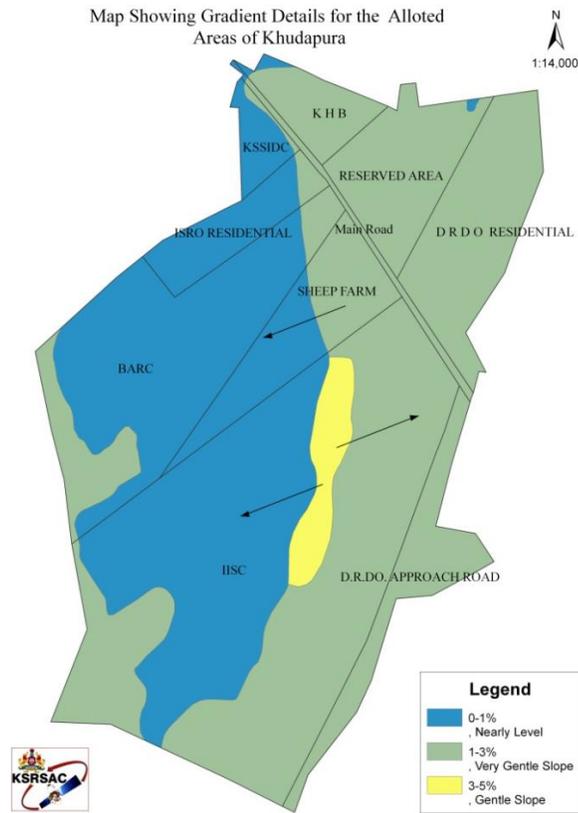
Challakere taluk is a part of Chitradurga district, extends from Latitude 14°4' to 14°37' North and Longitude 76°28' to 77°2' East, with an elevation on 585m (1919 ft.) and covering a total area of 267 sq. km out of 8570 sq. km of the arid zone land of Karnataka state. The taluk has been classified as arid zone.

The Amrit Mahal Kaval land allotted to Central/State Government/Private Organizations is basically an undulating plain covered with open scrub, thorny bushes with isolated pockets of exposed sheet rocks and boulders. The land is interspersed with sporadic ranges and isolated low ranges of rocky hills. The gradient of natural slopes in the site ranges from 1:40 to 1:80. Figures 5, 6 & 7 provide the characteristics of land depicting the slope in Varavu, Khudapura and Ullarti Kaval respectively. The slope gradient is found to vary in the 3 different Kavals. In Varavu, the land is found to basically vary from nearly level (0 to 1%) to gentle slope (3 to 5%). On the western side of the land, moderate slope condition is noticed. In Khudapura, majority of the land is either nearly level or with very gentle slope. A small patch of gentle slope is interspersed between nearly levels to very gentle slope. In Ullarti Kaval, most of the land is nearly level. There are also patches of very gentle to gentle slope.

**Figure 5: Map Showing Gradient of Kaval land at Varavu Kaval**

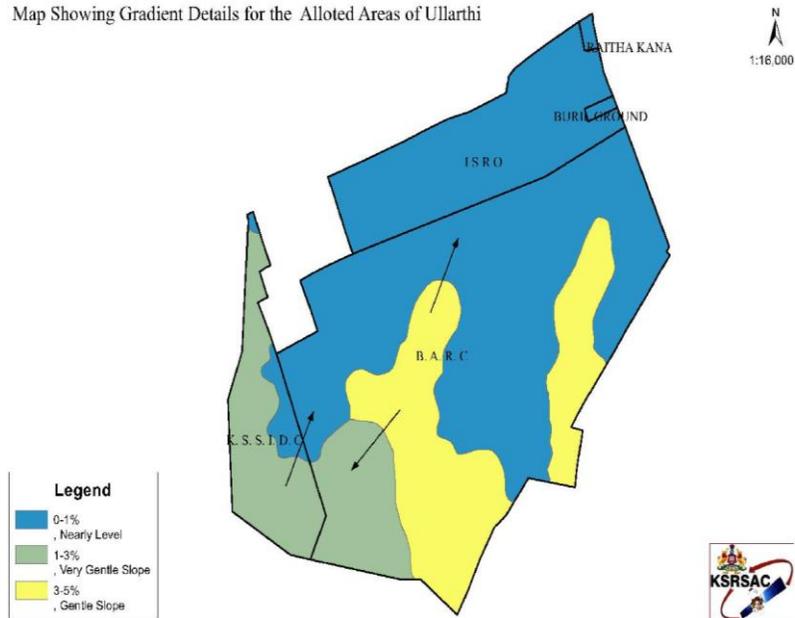


**Figure 6: Map Showing Gradient of Kaval land at Khudapura**



**Figure 7: Map Showing Gradient of Kaval land at Ullarthi Kaval**

Map Showing Gradient Details for the Alloted Areas of Ullarthi



### 3. Demographic features of the landscape

Challakere is a taluk in Chitradurga district of Karnataka State located within Coordinates: 14.32°N 76.65° E with an Elevation of 585m (1,919 ft.). The geographical location of Amrit Mahal Kaval Lands in Challakere Taluk is detailed in Table 3.

**Table 3: Details of Geographical location of Amrit Mahal Kaval lands**

Sl. No.	Kaval	Latitude	Longitude	Land Allotted
1.	Khudapura	N 14° 25' 42.024"	E 76° 34' 10.02"	DRDO, IISc, KSSIDC, ISRO, BARC
2.	Varavu Kaval	N 14° 22' 38.064"	E 76° 34' 54.0834"	DRDO, Sagitaur Ventures India Pvt. Ltd.
3.	Ullarti Kaval	N 14° 23' 13.704"	E 76° 42' 35.7114"	BARC, KSSIDC, ISRO

As per the census of 2011, Challakere has a population of 3,65,784. Males constitute 50.83% of the population and females 49.17% (Table 4). Challakere has an average literacy rate of 61.41%, higher than the national average of 59.5%; with male literacy of 78.92% and female literacy of 53.65%. 11.28% of the population is under 6 years of age. The sex composition is 1.03 male is to one female. The density of the population is 177 people per sq. km and the rural-urban composition is 5.62:1.

**Table 4: Showing the demographic features in and around Amrit Mahal Kaval**

Parameters	Total Population	Percentage to the Total Population
Total Population	365784	
Total Males	185931	50.83
Total Females	179853	49.17
Population in the Age group 0-6	41247	11.28
Population Scheduled Caste	82899	22.66
Population Scheduled Tribe	107640	29.43
Literates	224637	61.41
Male literates	128140	68.92
Female literates	96497	53.65
Total Workers	199247	54.47
Main Workers	148549	40.61

Main Cultivators	55081	15.06
Main Agricultural Labourers	49383	13.50
Main Workers in Household Industries	4452	1.22
Main Other Workers	39633	10.84
Marginal Workers	50698	13.86
Marginal Cultivators	5054	1.38
Marginal Agricultural Labourers	31722	8.67
Marginal Workers in Household Industries	1996	0.55
Marginal Other Workers	11926	3.26
Marginal Workers 3-6 months	42944	11.74
Marginal Cultivators 3-6 months	4424	1.21
Marginal Agricultural Labourers 3-6 months	27875	7.62
Marginal Workers in Household Industries 3-6 months	1531	0.42
Marginal Other Workers 3-6 months	9114	2.49
Marginal Workers 0-3 months	7754	2.12
Marginal Cultivators 0-3 months	630	0.17
Marginal Agricultural Labourers 0-3 months	3847	1.05
Marginal Workers in Household Industries 0-3 months	465	0.13
Marginal Other Workers 0-3 months	2812	0.77

#### **4. Characteristics of the Biodiversity**

This area includes plants and animal species which are adapted to arid scrub conditions. Only one study pertaining to the Characteristics of Biodiversity of the land allotted to IISc, Khudapura has been carried out by Centre for Ecological Sciences, IISc, Bangalore during June, 2011. Till date, no other studies on the Characteristics of Biodiversity have been carried out either in Varavu Kaval or in Ullarti Kaval. As per the studies carried out by IISc, it appears that, the Amrit Mahal Kaval in Khudapura has rich vertebrate and plant species. Among the vertebrates 6 species of Amphibians, 14 species of Lizards, 5 species of snakes have been listed. Further, IISc research team has listed about 80 species of birds besides the occurrence of Black Bucks, Foxes and Hares (Annexure 1). The FFC team observed the presence of peacock, few species of birds and a small herd (4 numbers) of Black Buck. The occurrence of fecal matter of Black Bucks near the sheep farm suggests the presence of Black Buck.

The committee was informed by Member Secretary, Karnataka Biodiversity Board that they have not conducted any biodiversity study in these Kaval lands at Challakere. Since the climatic conditions of these areas are almost similar, the Bio Diversity Board opines that the Flora and Fauna listed by IISc research team for Khudapura may be taken as representative biodiversity of the whole area (Annexure 2 - E-mail from Bio Diversity Board).

**5. Dependence of the local communities on the grassland ecosystem sought to be diverted to non-forest purpose?**

From the time of existence of villages close to and around the Kaval lands, the villagers (Below Poverty Line) were collecting firewood, wood for agricultural tools, sand and mud for construction work, fruits and other edible greens as food, medicinal plants, palm leaves (*Eechalu: Phoenix sylvestris*) for preparing baskets, mats and brooms and lime stone from these Kaval lands. Since Challakere is a predominant area for sheep rearing, the shepherds and the villagers who maintain sheep were using these Kaval lands for grazing the sheep. The cattle/buffalo/goat owners of the villages were also using these Kaval lands for grazing by their animals. During drought season, sheep/goats from villages located far away were also brought to this place for grazing. Shepherds maintained the sheep/goats in the Kaval land till such time the conditions improved in their place. Shepherds of the villages were observed to collect the wool from the sheep, reel and weave them into blankets. These blankets were sold in the market at Challakere, thus making their livelihood. Other than grazing by sheep/cattle, making blankets and collection of some of the above said products, the communities were not dependent on these lands either for agriculture or for settlement.

**6. Likely impact of the proposed projects on human settlements in terms of loss/gain of the following:**

• **Displacement**

From time immemorial, the Kaval lands at Challakere have not been inhabited by human beings and there are no records to indicate the human settlement in these Kaval lands. The villages are located around the Kaval lands and therefore, the diversion of the land

to the projects has not affected the present human settlement in these villages. However, once the projects are completed and their operations commence, there may be migration of people from other areas to this place for employment/business (commercial) opportunities.

- **Livelihood**

On one side, the people from Below Poverty Line (BPL) who are now utilizing Kaval products and land for grazing activities are going to be devoid of these livelihood facilities, on the other side, the establishment of these education/research/commercial organizations is likely to increase the employment opportunities for the people of BPL and others in the surrounding villages, thus it may likely to improve their standard of living. There are chances of job opportunities both for unskilled and skilled labour would increase leading to an improvement in the livelihood conditions of local populace.

- **Socio-cultural landscape**

Non accessibility of grazing land in kavals may lead to the loss of age old practice of Sheep rearing, wool production, reeling, weaving and blanket marketing by the local populace may likely to reduce. However, establishment of residential quarters for the personnel of all these organization and the establishment of housing by Karnataka Housing Board would certainly lead to the establishment of good schools and colleges for the children of employees. As a result, children of the villages may also get the opportunity of exposure to better education facilities. Human settlement would also lead to the establishment of medical facilities by the recipients of the land. This would provide access for local villagers for timely assistance and help in medical services.

Due to the acquirement of land by these organizations, celebrations of festivals like Hiriyara Habba, Ajayanagudi Jatre etc. once a year in the Kaval land may be curtailed. However, the organizations in whose land these festivals are celebrated have decided to provide access to the villagers to such places on the days of the festival. Thus, the proposed project may not limit the Socio-Cultural activities of the villagers.

- **Economic opportunities**

With the increase in population, the demand for vegetables, groceries, milk, meat and other local resources would increase. This would directly increase the economic opportunities of the villagers surrounding the Kaval lands. This is in addition to the job opportunities provided by the organizations. Setting up of organizations like BARC, DRDO, ISRO, IISc, solar project would lead to minimizing the migratory pattern of the local populace, since it is likely to generate enough employment opportunities for all categories of people. As per the information of KSSIDC its projects is likely to generate nearly 6000 employment opportunities for the local villagers.

- **Fragmentation of communities**

Since there are no villages within the Kaval land the establishment of these organizations does not result in the fragmentation of Communities. Construction of boundary walls by the recipients of the land has also not affected human settlement. Further, the road from Challakere to Dodda Ullarti which was passing through the allotted BARC land is now diverted by laying a new asphalted wide road in BARC and ISRO land its boundary. The new road is double the width of the earlier road. Although this has resulted in an increase of 1-2 km distance, it has not resulted in fragmentation of communities. After the complete establishment of these organizations, there may be cross cultural integration.

**7. Environmental limiting factor to the activities proposed, in respect of:**

- **Geology**

Responses of the beneficiaries are listed below:

- **DRDO:** The land allotted is barren with less rainfall. The land is not suitable for agriculture or related developments. Due to low rainfall, drainage problems will not arise. Hence, the features of the land do not limit the activities of DRDO.
- **IISc:** As only 40% of the land is to be used for development, pockets identified for growth isolating vulnerable areas is not a limiting factor. All other conditions are suitable for activities of IISc.

- **BARC:** The Geotechnical Studies carried out by the organization suggests that there are no environmental limiting factors affecting the activities of BARC.
- **ISRO:** In the land allotted, the activities of the organization do not disturb the existing geological features and hence it may not limit the proposed activities.
- **Sagitaur Ventures India Pvt. Ltd.:** The organization is planning to set up Solar PV for harvesting renewable energy, the existing geological features of the land do not limit the harvest of Solar Energy.
- **KSSIDC:** Only Small Scale Industries will be set up and the geological features of the land will not limit the developmental activities.
- **Land availability**

The land allotted for each of the following organizations is sufficient to initiate the developmental activities. IISc is planning to use only 40% of its land for its development. The land allotted to DRDO is a composition of plain lands and valleys. The soil is suitable for developing good runway for testing of easy take-off and landing of unmanned air vehicles. Reconnaissance Survey was done for the runway location and orientation. ISRO out of its land of 473.5 acres, about 112 acres is occupied by Ullarti tank, has contributed nearly 31 acres of land for laying 3 km 40 m wide road to meet the societal needs of existing villagers. The remaining land (330 acres) is adequate and suitable for its activities. The land allotted to BARC is not a cultivated land and the area is sufficient for its activities.

- **Landscape/ range**

**DRDO:** Landscape is expected to be improved with the planting of samplings. 2000 saplings already planted have reached 6-8 feet tall and are more than 18 months old. There are future plans to plant many more trees and improve green cover of the area. On either side of runway, the Kaval land will be maintained without disturbance thus limiting landscape alterations.

**IISc:** It is planning to establish Talent Development Centre, Semi-arid Ecosystem Research Station, Skill Development Centre, Climate Observatory, Earth Observatory, Solar Energy and Water Harvesting Research Stations. These will not alter the landscape of the

Kaval land. The landscape and greenery would be improved by planting 8000 sapling of 5 species of Bio Fuel (Honge, Neem, Hippe, Harali and Simaruba) plants.

**BARC:** The construction activities of BARC will not affect the landscape. It is likely that the landscape would improve due to planting of saplings around the land.

**ISRO:** The Natural topography and drainage would be maintained while evolving the Master plan. Thus the landscape will not be altered to a large extent.

**Sagitaaur Ventures India Pvt. Ltd. and KSSIDC** has stated that their activities do not modify the landscape of the Kaval lands allotted to them.

- **Hydrology**

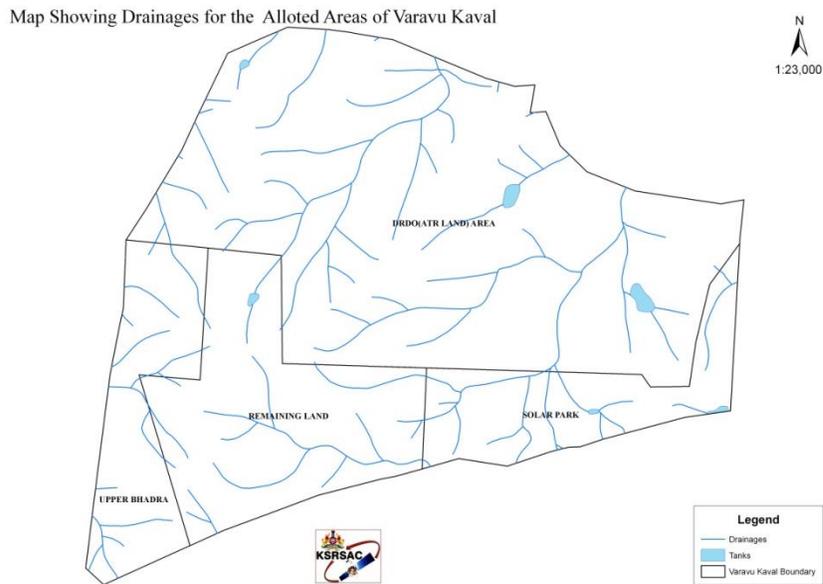
In the Amrit Mahal Kaval land of Challakere there are eight seasonal tanks. Most of these tanks retain water for a maximum period of 5-6 months. The aquifer systems are encountered at a depth ranging from 15.4 meters to 182.9 meters. All the beneficiaries of the land have indicated that, there activities do not affect the hydrology of the area and will not modify the existing drainage pattern. Further, where the water/channels are present, outlets have been provided at the bottom of boundary walls at low gradient places. These vents are with MS grill work to permit water flow through these vents to the nearby water bodies. Besides, check dams have also been made at various locations to help the runoff water to percolate into the ground, so that ground water table is recharged. Nalas within the land under question are not dammed enabling the water to flow naturally. Thus, the hydrology of the land under question will not be a limiting factor to the activities of beneficiaries of the land. However, all the beneficiaries of the land in the Kaval area have plans to establish rain water harvesting plants, so that there is a possibility of recharging the ground water.

- **Surface and ground water assessment**

In the total Varavu Kaval area (Figure 8), there are 5 surface water bodies. In Ullarti Kaval (Figure 9) and Khudapura (Figure 10) there are 1 and 2 surface water bodies respectively. As these surface water bodies are seasonal and the water spread area is small, available surface water does not limit the activities of the beneficiaries of the land in Amrit

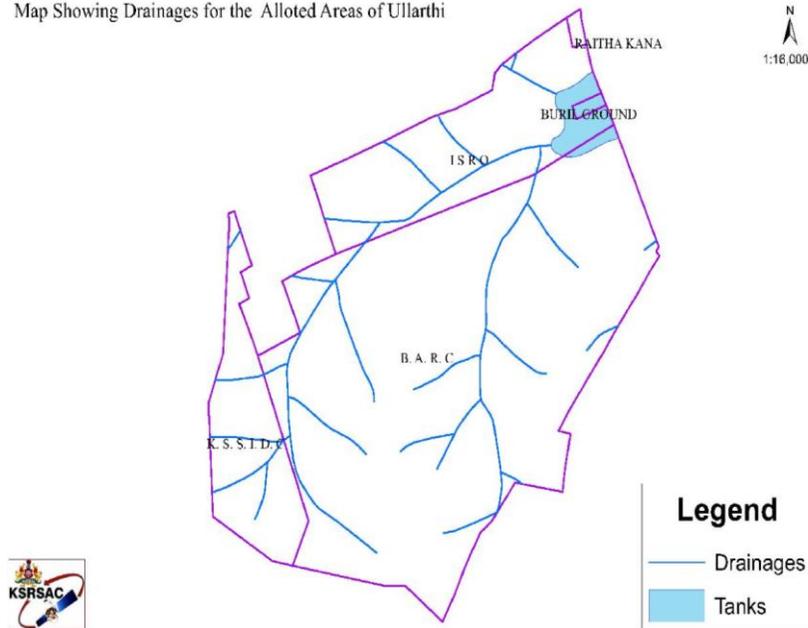
Mahal Kaval. As regards ground water, in Varavu Kaval majority of the land has moderate to poor ground water levels. Good ground water patches are noticed all along the course of the valley fill/filled in valley (Figure 11). At Ullarti Kaval, the ground water to a large extent ranges from moderate type to moderate poor type. The good ground water source is again noticed in moderately weathered/moderately buried pediplain (Figure 12). The ground water in the Khudapura area to a large extent is found to vary from moderate type to moderate-poor type. Like in Varavu Kaval, good ground water is noticed in valley fill/filled in valley area (Figure 13). The beneficiaries of the land have expressed that all surface runoff water streams identified in the land in question will be left intact. Considering the above details, it appears that surface and ground water if not abundant may not become a limiting factor for the type of forthcoming activities proposed by the beneficiaries of the land in question.

**Figure 8: Map Showing Water bodies at Varavu Kaval**



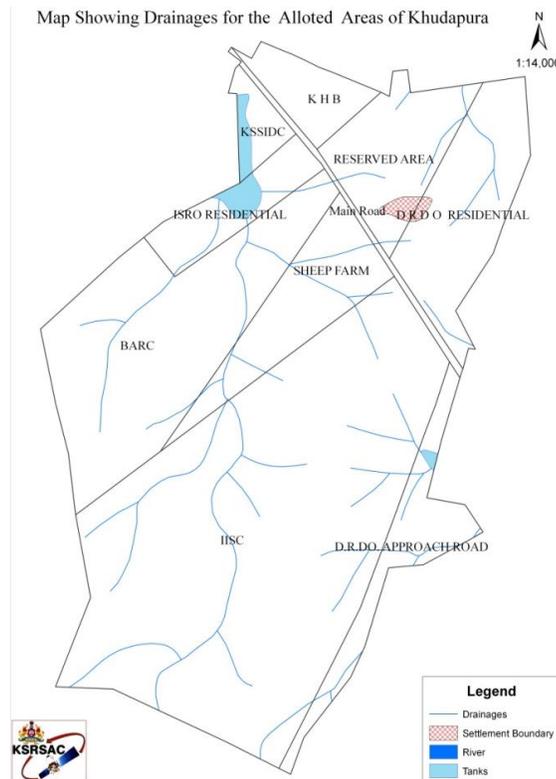
**Figure 9: Map showing Water Bodies at Ullarti Kaval**

Map Showing Drainages for the Alloted Areas of Ullarthi



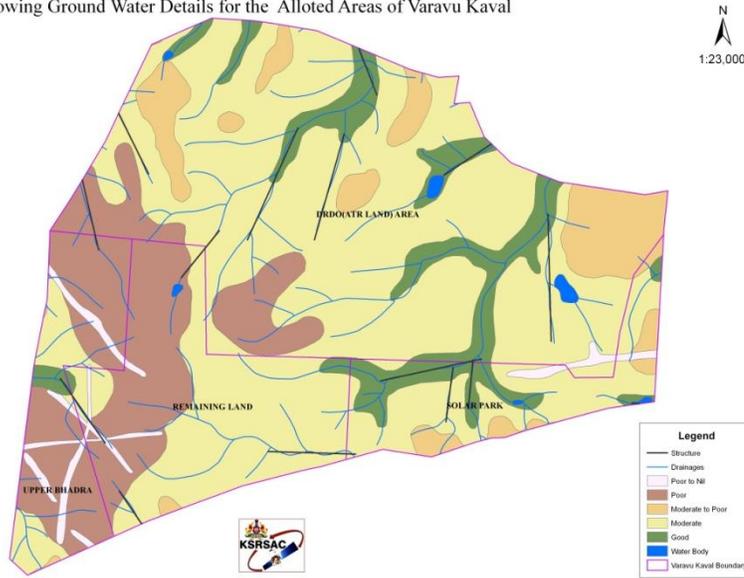
**Figure 10: Map Showing Water bodies at Khudapura**

Map Showing Drainages for the Alloted Areas of Khudapura



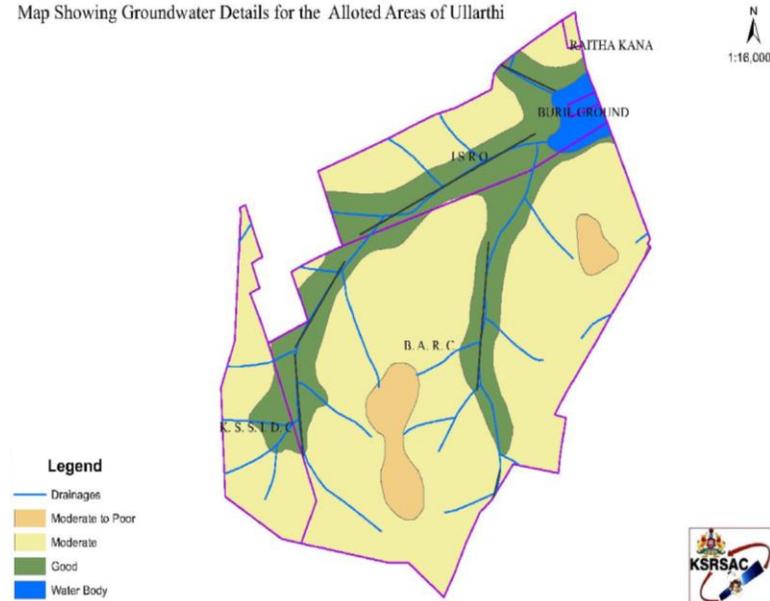
**Figure 11: Map showing Ground water at Varavu Kaval**

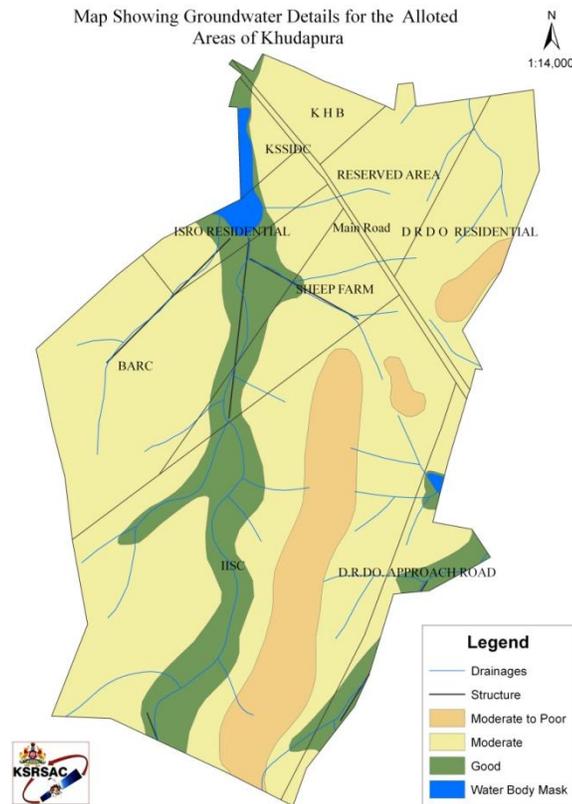
Map Showing Ground Water Details for the Alloted Areas of Varavu Kaval



**Figure 12: Map showing Ground water at Ullarti Kaval**

Map Showing Groundwater Details for the Alloted Areas of Ullarthi



**Figure 13: Map showing Ground water at Khudapura**

- **Water availability**

At present the people of villages around Amrit Mahal Kaval are dependent on bore wells for day to day requirement of water, as also, to that required for agriculture. Five bore wells are located in the area allotted to ISRO which supply potable water to Ullarti Village. As per the information of ISRO, despite the fact that they have established a boundary wall, the supply of water from these bore wells to the villages have not been stopped and they will continue to do so. Considering the quantum of water available, both for human requirement and activities of the beneficiaries of the land, the Karnataka Urban Water Supply and Drainage Board has already initiated laying pipelines to supply water from Vani Vilas Sagar Dam, Chitradurga not only to people of Challakere but also to the beneficiaries of the land in question for meeting the demand of water for domestic/project activities. Therefore, water availability may not limit the activities of the beneficiaries.

- **Nature of human habitat/Settlement**

In the Amrit Mahal Kaval land there is no human habitation. The village settlements/hamlets are located around the Kaval land. The nearest hamlet located close to the Kaval land (land allotted to ISRO) is an extension area of Dodda Ullarti village. In the surrounding villages of Amrit Mahal Kaval land, the human settlement population ranges from 100 to 15,545. The residential area for all the beneficiaries of the Kaval land is located at Khudapura and thus, human settlement in areas other than the residential area of the Kaval land is limited. Since the human settlement in the project area of the land of beneficiaries is limited, the settlement may not limit the activities.

**8. Are there environmental studies undertaken for citing of the proposed activities in the land in question?**

Among the beneficiaries of the land only IISc have carried out studies on the Biodiversity of Flora and Fauna of Khudapura. Other agencies are planning to conduct the studies. The IISc has completed the following studies in the land allotted to them at Khudapura.

- a. Bio diversity report focusing on areas to be preserved.
- b. Detailed site analysis.
- c. Topographical analysis.
- d. Drainage analysis.
- e. Soil test and analysis.
- f. Climatic analysis.

**9. Have the project proponents complied with the statutory requirement of the Environmental Protection Act, 1986, Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Forest Conservation Act, 1980, Forest Rights Act, 2006 read with Scheduled Caste Tribes and Others Forest Dwellers (Recognition of Forest Rights) Act, 2006, and Biological Diversity Act, 2002, in particular the Mandatory provision of the following:**

**Environmental Protection Act, 1986**

As per the notification of Ministry of Environment and Forests dated 14<sup>th</sup> September 2006: **Requirements of prior Environmental Clearance (EC):-** The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

- (i) All new projects or activities listed in the Schedule to this notification;
- (ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;
- (iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range

Responses of the Project Proponents are as follows:

ISRO and BARC: At present only compound wall construction is under progress to meet the security requirements. Master plan for the development of land is yet to be finalized. After finalization of the same, necessary clearances will be obtained as per the

Environmental Act 1986, before commencement of construction activities and seek the consent for establishment from the state pollution control board.

DRDO: Written to Ministry of Environment and Forest during September 2010 for MOEF clearance. It is implied that if bunkering/refuelling facilities are not being planned MOEF clearance is not required (Annexure 3).

Sagitaur Ventures India Pvt. Ltd.: Since the activity of the organization pertains to Solar Photo Voltaic (PV) Power Projects, this does not come under the preview of Environmental Protection Act, 1986. A letter to this effect issued by Director, Ministry of Environment and Forests is enclosed. (Annexure 4)

KSSIDC: This will be taken care by individual allottees, after allotment of plot based on the type of manufacturing products in their respective factory units. Plots will not be allotted to red category industries.

IISc: No Activity has commenced on site excepting the construction of a delineating boundary wall. They are in the process of developing a master plan complying with the said legal requirements.

### **Water Act, 1974 (Prevention and Control of Pollution)**

Responses of the Project Proponent are as follows:

ISRO: ISRO/ISAC is pioneer in constructing waste water reclamation plant. The tertiary treated waste water will be used for flushing of toilets, air condition makeup water and horticultural processes as practiced at present in ISRO satellite centre Bangalore

BARC: As at present no construction activity is in progress, Water Act, 1974 will be complied once the construction activities are initiated.

DRDO: CFE application filed and fees of Rs. 2/- lakhs paid on 26 Mar 13 to Karnataka State Pollution Control Board at Challakere.

Sagitaur Ventures India Pvt. Ltd.: At present no construction activity has been initiated in the allotted land. Clearance from KSPCB in regard to Water Act, 1974 will be obtained at the time of commencement of project activities.

KSSIDC: This will be taken care by individual allottees, after allotment of plot based on the type of manufacturing products in their respective factory units. Plots will not be allotted to red category industries.

IISc: No Activity has commenced on site excepting the construction of a delineating boundary wall. They are in the process of developing a master plan complying with the said legal requirements.

### **Air Act, 1981 (Prevention and Control of Pollution)**

Responses of the Project Proponent are as follows:

ISRO: Air Pollution Act: Approximately 2 numbers 1200KVA DG sets will be used captive power plant in the proposed campus. The DG sets are covered with standard acoustics enclosures, which emit noise not more than 75dBs, at a distance of 1mts away from the sets as prescribed by the central pollution control board. To avoid air pollution, exhaust will be released through exhaust stack height of more than 20mts. No other air pollution is expected from the project.

DRDO: CFE application filed and fees of Rs. 8000/-paid on 26 Mar 13 to Karnataka State Pollution Control Board at Challakere.

BARC: It will be complied once the project development activities are initiated.

Sagitaur Ventures India Pvt. Ltd.: At present no construction activity has been initiated in the allotted land, clearance from KSPCB in regard to Air Act, 1981 will be obtained at the time of commencement of project activities.

KSSIDC: This will be taken care by individual allottees, after allotment of plot based on the type of manufacturing products in their respective factory units. Plots will not be allotted to red category industries.

IISc: No Activity has commenced on site excepting the construction of a delineating boundary wall. They are in the process of developing a master plan complying with the said legal requirements.

- **Environment Impact Assessment Notification, 2006 and 2009**

DRDO, during 29<sup>th</sup> September 2010, a letter ADE/14809/1/AD(GN) was addressed to Director, Ministry of Environment and Forest (IA-III), Government of India, New Delhi, requesting to confirm whether it is mandatory to obtain environmental clearance from the said ministry for the proposed project at their campus at Challakere. In response to this, a letter 10-12/2011-IA-III, dated 26<sup>th</sup> April 2011 from Director, IA-III Division, Aero-Studies, Ministry of Environment and Forests clearly quoted as follows:

*“This Ministry has been receiving many proposals for the issue of NOC for air strip. It is to be clarified that Ministry issues only Environmental Clearance to the Airports and the Airstrips for commercial purpose (except the airstrips which do not involve bunkering/refuelling and /or Air Traffic Control) under the Environmental Impact Assessment Notification 2006, as amended in 2009.*

*It is therefore requested that the ministry of Civil Aviation and Directorate General of Civil Aviation may not insist on a NOC from this Ministry in request of such Airstrips which are not meant for commercial use and which do not involve bunkering/refuelling and /or Air Traffic Control.”*

Further in respect of Solar Photo Voltaic (PV) power projects of Sagitaur Ventures India Pvt. Ltd. office memorandum no. J-11013/41/2006-IA.II(I), Director, Ministry of Environment and Forest, Government of India, New Delhi dated 13<sup>th</sup> May 2011 stated that –

*“A reference has been received in this ministry seeking clarification regarding applicability of EIA Notification, 2006 in respect of Solar Photo Voltaic (PV) Power Projects. The matter has been examined.*

*It is clarified that the Solar PV Power Project are not covered under the ambit of EIA Notification, 2006 and no environment clearance is required for such projects under the provisions thereof.”*

While BARC has initiated EIA study, both ISRO and IISc have informed that, since the process of developing a master plan complying with the legal requirements are yet to be finalized, the EIA clearance will be sought after the finalization of the master plan. KSSIDC have indicated that after the allotment of plots to various Small Scale industries, the concerned industries will seek EIA clearance prior to initiation of the activities.

- **Hazardous waste (Management and Handling and Trans Boundary Movement) rules, 2008 as amended by (Amendment) Rules, 2010**

BARC:

Liquid Effluents: active as well as no active liquid effluents shall be directed to elevated solar vats for evaporation. Dried active salts collected from these vats will be impounded in RCC trenches termed as Near Surface Disposal Facility (NSDF) which will be constructed at the plant site. Non active hazardous solid waste will be sent to Treatment Storage and Disposal Facility (TSDF) approved by Pollution Control Board.

Solid Waste: Used oil, discarded containers, nickel metal sludge, Hydrofluoric Acid, Calcium Fluoride, Phosphate compounds and E-Waste are the industrial wastes expected to be generated from the facilities. These wastes expected to be generated from the facilities. These wastes shall be either sold to authorized recyclers or disposed to Treatment Storage Disposal Facilities as per the Pollution Control Board norms.

Gaseous emissions: All the hazardous gaseous emissions will be scrubbed before discharging in to the atmosphere through stacks, in line with KSPCB norms.

The organizations like DRDO, ISRO and Sagitaur Ventures India Pvt. Ltd. have indicated that their activities do not produce hazardous waste. IISc has stated that as their master plan is yet to be finalized, they have not sought clearance and will seek the clearance based on the need after the finalization of the master plan. KSSIDC have indicated that after

the allotment of plots to various Small Scale industries, the concerned industries will seek clearances.

- **Consent from Forest Rights Committees**

In Karnataka, Forest Rights Committee has been constituted in various districts. However, the Amrit Mahal Kaval land at Challakere has been under the Jurisdiction of Animal Husbandry and Veterinary Services. Prior to this the land was owned by Agriculture Department. Even at the time of allotment of lands to the various government/private organizations, the Karnataka Government has sought information on the land from the Department of Animal Husbandry and Veterinary Services. Therefore, as the land in question does not come under the jurisdiction of Department of Forest, Ecology and Environment seeking clearance from Forest Rights Committee does not arise. Further, in the land in question, there are no forest dwellers and only the people from the surrounding villages (including SC and ST) have been procuring the forest resources from time to time. Hence, the Forest Rights Act 2006 read with Scheduled Caste, Tribes and Other Forest Dwellers does not arise.

- **Consent From Biodiversity Management Committee**

As per The Biological Diversity Act, 2002, The Biological Diversity Rules, 2004 and The Karnataka Biological Diversity Rules, 2005 every local body will constitute a Biodiversity Management Committee (BMC) within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity.

The main function of BMC is to prepare the people's biodiversity register in consultation with the local people (Annexure 5 – Page 38). The Register shall contain comprehensive information on availability and knowledge of local biological resources, their medicinal or any other use or any other traditional knowledge associated with them.

In Challakere taluk, BMC are being constituted at Gram Panchayat level comprising 2-6 villages. Presently such committees have been constituted in Bhuddanahatti, Dodderi and Nannivala Panchayats. However, these committees are yet to initiate their activities.

The BMC's have not been constituted for other Panchayats comprising villages located within the vicinity of Amrit Mahal Kaval (Annexure 6). Therefore, none of these committees have established a register containing comprehensive information on the available Biological resources in Amrit Mahal Kaval lands allotted to these Government/Private Organizations.

## **Specific Issue for Consideration**

### **I. Socio-Economic Aspects**

**Primary/Secondary data collected from reliable Government agencies/organizations with special reference to the area under question is provided. Additionally, where found appropriate the study boundary may be extended up to the zone of environmental/ecological impact boundary.**

#### **1. Number of Taluks**

The district of Chitradurga consists of 6 taluks

#### **2. Total Population**

The total population around the Kaval area in 62 villages is 1,32,874

#### **3. Literacy levels**

Male: 65.07%, Female: 48.59%

#### **4. Number of villages**

The total number of villages as per the records at the Tahsildar office: 26 Villages

According to Karnataka State Remote Sensing and Application Centre: 62 Villages in and around 5 km radius

#### **5. Main Occupation in the above villages**

Agriculture, Sheep, Goat and Cattle Rearing

#### **6. Number of Families involved in sheep and cattle rearing**

The total Number of families involved in Sheep and Cattle rearing are 7,466 families.

#### **7. Number of sheep, goats and cattle in the study area: List of Sheep and Goat varieties reared in the region**

The number of sheep, goat and cattle found in each village located around the study area is detailed in the table.

**Table 5: Number of sheep, goat and cattle in the study area**

Sl. No.	Village Name	No of families owning cattle/sheep/goat/buffalo	Other Indigenous cattle	No of buffalo	No of sheep	No of goat
1	Banjagere	194	250	163	1077	230
2	Bedraddihalli	176	232	192	574	118
3	Bhimanakere	45	50	47	03	69
4	Bommanahalli	142	405	98	1165	119
5	Budnahatti	149	211	88	2380	476
6	Chenaganahalli	131	246	75	550	148
7	ChikkaUllarti	133	404	143	3096	377
8	Chikkammanahalli	235	378	176	1278	179
9	Chitranayakanahalli	464	437	188	2068	252
10	Dasaramuttenahalli	102	280	28	2576	326
11	Devarahalli	255	744	320	3431	625
12	Dodderi	1013	244	631	2670	1344
13	Gajuganahalli	208	503	346	1502	407
14	Gaudagere	120	434	103	384	82
15	Ghatapatti	480	1049	330	4894	1787
16	Giddapura	50	83	17	334	121
17	Giriyammanahalli	190	262	70	2033	274
18	Gollahalli	118	705	189	1017	217
19	Hayakallu	231	576	150	1045	439
20	Hirekere Kaval	86	270	129	3604	544
21	Jennenahalli	134	375	216	378	484
22	Kampalisagara	14	26	13	17	56
23	Karikere	190	523	237	2187	398
24	Katavvanahalli	70	141	71	893	138
25	Mahadevapura	91	198	77	394	65
26	Mallurahalli	133	251	92	330	335
27	Mannekote	524	899	585	2785	887
28	Manumayanahatti	132	245	106	463	347
29	Mirasabihalli	202	421	259	1669	88
30	Obayyanahatti	153	362	116	1357	281
31	Ragalobanahalli	11	18	06	04	0
32	Ramasagara	52	58	48	258	98
33	Ranganahalli	140	224	111	685	73
34	Rekalgere	171	333	84	1081	135
35	Talaku	221	419	128	1384	245
36	Timmanahalli	124	217	105	862	275
37	Timmappayyanahalli	159	235	74	1500	407
38	Tippayyanakote	65	102	25	446	105
39	Ullarti	454	932	450	2148	1211
40	Valase	124	207	90	812	428
41	Vidappanakunte	164	398	246	1855	344
	<b>Total</b>	<b>7466</b>	<b>13348</b>	<b>6368</b>	<b>54975</b>	<b>13976</b>

**Table 6: List of Sheep and Goat varieties reared in the region**

<b>Sheep</b>	<b>Goat</b>
1. Deccani	1. Osmanabadi
2. Bellery	2. Non-descriptive
3. Cross Breed	3. Cross Breed

**8. Number of Amrit Mahal Cattle**

Department of Animal Husbandry and Veterinary Services have not maintained Amrit Mahal Cattle in the land in question. However, as per the census of 2007 (Annexure 7 – Page 13), people in the villages located around Amrit Mahal Kaval had maintained 150 Amrit Mahal Kaval Cattle. But as per the census of 2012, Amrit Mahal Cattle are not found in any of the villages located around the land in question (Annexure 8)

**Breed characteristics of Amrit Mahal Cattle:**

Body build is uniform both in size and shape like a race Horse. These are highly wild type and taming them is a big task. Their colour ranges from white to blackish white, the humps are elevated skin with soft hair, the head portion is little thick, but not wide in front and gradually laterally slopes down. Horns at close origin, the bottom are broad. As they grow, their gap widens shifts back and becomes projected to the front with pointing long sharp ends. Ears with small pinna ending sharp, Eyes are pleasing with beautiful face, Legs are very muscular and fully strong and Hoofs are blackish. Their height ranges from 125-150cm. chest broad and about 200cm of girth. Fore head is flat and broad. Milk yield is poor. The colour of Amrit Mahal cattle is usually some shade of grey varying from almost white to nearly black, and in some cases white-grey markings of a definite pattern are present on the face and dewlap. The muzzle, feet and tail switch are usually black, but in older animals the colour looks lighter.

The most striking characteristic of these cattle is the formation of the head and horns. The head is well-shaped, long and tapering towards the muzzle. The forehead bulges out slightly and is narrow and furrowed in the middle. The horns emerge from the top of the poll,

fairly close together in an upward and backward direction, and terminate in sharp points which are usually black. In old animals the long sharp points approximate each other and may even interlace to some extent. The eyes look bloodshot. The ears are small and taper to a point, being carried in a horizontal position. They are yellow inside.

The hump is well-developed and shapely in the bulls, rising to a height of about 8 inches. The neck is strong and fairly long. Legs are of medium length and well-proportioned. The fetlocks are short and the hooves are hard, close together and small. The skin is thin, mellow and jet black in colour, with short glossy hair.

As the cattle are maintained in the pasture areas without any restrictions and handling, they show a very impatient, wild and unruly disposition. They are at time dangerous, particularly to strangers. They need patience and care in training; hard treatment makes them stubborn. Once they are trained they are extremely fine bullocks, particularly for quick transportation. They are observed to have great endurance. Cows are very poor milkers.

#### 9. Number of other Indigenous cattle, characteristic features of each

Cattle	Numbers
Hallikar	3,554
Deoni	58,205
Khilar	05
Krishna Valley	46
MalanadGidda	72
Others	2,45,569
Total	3,07,451
Total Cattle	3,31,659

#### Hallikar

The Hallikar is *Bosindicus* breeds selected primarily for draft purposes and are of the Mysore type of zebu cattle. Considered one of the premier draft breeds in India they are often raised by families who have specialized in production of Hallikar draft animals for hundreds of years. It is not unusual for a cow to be brought 100 miles to be mated with a bull from

these breeders. They are found primarily in the southern region of Karnataka state, in the area surrounding Mysore, in the bottom of the Indian peninsula. In addition to normal draft uses the breed is also used for cart racing.



Once trained, a team of Hallikar oxen can pull a loaded cart over rough roads at a rate of 40 miles per day. The typical colour is dark grey. The Hallikar are the origin of the Amrit Mahal breed.

### **Deoni**



The Deoni breed of cattle also sometimes known as Dongari (which means "of the hills"), has evolved within the last 200 years. It is claimed that it has been developed from a strain descended from the mixture of Gir, Dangi and local cattle. A contribution from the Gir type of cattle is quite evident in the formation of the head and ears, and also of the horns to a

certain extent. They also show a great similarity in general conformation and ruggedness to the Dangi cattle of Maharashtra State area. Deoni is a medium-sized animal which resembles the Gir in physical structure to a large extent. The body colour is usually spotted black and white. The face is also similarly patchy and spotted with black and white. The forehead is convex and bulging, though breeders have not paid the same scrupulous attention to this trait as the breeders of Gir cattle, and though the ears are long and open forward they lack the leaf like structure and also the notch at the tip of the ear that is typical of the Gir. The horns in typical animals take a characteristic outward and backward curve similar to that generally to be seen in Gir cattle.

The skin is loose and of medium thickness. The dewlap is heavy and the sheath is usually pendulous. The hair is soft and short. The cows have a fairly well-developed udder. The body is massive and upstanding with considerable depth. The hooves are well-made and shapely and of a black colour. The body structure gives appearance of strength.

### **Khillari**



There is every reason to believe that the Khillari breed, with its several varieties, owes its origin to the Hallikar breed of cattle from Mysore State. Unlike some of the other breeds of cattle in India, it does not take its name from a geographical area. Khillar means a herd of cattle, while Khillari means belonging to Khillar; hence the herdsman is known as Khillari; in

the Satpura range of hills, he is known as Thillari. There is a special tribe of professional cattle breeders in this region known as Thillaris.

There are four principal types of Khillaris prevalent in the different regions of Maharashtra State. The variety Hanam Khillar, or sometimes known as Atpadi Mahal (the word Mahal shows strong similarity of cattle of Mysore State), is prevalent in the southern Mahratta State. In the districts of Sholapur and Satara and the adjoining areas the variety known as Mhaswad Khillari is prevalent. In the area of the Satpura range of hills comprising the West Khandesh district the variety prevalent is known as Tapi Khillari or Thillari. A variety of more recent origin known as Nakali Khillari - Nakali means "imitation" - is found in adjacent areas of these regions.

In the southern Mahratta States and the districts of Sholapur and Satara the Khillaris are bred by cultivators. In these regions the size of the herd is small, usually not more than one or two cows. In the Satpura ranges the Khillaris are bred by professional breeders known as Thillaris. These breeders produce bulls and bullocks for which there is always a very good demand.

The typical Khillari animal is compact and tight skinned, with clean cut features. There is a slight rise in the level of the back towards the pelvis. The ribs are well sprung and give the trunk a barrel shape. The hindquarters are squarely developed and the coup is well-moulded. The gait of the Khillari is quick and spirited.

The Khillaris of the Deccan plateau, the Mhaswad and the Atpadi Mahal types are greyish white in colour. The colour in the males is deeper over the forequarters and hindquarters, with peculiar grey and white mottles markings on the face. The Tapi Khillari is white with carrot nose and carrot hooves. The Nakali Khillari is grey with tawny or brick dust colour over the forequarters. Newly born calves have rust red coloured polls, but this colour disappears within a couple of months.

The forehead in Khillaris is long and narrow with a gradual convex bulge backwards toward the horns. A distinct groove runs in the centre of the forehead from the nasal bridge

to the centre of the poll. The face is lean and long with smooth, tightly drawn skin. The nasal bridge is sharp and prominent. The muzzle is frequently mottled in colour, a pink muzzle is not like by some breeders. Eyes are set in elongated fashion and are rather small, though prominent and often a little bulging; thick, wavy skin folds around the eyes give them a dull appearance and not often liked. Ears are small, pointed and always held sideways. The ears are pale yellow coloured inside. Horns are long and pointed and follow the backward curve of the forehead. The horns are thick at the base and taper to a fine point. Black coloured horns are preferred though pink coloured horns are frequently seen, especially in Tapti Khillaris.

The neck is rather short. The dewlap is light with very little fold. The hump in males is firm fleshed and of moderate size. The shoulders are tightly muscled, well set in and merge smoothly with the cylindrical shape of the body. The legs are clean cut, round and straight. The hooves are black with digits closely set. The base of the hoof is small. The barrel is cylindrical. The lines of the back and belly are observed to be almost parallel. The navel flap, as well as the sheath, is tight and close to the abdomen. Hindquarters are well muscled. The tail is just touching the hock joint. The skin is soft and pliable though tightly drawn over the body. The hairs are fine, short and glossy.

### **Krishna Valley**



The breed is of recent origin. It is claimed that during the last two decades of the nineteenth century some of the Rajas of the Southern Mahratta country which lies in the watershed of these rivers tried to evolve a powerful bullock for agriculture purposes in the sticky black cotton soil. It is claimed that Gir cattle from Kathiawar, Ongole cattle from Madras, possibly Kankrej from Gujarat, and local cattle having Mysore-type blood in them were used to evolve the Krishna Valley breed. Maharaja Sangli, at one time a well-known breeder of Krishna Valley cattle, contributed substantially in making judicious use of all these strains to produce the desired type of animal which eventually were used for breeding on a wide scale even before the characteristics were fixed to any extent, there is wide variation in the characteristic of the breed. Massiveness in size was the chief dominating factor which attracted the attention of the cultivators. The Krishna Valley breed cattle is used exclusively in the black cotton soil of the watershed of the River Krishna and other adjacent rivers such as Ghatprabha and Malprabha in the Southern portions of Maharashtra State and Krishna Valley tract of Hyderabad.

The breed is found in the districts of Satara, Belgaum, Dharwar and parts of Bijapur of Maharashtra State and also in the native States of Miraj, Sangli, Kolhapur and Jamkhindi.

As the breed is an admixture of at least three distinct types, it shows a variety of characteristics which in its short history of formation have not become well fixed. However, certain characteristics were emphasized by the original breeders and had a greater chance of perpetuation.

The animal is large, having a massive form with deep broad chest, but is loosely built. The colour most sought after is grey-white with a darker shade on the forequarters and hindquarters in the males. Adult females look whiter. Brown and white, black and white and mottled colours are often met with. The forehead has a distinct bulge surmounted by small curved horns which usually emerge in an outward direction from the outer angles of the poll and curve slightly upwards and inwards but which vary a great deal in size and shape. The neck is short and thick and the dewlap is well-developed and pendulous. The sheath is also

slightly pendulous. The ears are small and pointed and breeders prefer them not the droop too much.

The body is short but the barrel is large and well-developed. Legs are short and thick and look powerful. Hooves are said to be soft. The Krishna Valley is a heavy draft breed suitable for cultivation purposes in the black cotton soil area which becomes extremely difficult to work during the rainy season, and for hauling heavy loads. The milk-producing capacity is extremely variable in the breed.

### **Malanad Gidda**



Malanad Gidda is a small, multipurpose breed of cattle reared by the farmers in Western Ghat region of Karnataka. They play a pivotal role in the socio-economic status of the farmers in this region. A survey was carried out in Shimoga district during 2005 for studying the breed. It was observed that Malnad Gidda cattle are generally maintained under semi range housing system. During the day they are allowed to graze in the forest areas and at night, they are kept inside the shed. Farmers generally utilize this breed for manure, milk and draft purposes. Bedding material containing paddy straw, dry leaves and twigs mixed up with dung and urine becomes an ideal compost fertilizer for coffee and recant plantation. The milk produced by this breed is 0.5 - 2.5 litres per day. The disease resistance capability of this indigenous breed is considered to be very important in the present context of characterization, utilization and improvement of the breed.

### **10. Number of families dependent on forest products for livelihood**

28 to 30 percent of the total household of the villages around the land in question

## **11. Government sponsored schemes, if any, for cattle and sheep rearing**

Government sponsored schemes for Sheep and Goat Rearing:

1. Special Component Plan
2. Tribal-sub plan
3. Insurance of Sheep and Shepherds

Details in Annexure 7 – Page 11

## **12. Beneficiaries of the proposed/on-going developmental activities:**

### **DRDO:**

Being a Defence Research organization of the country, the land will be utilized for testing unmanned aircraft and not for missiles, which were at present tested at the Interim Test Range at Balasore. The centre would produce and test the small Unmanned Aerial Vehicle (UAV), micro-UAV, flapping wing UAV and the long range UAV.

### **IISc:**

The IISc has established Talent Development Centre (TDC) in the sheep farm located at Khudapura. The Institute conceived the idea of starting a Talent Development Centre mainly to impart training to science teachers at all levels, to conduct discussion meetings, seminars, winter and summer schools, provide academic and research facilities for the young high school, college, and University students. High School Science Teachers Training Program (HTTP) is considered a priority because it is in the high schools the students are introduced to science. Science education is crucial for the development of our Nation. It is the experience of the Institute that if the teachers are trained, vast number of students gets benefitted for a long period of time. The primary vision of this program is teaching and training teachers to teach students with passion. Motivation to higher level of intellectual activity is more important than just giving lectures to the participating teachers and covering the course syllabus. The beneficiaries of this program include teachers of High School and Pre-university from different parts of the country.

IISc is also planning to establish Skill Development Centre in their campus at Khudapura to train local people in professional skills. The other projects of IISc include Climate Observatory at Challakere, Climate Research Facility for research, teaching and training, Solar Power Generation and Research Centre, Semi-arid Ecosystem Research Station and Earth Observatory Project with particular reference to Broadband Earthquake Observatory. These projects not only benefit the common man of villages located around the land in question but also people of the country in general.

**BARC:**

Being a major giant in Scientific Research, BARC is aiming to produce upgraded fuel useful for nuclear power generation. The organization is planning to set up a Special Materials Facility (SMF) project to meet the future requirement of upgraded fuel for use in power sector. The SMF project involves different types of activities like chemical processing of raw material, mechanical assembly and testing of special purpose machines and auxiliary supporting facilities for isotopic separation involving physical process. The project also benefits the locals in terms of employment both in skilled and semi-skilled category, development of infrastructure such as schools, hospitals and road and involvement of industries of raw material supply and machining/fabrication jobs. Thus there will be an overall development of the area which will benefit the livelihood of people.

**ISRO:**

The land will be utilized for locating advanced Research and Development facilities required to meet the needs of the future space program of the country.

**Sagittaur Ventures India Pvt. Ltd.**

Sagittaur Ventures India Pvt. Ltd. is planning to set up an Integrated Solar Park starting with 25MW and also have plans of expanding the same up to 200MW. This is expected to provide employment in sizable numbers to local population for jobs for which minimal training will be required and low requirements in terms of education.

It will adopt a nearby village to convert it to a Solar Village by providing common amenities like solar street lights and solar equipment lighting for village Panchayat building, local village school etc. it also planning to install solar energy based pumps in the local environment that will contribute to rapid development of green acreage in and around the region.

### **KSSIDC**

KSSIDC is planning to establish several small scale industries by private entrepreneurs to meet the requirement of the upcoming Central/Private organizations. This would provide immense employment opportunities not only for the people of the villages around Amrit Mahal Kaval but also for the people of Challakere and Hiriyur taluks in particular and Chitradurga district in general. Besides rearing sheep and cattle, the youth of the villages can earn additional livelihood through these small scale industries.

### **13. Proposals announced by the government for enhancing cattle and sheep rearing in recent times**

Several proposals are announced by the Government in recent times, for enhancing cattle and sheep rearing

### **14. Number of Goshalas in the region:**

3 goshalas were opened during drought season (2011/2012) at Khudapura, Hirekere Kaval and Dodda Ullarti. Now they have been closed. Details in Annexure 7 – Page 5

### **15. Have there been any efforts to preserve, protect and increase the number of pure Amrit Mahal/Hallikar or other indigenous breeds in the region:**

Yes, the Animal Husbandry and Veterinary Services department had taken several steps to preserve, protect and increase the number of pure Amrit Mahal/Hallikar and other indigenous cattle (Annexure 7 – Page 12).

## **II. Ecological Survey:**

### **1. Topography of the region:**

The land has been classified as arid. The land terrain allotted to the DRDO, BARC, ISRO, IISC and KSSIDC is undulating, rocky surface, covered with open scrub, thorny bushes with isolated pockets of exposed sheets of rocks and boulders. Natural slope in the site range from 1:40 to 1:80, with few small channels (nalas) present within the site. The area is uncultivable, some hillocks with the kind of soil loaded with red gravel. There are no habitation, plantations and cultivation within the allotted land. Surface soil is black and red in colour with sheets of rock and boulders. North West and South West part of the site is bound by low hillocks.

DRDO: The land is undulating, covered with open scrub, thorny bushes with isolated pockets of exposed sheet rocks and boulders. A few small nalas are present within the site. The area is undeveloped and barren. There are no habitation, plantations and cultivation within the allotted land. Surface soil is black and red in colour with sheet rock and boulders. North West and South West part of the site is bound by low hillocks.

ISRO: The land is nothing but rocky surface and some hillocks with the kind of soil loaded with red gravel.

IISc: Natural slope in the site range from 1:40 to 1:80 (Refer Contour survey map in Annexure 1 Page 29)

KSSIDC: Carried out

Sagitaur Ventures India Pvt. Ltd.: Sloping towards north and north east

BARC: Undulating plains, interspersed with sporadic ranges and isolated low ranges of rocky hills.

## 2. Total area of the land under question

**Table 7: Total area of land allotted to various Organizations (Organization wise)**

Sl. No.	Organisation	Village Name	Survey No.	Acres
1.	Defence Research Development Organisation (DRDO)	Varavu Kaval Khudapura	343 47	4000 290 <b>(Total 4290)</b>
2.	Indian Institute of Science(IISC)	Khudapura	47	1500
3.	Bhabha Atomic Research Centre (BARC)	Ullarti Kaval Khudapura	1 47	1410 400 <b>(Total 1810)</b>
4.	Indian Space Research Organisation (ISRO)	Ullarti Kaval Khudapura	1, 47	473 100 <b>(Total 573)</b>
5.	Karnataka Small Scale Industries and Development Corporation (KSSIDC)	Ullarti Kaval Khudapura	1, 47	250 50 <b>(Total 300)</b>
6.	Sagitaur Ventures India Pvt. Ltd.	Varavu Kaval	N.A.	1000
7.	Karnataka Housing Board (KHB)	Khudapura	47	50
<b>Total</b>				<b>9523</b>

**Table 8: Total area of land allotted to various Organizations (Kaval wise)**

Sl. No.	Kaval Land	Survey No.	Organisations	Acres
1	Varavu Kaval	343	1. Defence Research Development Organisation (DRDO) 2. Sagitaur Ventures India Pvt. Ltd.	4000 1000
<b>Total</b>				<b>5000</b>
2	Khudapura	47	1. Defence Research Development Organisation (DRDO) 2. Indian Institute of Science(IISC) 3. Indian Space Research Organisation (ISRO) 4. Karnataka Small Scale Industries and Development Corporation (KSSIDC) 5. Bhabha Atomic Research Centre (BARC) 6. Karnataka Housing Board (KHB)	290 1500 100 50 400 50
<b>Total</b>				<b>2390</b>
3	Ullarti Kaval	1	1. Bhabha Atomic Research Centre (BARC) 2. Karnataka Small Scale Industries and Development Corporation (KSSIDC) 3. Indian Space Research Organisation (ISRO)	1410 250 473
<b>Total</b>				<b>2133</b>
<b>Grand Total</b>				<b>9523</b>

### 3. Number of water bodies in the land under question

Challakere taluk is drought prone. The land under question has 7 tanks. Ullarti Kaval has 2 tanks, 3 tanks are in Varavu Kaval and Khudapura has 2 tanks. All these tanks are perennial and dry up in summer. The largest tank (Ullarti Tank: Survey no 1) of 112 acres is found in Ullarti Kaval. Part of the tank falls under the area allotted to ISRO. When the tank is completely full and overflowing, 70% of the water in the tank is adjacent to the Ullarti Village and 30% is within the area of ISRO. This is a rear phenomenon and has been not observed during the last 3 years. Water storage capacity in monsoon season in these tanks is 42 days and in the non-monsoon season 38 days according to 2010 ground water assessment (Figures 11, 12 and 13).

**Table 9: Water bodies present in each Kaval land**

Sl. No.	Kaval	Organizations	No of Tanks
1	Varavu Kaval	DRDO Sagitaur Ventures India Pvt. Ltd.	3 Tanks Nil
2	Ullarti Kaval	BARC ISRO KSSIDC	1 Tank 1 Tank Nil
3	Khudapura	IISc BARC ISRO and KSSIDC Residential KHB Sheep Farm Reserved Area DRDO Residential DRDO Approach Road	Nil Nil 1 Tank Nil Nil Nil Nil 1 Tank
		<b>Total</b>	<b>7 Tanks</b>

### 4. Average precipitation received in the region:

The area is dry, prone for drought and receives poor rains. The record of 50 years rainfall data shows rainfall range from 114 to 770mm. The mean rainfall is 455mm/year. The seasonal distribution of rainfall presents interesting observations when it is compared to North West arid region. Two rainfall peaks, one during May-in pre-southwest monsoon and the other in October , just after the commencement of North East Monsoon. The rainy

season is well spread from May to November. North West monsoon gets highest rainfall. The average precipitation received in the region for the last 30 years is detailed in the table.

**Table 10: Average precipitation recorded in Kaval lands**

<b>Kaval</b>	<b>Precipitation</b>
Khudapura- Nearest rain gauge station is Nayakanahatti: <ul style="list-style-type: none"> <li>• Avg. monsoon rainfall (5 years)</li> <li>• Avg. non-monsoon rainfall (5 years)</li> <li>• Long term rainfall (30 years)</li> </ul>	270.12 mm 95.99 mm 370.98 mm
Ullarti- Nearest rain gauge station is Talaku <ul style="list-style-type: none"> <li>• Avg. monsoon rainfall (5 years)</li> <li>• Avg. non-monsoon rainfall (5 years)</li> <li>• Long term rainfall (30 years)</li> </ul>	461.57 mm 95.99 mm 355.52 mm

The normal annual rainfall in the district based on 30 years is 574mm. However, in the last decade (1996-2005) the district received an average annual rainfall of 631.7mm. Further analysis of rainfall data indicate that there was deficient rainfall in the years 2003, whereas the year 2005 received excess rainfall. Challakere faced deficit rainfall in the years of 2002 & 2004. Post-monsoon rainfall had failed in the district during 2001 and 2004. During the year 2003 the pre and post-monsoon season rainfall had failed. For the entire district, rainfall is lowest in Challakere Taluk.

### **5. and 6. Nature of Soil and Soil Strata**

All India Land Use and Survey Organization classified the soil of this region into 2 broad groups' viz. tropical red sandy loam and tropical black clay soils. These soils are inter-spread and difficult to demark the boundaries. The red gravelly soils derived from the acidic metamorphic rocks are the prevalent group of soils under the ferruginous red soil groups.

About 75% of the area of the soil in Challakere taluk is covered by Granitic Gneiss complex, the oldest earth's crust. Along the courses of the river, Haggar-Vedavati, Granihalla and Doddhalla are of Sand and alluvia deposited due to floods.

The nature of soil in the Amrit Mahal Kaval area is basically shallow, very gravelly and red soils are common.

**Varavu Kaval:** In the area majority of the soils of red gravelly loamy type. The soil range from shallow red gravelly loam to very shallow red gravelly loam. In addition shallow red gravelly loam soil associated with rock out crops is also noticed. Small patches of moderately deep alluvial loam soils associated with alluvial sodic soils and deep alluvial calcareous black soils are also noticed. Two patches of very deep alluvial sodic loamy soils associated with deep alluvial loamy soils are found.

In the land allotted to DRDO soil strata with in a depth of 20m comprises of top layers with sandy silt. Bottom layer highly weathered rock and layer three is moderately weathered rock (Figure 14).

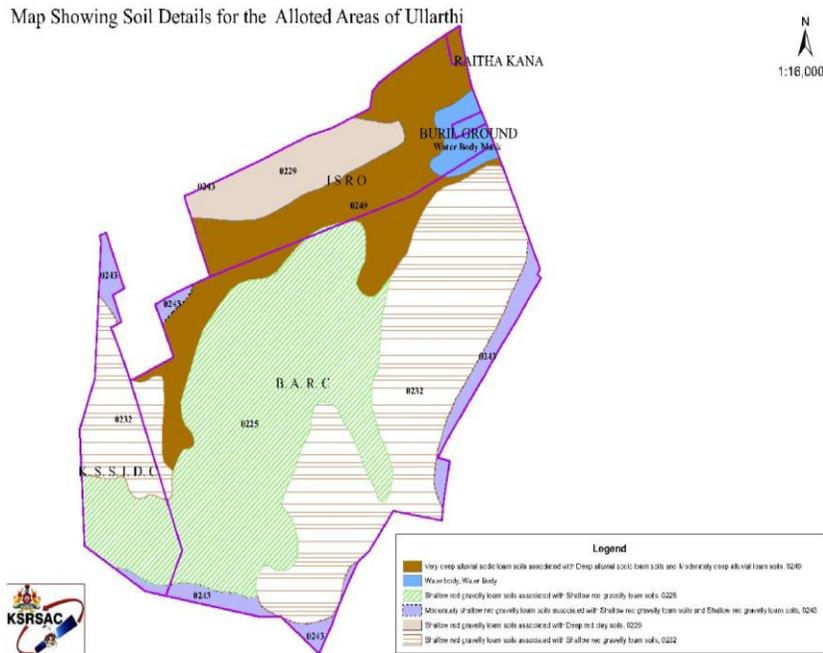
**Khudapura:** In the Amrit Mahal Kaval region of Khudapura soil to a large extent is comprised of shallow red gravelly loamy soil and shallow red gravelly loam soil associated with rock cut out crops. In the course of the valley region the soil is moderately deep alluvial loam with moderately shallow alluvial sodic soil having deep alluvial calcareous black soils (Figure 15).

**Ullarti:** At Ullarti soil to a large extent is formed of shallow red gravelly loam soil. In the valley region the soil is deep alluvial sodic loamy associated with moderately deep alluvial loamy soil. In the peripheral region of the land allotted to BARC, the soil is moderately shallow red gravelly loam. The other category includes sandy clay loam and clay having moderately high runoff potential (Figure 16).

The ISRO Land has Red Gravel soil. ISRO: Soil map of Ullarti Kaval area shows that most of the soil is classified under sandy loam category which as moderate to high runoff potential. The other dominant category include sandy clay, loam and clay are having moderately high runoff potential., DRDO land with sandy-silts with small cobbles at places and few rocky outcrops. The DRDO land has Top layer Sandy-Silt, the bottom Layer 2: Highly weathered rock and Layer 3- Moderately weathered rock. Boring has been done to a maximum depth of 20m (Figure 14). BARC land with hard red soil with outcrops/boulders whereas central part consists of sandy soil at Ullarti. Khudapura land soil is sandy to red soils



**Figure 16: Map showing Soil details of Ullarti Kaval**



## 7. Absorption/percolation capacity

In Amrit Mahal Kaval lands the Absorption/percolation is found to range from Medium to High. The beneficiaries of the land have provided information in respect to their respective lands allotted.

**DRDO:** Adequate

**BARC:** Infiltration test result indicates 0.1-25.4 cm/hr.

**IISc:** Soil test indicate moderate level of absorption/percolation capacity.

**ISRO:** It is found to range from 15 to 20%

**KSSIDC:** Not analysed

**Sagitaur Ventures India Pvt. Ltd.:** Poor

## **8. Any other?**

75% of the area in Challakere taluk is covered with Granitic Gneiss complex which is the oldest formation of the earth's crust. Remaining 25% is covered by Dharwar system. Tropical red sandy loam and red gravelly soils are the most prevalent group of soils. The existing natural vegetation is poor due to erratic and low rainfall conditions and biotic influences. Amrit Mahal Kaval region has scrubs, shrubs with large patches of grasses.

## **7 Biodiversity in and around the land under question:**

Amrit Mahal Kaval in Challakere taluk, Chitradurga district has been existing from the time of its recognition by Vijayanagar Empire (1572). The first record of Ecology of Challakere taluk including Amrit Mahal Kaval area was published in 1971 by Gupta. There after till 2011, there has been no record on the biodiversity of the land. Even the Department of Animal Husbandry and Veterinary Services (under whose jurisdiction the land is prevailing) or the Karnataka State Biodiversity Board have not listed the fauna and flora of this region. Although Bio-diversity Management Committee has been constituted in some villages of Challakere taluk, the committee pertaining to Ullarti, Varavu and Khudapura Kaval areas are yet to be constituted (Annexure 6).

After the allotment of Amrit Mahal Kaval land at Challakere to Central/State/Private Organizations, the Centre for Ecological Sciences, IISc, Bangalore has carried out a rapid Bio-diversity survey on the flora and fauna of the IISc campus at Khudapura. The survey is limited to 25<sup>th</sup> to 28<sup>th</sup> of June 2011. The research team has listed the flora and fauna of Khudapura region only.

Maitreya Institute of Environment and Rural Studies, Tiptur, Karnataka has prepared a bio-diversity study report entitled 'Amrit Mahal Breed of Cattle's, Kaval's (Grassland) and its Bio diversity – a Study Report, 2011' and has submitted it to Western Ghats Task Force. This report provides information on the flora and fauna of Amrit Mahal Kavals located at Basoor, Birur, Ajjampura, Hullenahalli, Ramgiri Grassland and Konehalli of Karnataka. Though there is a mention of Chitradurga district Kaval land, the report does not specify the

flora and fauna exclusive to Amrit Mahal Kaval at Challakere (Application no 12 of 2013 (S2) – Annexure 18, Page 64 to 107).

The occurrence of medicinal plants associated with Jaundice in Chitradurga district has been detailed by Hiremath and Taranath (2011). The authors have collected information through questionnaire from tribal people (Bedas, Besths, Golla, Kuruba, Jenu Kuruba, Lambani, Hakki-pikki), local Vaidyas, Village elders. The authors have listed the plants of medicinal importance associated in the cure of Jaundice disease. However, the paper does not provide information on the occurrence of these medicinal plants in the Kaval lands under question at Challakere (Annexure 9).

Shri. N M Ganesh Babu from Foundation for Revitalization of Local Health Traditions (FRLHT) has carried out field work on the floristic diversity and ethno-botany of Chitradurga district under PhD program of Forest Research Institute Dehradun (1999-2013). He has provided information of geology, soil, climate, rain fall, type of vegetation, types of forest, floral diversity including medicinal plants (Annexure 11 – Page 107-146). The report does not highlight floristic diversity exclusive to Amrit Mahal Kaval of Challakere taluk.

Though survey on bio-diversity of Amrit Mahal Kaval at Khudapura has been carried out by Centre for Ecological Sciences, IISc, Bangalore, as also in Kavals by other bodies, hither too census of each of the species occurring in the Amrit Mahal Kaval has not been carried out. For instance, Blackbuck population has been recorded at Jayamangali Blackbuck Conservation Reserve, Mydanahalli, Tumkur District, Karnataka. As per the census of 2009, 454 Blackbuck comprising 120 males 280 females and 49 fawns were found to occur in the said reserve (Annexure 10). Therefore, it is difficult to quantify the population structure of Blackbuck in Amrit Mahal Kaval.

Hence, the information on the bio-diversity of Amrit Mahal Kaval land under question in Challakere taluk is limited to Khudapura as provided in the report by the Centre for Ecological Sciences, IISc, Bangalore.

### 1. List of flora, especially the list of specific grass that indigenous/Amrit Mahal Cattle feed in the lands under question

Six types of grass are found to occur in the Kaval land under question (Table 11). Indigenous and Amrit Mahal cattle have been reported to feed on these grasses.

**Table 11: List of flora on which indigenous/Amrit Mahal cattle feed on along with their Vernacular name, Common name and Scientific Name**

Sl. No.	Vernacular Name	Common Name	Scientific Name
1.	Mane hullu		<i>Aciculatuslawsonii / Chrysopogonlawsonii</i>
2.	Bade hullu	Love Grass	<i>Eragrostistenella</i>
3.	Kaaduragi hullu	Egyptian Finger Grass	<i>Dactylocteniumaegyptium</i>
4.	Garike hullu	Bermuda Grass	<i>Cynodondactylon</i>
5.	Karade hullu		
6.	Cowtle hullu		

### 2. List of indigenous grass flora

Existing indigenous grass flora mostly consists of *Cymbopogon jawarancusa*, *Heteropogon controtus*, *Arisitida hystricula*, *Aristidia adscensionis*, *Arisitida setacea*, *Tetrapogon tenellus*, and *Crysopogon montanus* along the sloppy lands. The saline land includes grass communities of *Sprobolous termuls* – *Cynodon dactylon*, *Tribulus terrestris*. Other palatable grasses include *Eleusineindica*, *Paspalidium flavidum*, *Cynodon dactylon*, *Setaria tomentosa*, *Crysopogon fulvus* and *Panicum fluitans*.

### 3. List of wild/domesticated food crops

The following agricultural crops are grown in the villages:

**Table 12: List of wild/domesticated food crops with their Vernacular name, Common name and Scientific name**

Sl. No.	Vernacular Name	Common Name	Scientific Name
1.	Ragi	Ragi	<i>Eleusine corcoana</i>
2.	Musikinu Jola	Maize	<i>Zea Mays</i>
3.	Jola	Jowar	<i>Sorghum</i>
4.	Sajje	Bajra	<i>Pennisetum glaucum</i>
5.	Arale	Cotton	<i>Gossypium indicum</i>
6.	Kadale kayi	Groundnut	<i>Arachis hypogaea</i>
7.	Nirulli	Onion	<i>Allium cepa</i>

8.	Hurali	Horse Gram	<i>Dolichos uniflorus</i>
9.	Navane	Wild Millet	<i>Setaria italica</i>
10.	Bhatta	Paddy	<i>Oryza sativa</i>
11.	Godhi	Wheat	<i>Triticum aristatum</i>

#### 4. List of economically useful flora

**Fruit plants:** *Cocous nucrifera*, *Areca catechu*, *Tamarindus indica*, *Artocarpus heterophyllus*, *Carica papaya*, *Magnifera indica* and *Annona sp.*

**List of Fruit plants in Kaval land as informed by the villagers in vernacular names:**

- a. Kavalehannu
- b. Borehannu
- c. Eechalahannu
- d. karehannu
- e. Thondehannu
- f. Seetaphala

**List of greens in Kaval land as informed by the villagers in vernacular names:**

- a. Aalesoppu
- b. Dannesoppu
- c. Kiradalesoppu
- d. Wild Mushrooms

**Other economically useful trees:** *Acacia latronum*, *Acacia Arabica*, *Albizia amara*, *Anogeissus chlorozylom*, *Euphorbia antiquorum*, *Phoenix sylvestris*, *Ailanthes excels*, *Acacia leucophloea*, *Pongamia glabra*, *Zizyphus xylopyrus*, *Eriodendron anfractuosum*, *Tamarindus indica*, *Azadirachta indica*, *Albizza lebbeck*, *Balenites aegyptiaca*

**Shrubs:** *Cassia fistula*, *Carissa spinarum*, *Dodonaea viscose*, *Tephrosia falciformis*, *Boerhavia diffusa*, *Fagonia crecita*, *Cassia auriculata*, *Calotropis gigantea* and *Opuntia dilleni*

The check list of plants comprising trees, shrubs, climbers and herbs of Khudapura, listed by Centre for Ecological Sciences, IISc is appended (Annexure 1 – Page 25 and 26).

#### 5. List of medicinal plants

Medicinal plants available in the Kaval land and used by local health healers for treatment of various disorders. List was provided in vernacular language (Kannada) to the FFC during interactions with villagers.

**Table 13: List of Medicinal plants along with their vernacular name and its uses**

Sl. No.	Name of the plant in vernacular language	Treatment for
1.	Koli Kutakana Gedde	Delivery
2.	Onedelaga	Inflammation of stomach
3.	Tare	
4.	Halale kayee	
5.	Nelaton gadi	Dysentery
6.	Kare beru	Snake Bite
7.	Kantigana balli	Gastric problem
8.	Doddakayee balli	Healing of Wounds
9.	Myura Chandrika (Navilu gari) (Peacock Feather)	Respiratory Disorder
10.	Janmaganti	Hardening of bones
11.	Yellari gedde	Stomach Ailments
12.	Thonde	Scorpion bite
13.	Ashwagandha	Weakness

28 plant species under 24 genera and 20 families collected from different villages of Challakere taluk have been used commonly to treat Jaundice (Hiremath and Taranth; 2011).



## 6. List of fauna

Centre for Ecological Sciences, IISc, Bangalore have identified in Khudapura 6 species of Amphibians, 14 species of Lizards, 5 species of Snakes, 80 species of birds spread over 41 families, 34 species of which are especially found in open habitats. Among the mammals, Black-naped Hare, Indian Fox and Blackbuck have been listed.

Grasslands are known to form a good habitat for Indian Great Bustard and Lesser Florican. However, hitherto there are no records to indicate the occurrence of either the Bustard or Lesser Florican in Amrit Mahal Kaval of Challakere taluk.

Blackbuck is a near threatened (IUCN Red list 3.1) species of mammal. The FFC members during their first visit to IISc Campus Khudapura observed a small herd (comprising 1 adult and 3 young ones) crossing the mud road inside the campus. Other than this, in the remaining visits to Amrit Mahal Kaval, members did not spot any Blackbuck. However, they were able to observe the presence of fecal matter.

#### **7. List of indigenous fauna**

The list of indigenous Fauna are appended (Annexure 1 – Page 22-24).

#### **8. List of Migratory fauna**

In Khudapura region, rapid bio-diversity survey carried out by Centre for Ecological Sciences, IISc, Bangalore did not list any winter migratory birds. Hitherto in literature there are no records regarding migratory fauna of Challakere in general and Amrit Mahal Kaval in particular. The near threatened Blackbucks are very territorial marking it and defending it in rutting season (Annexure 10).

#### **8 Socio-cultural scenario in and around the land under question**

The human populace is very poor and majority are BPL families with all the ethnic and social and traditional backgrounds. Most of their literacy level is below SSLC and only few educated in the village. They are basically from peasant background depending on agriculture-related activities for their livelihood. The villagers are having lot of grazing animals like sheep, cows, buffaloes, goat and cows. Wool from sheep is reeled and blankets are made. Milk and milk products, meat and fur are sold for their livelihood. The villages have poor infrastructure lacking basic amenities. There are several temples in the area and the economy of these villages is not very highly appreciable. The roads and water supply are not of standard quality in the villages. There is not much local transportation to these villages. All the villagers are not having water supply and there are very few water bodies to meet this.

## **Social Infrastructure**

For improving “quality of life”, government emphasises on developing Social Infrastructure comprising health and education, leisure and sports, and art, culture and heritage. In the case of Challakere village, key issues noticed are

- a. Lack of or minimal Coordination between and the State Government in provision and improvement of health and education facilities;
- b. Fire station located in Challakere TMC caters to the entire Challakere Taluk. Existing staff, vehicles and equipments are inadequate to take of fire and emergency risks in urban as well as rural areas;
- c. Lack of efforts to improve overall urban environment through planting of trees, provision of street furniture, developing of parks and playgrounds, lake development and development of leisure places etc.;
- d. Lack of facilities such as crematorium, swimming pool, sports complex etc.; and
- e. Lack of decentralized market places.

**The committee may interact with the local population/stakeholders and summarize their views along with its own observations**

Please see the report from page 65 to 71

## **9 Environmental Suitability of the area for the proposed activities**

Committee sought information from each of the beneficiaries, on the suitability of the land for their respective proposed activities. The information provided by them is given below:

### **BARC**

- a. Readily available arid land on an mildly undulating terrain
- b. No habitation in the proposed plant site, hence no R&R issues
- c. Sparsely populated surroundings
- d. Suitable topography for construction of facilities
- e. Good accessibility through road and rail

- f. Availability of power & water sources at convenient distance
- g. Suitable seismic zone
- h. No major storage facilities of inflammable and explosive materials
- i. No reserve forests or forest land existing, no archeologically important heritage monuments, no declared biodiversity parks/ sanctuaries within the 10 km radius.
- j. No perennial water sources passing through the site.

## **DRDO**

The environmental suitability of the area allotted for the Aeronautical Test Range is for the following reasons:

- a. Barren land- No agricultural land or other developments.
- b. Less rain fall, hence less drainage problems.
- c. Good soil strength (CBR value  $\geq 8\%$ )- Good for Runway and other infrastructure development
- d. Large open stretch of land-Easy take-off and landing for air vehicles
- e. Away from large cities, yet close to Bangalore (Aero cluster laboratories) - Appropriate for testing of Unmanned Aerial Vehicles.
- f. No agricultural area/ least fertile land.
- g. Availability of power
- h. Approach to site

Before selection of the allotted land, reconnaissance survey was done for 22 different sites around Bangalore.

A feasibility report for the runway location and orientation was also prepared by M/s SECON.

## **IISc**

- a. The proposed land is devoid of any agricultural or income generating activities
- b. The soil is not conducive for agricultural activities
- c. There is no human habitation within the said land or adjacent to it.
- d. No availability of water resources required to sustain living.
- e. Not habitable in present condition for any human activity. Hostile terrain.

- f. IISc requires minimal foot prints in this land, which it will organize, giving due diligence to ecological aspects.

**ISRO:** The land will be utilized by ISRO for locating advanced research and development facilities required to meet the needs of the future space program.

**KSSIDC:** Land is suitable for formation of industrial estate and the location is good. There is very good demand for plots. 837 entrepreneurs have submitted applications to establish new industries. This will provide more than 6000 employment and will increase the economy of Challakere town.

**Sagittaur Ventures India Pvt. Ltd.:** The site is barren and no agricultural activities can be taken up due to presence of rocky out crops and hard formation as shallow depth. There are no perennial water sources within the radius of 10kms for utilizing the same and carrying out agricultural activities. Government of Karnataka is planning to develop industries in view of above constrains in the surrounding areas. Setting up of green field renewable energy projects (Solar PV) will maintain the ecosystem intact. At the same time it will allow the area for development there by generating employment opportunities for locals including putting the available barren land to best use.

## **Interaction with the Petitioner/s and visit to Amrit Mahal Kaval**

The petitioner, Shri. Leo F Saldanha, through email had requested the FFC to provide him and his team an opportunity to express their views as also visit Amrit Mahal Kaval for first-hand information on the impacts of establishment of Government/private organisations. Accordingly the FFC had a meeting with the petitioner and their associates, as also visited Amrit Mahal Kaval on 23<sup>rd</sup> May 2013.

The visit at Amrit Mahal Kaval commenced with a briefing by the petitioner at the forest nursery Challakere. The members were shown the map of Challakere indicating the Amrit Mahal Kaval area as also the diverted land. After discussion, petitioner along with Shri. Kariyappa local village leader took the Committee members to Dodda Ullarti. During the journey, the committee made a stopover to examine the spot where the BARC had fenced the road to Kaluvehalli, as also the mud road leading to agriculture lands. The Committee members also interacted with the local shepherds grazing the sheep both in agriculture fields and also in land allotted to ISRO/BARC.

Committee members were then taken to Dodda Ullarti village new extension where women folk reeling the wool through manual Charka were shown. Members interacted with local villagers, heard their version of impact and visited the grazing places of village cattle and sheep located close to village tank. In Dodda Ullarti village, members were shown sorting and weaving (through pit loom) of sheep wool blankets. Shepherd present, interacted with members and discussed the economics of sheep grazing and blanket preparation.

In the afternoon, the committee members were taken to sheep breeding centre at Khudapura to visit the IISc campus. The members were shown the droppings of the Blackbuck, few medicinal plants and the place of conduct of annual rituals of the villagers. Then the committee visited Ramdurga fort from where the petitioner showed the long boundary wall of DRDO, as also other construction activities in progress. The petitioner briefed about impact of construction of boundary wall and inaccessibility of DRDO land for

grazing by sheep and cattle. The associates of the petitioner mentioned that DRDO had dropped a bomb inside their land causing loud noise, damage to trees and land

Members were then taken to IISc campus to show the worship place (Ajjayanagudi) of the villagers and explained how the boundary wall, constructed by IISc had blocked the accessibility of villagers to the worship place. At the end of the visit the petitioner informed the Committee that he would be submitting a detailed document covering the facts and evidences to the Committee for their perusal. Subsequently on 27<sup>th</sup> June 2013, along with Coordinator (Education)/Trustee, Environmental Support Group submitted a document entitled "Forfeiting our Commons – A Case for Protecting and Conserving Challakere's Amrit Mahal Kaval as Livelihoods-Supporting, Biodiversity-Rich and Ecologically-Sensitive Grassland Ecosystems." The committee members have examined this report and the same is enclosed for perusal (Annexure 11).

**Interaction by the Fact Finding Committee with local population/stakeholders  
of Amrit Mahal Kaval region of Challakere Taluk, Chitradurga District**

The Fact Finding Committee visited the office of Assistant Deputy Commissioner of Chitradurga on 16<sup>th</sup> May 2013 and interacted with heads of various departments associated with Amrit Mahal Kaval. The Assistant Deputy Commissioner of Chitradurga directed the Tahsildar of Challakere Taluk to organise interactive meetings with the villagers/stakeholders of villages located around Amrit Mahal Kaval. Accordingly the Tahsildar had organised the meeting on 24<sup>th</sup> and 25<sup>th</sup> of May 2013. The committee had prepared a questionnaire to seek first-hand information from the villagers as also from the affected individuals. A copy of the questionnaire is enclosed for perusal (Annexure 12). In all, the Tahsildar had invited villagers/Stake holders from 26 villages and on each day 2 sessions of interactive meetings (Forenoon-1; Afternoon-1) were held. The groupings of the villages are detailed below (Table 14). The meetings were held on 24<sup>th</sup> May 2013 in the Panchayat Office premises of Dodda Ullarti (Figure 17) and Bharamasagara (Figure 18). Besides, as people of Rangavvanahalli could not reach the venue, the committee visited the village and interacted with the people after the interactive meeting at Bharamasagara (Figure 19). On 25<sup>th</sup> May 2013 meetings were held in Nayakanahatti (Figure 20) and Neralagunte (Figure 21) respectively.

**Table 14: List of Villages visited by Fact Finding Committee**

ಕ್ರ. ಸಂ Sl. No.	ಗ್ರಾಮಸಭೆನಡೆಯುವಸ್ಥಳ Place of Gramsabha	ಕ್ರ. ಸಂ Sl. No.	ಗ್ರಾಮ Village	ಕಿ. ಮೀ Kms	ಮಾಹಿತಿಸಂಗ್ರಹದದಿನಾಂಕ Date of Interaction
1.	ದೊಡ್ಡಲುಳ್ಳುತಿ DoddaUllarti	1	ಉಳ್ಳುತಿಕಾವಲ್/Ullarti Kaval	0.3 Kms	24 <sup>th</sup> May 2013 (M)
		2	ಚಿಕ್ಕಲುಳ್ಳುತಿ/ChikkaUllarti	4 Kms	24 <sup>th</sup> May 2013 (M)
		3	ದುರ್ಗಾವರ/Durgaavara	4 Kms	24 <sup>th</sup> May 2013 (M)
		4	ಕಾಲುವೆಹಳ್ಳಿ/Kaaluvehalli	5 Kms	24 <sup>th</sup> May 2013 (M)
		5	ಚನ್ನಗಾನಹಳ್ಳಿ/Channaganahalli	4 Kms	24 <sup>th</sup> May 2013 (M)
		6	ಯಾದಲಗಟ್ಟಿ/Yaadalagatti	4 Kms	24 <sup>th</sup> May 2013 (M)
		7	ದೊಡ್ಡಲುಳ್ಳುತಿ/DoddaUllarti	0 Kms	24 <sup>th</sup> May 2013 (M)
2.	ಭರಮಸಾಗರ Bharamasaraga	1	ಭರಮಸಾಗರ/Bharamasagara	8 Kms	24 <sup>th</sup> May 2013 (A)
		2	ರಂಗವ್ವನಹಳ್ಳಿ/Rangavvanahalli	8 Kms	24 <sup>th</sup> May 2013 (A)

3.	ನಾಯಕನಹಟ್ಟಿ Naayakanahatti	1	ನಲಗೇತನಹಟ್ಟಿ/Nalagetanahatti	15 Kms	25 <sup>th</sup> May 2013 (M)
		2	ಸರ್ಜವ್ವನಹಳ್ಳಿ/Sarjavvanahalli	12 Kms	25 <sup>th</sup> May 2013 (M)
		3	ರಮದುರ್ಗ/Ramadurga	4 Kms	25 <sup>th</sup> May 2013 (M)
		4	ಮನಮೈನಹಟ್ಟಿ/Manamynahatti	3 Kms	25 <sup>th</sup> May 2013 (M)
		5	ಓಬಯ್ಯನಹಟ್ಟಿ/Obayyanahatti	6 Kms	25 <sup>th</sup> May 2013 (M)
		6	ಗಜ್ಜುಗಾನಹಳ್ಳಿ/Gajuganahatti	7 Kms	25 <sup>th</sup> May 2013 (M)
		7	ತಿಮ್ಮಪ್ಪಯ್ಯನಹಳ್ಳಿ/Timmappayyanahatti	9 Kms	25 <sup>th</sup> May 2013 (M)
		8	ಎನ್. ದೇವರಹಳ್ಳಿ/N Devarahalli	6 Kms	25 <sup>th</sup> May 2013 (M)
		9	ಎನ್. ಗೌರೀಪುರ/N Gowripura	5 Kms	25 <sup>th</sup> May 2013 (M)
		10	ಖುದಾಪುರ/Khudapura	5 Kms	25 <sup>th</sup> May 2013 (M)
		11	ಕಾಟವ್ವನಹಳ್ಳಿ/Kaatavvanahalli	8 Kms	25 <sup>th</sup> May 2013 (M)
		12	ನಾಯಕನಹಟ್ಟಿ/Naayakanahatti	0 Kms	25 <sup>th</sup> May 2013 (M)
4.	ನೇರಲಗುಂಟೆ Neeralagunte	1	ಕಾರ್ತಿಕೇನಹಟ್ಟಿ/Karthikenahatti	3 Kms	25 <sup>th</sup> May 2013 (A)
		2	ವರವು/Varavu	5 Kms	25 <sup>th</sup> May 2013 (A)
		3	ವರವುಕಾವಲ್/Varavu Kaaval	2 Kms	25 <sup>th</sup> May 2013 (A)
		4	ವೀರದಿಮ್ಮನಹಳ್ಳಿ/Veeradammanahalli	8 Kms	25 <sup>th</sup> May 2013 (A)
		5	ನನ್ನಿವಾಳ/Nannivala	15 Kms	25 <sup>th</sup> May 2013 (A)
		6	ಗೊರ್ಲಕಟ್ಟೆ/Goralakatte	10 Kms	25 <sup>th</sup> May 2013 (A)
		7	ಖುದಾಪುರಕುರಿಫಾರಂ/Khudapura Farm	4 Kms	25 <sup>th</sup> May 2013 (A)
		8	ನೇರಲಗುಂಟೆ/Neeralagunte	0 Kms	25 <sup>th</sup> May 2013 (A)

Figure 17: Interactive meeting at Dodda Ullarti



Figure 18: Interactive meeting at Bharamasagara



**Figure 19: Interactive meeting at Rangavvanahalli**



**Figure 20: Interactive meeting at Nayakanahatti**



**Figure 21: Interactive meeting at Neralagunte**



The spoken language on the interactive meeting was Kannada. The entire proceedings of the meeting in the 4 Panchayats have been video graphed (Annexure 13). At each meeting, the Chairman of FFC addressed the gathering, informed the purpose of the meeting and sought their honest views in regard to the allotment of land to the State/Central Government organisations as also the hardships they have faced due to the diversion of the Amrit Mahal Kaval lands to these organizations. 5 persons (cross section of people; male and female representing shepherds, agriculturists, cattle owners, SC/ST and other users of the Kaval land) from each village were given opportunity to express their views in their spoken

language (Kannada/Telugu) and each person was provided 5 minutes duration. After their presentation, they were informed to fill the questionnaire (Annexure 14). The statements of the villagers were recorded by Dr K V Anantha Raman, member of the committee in Kannada (as the spoken language was Kannada). After listening to the views of each person, the committee members wherever necessary, sought clarification on the issues raised by them. Opportunities were also given to others to express their opinion. This included village leaders, members of Panchayat and MLA (Shri. Thippeswamy), who was present throughout the interactive sessions on both the days. After the completion of the interactive meetings, at each place the Committee received representations (in Kannada; 18 against (Annexure 15) and 4 for (Annexure 16) establishment) given by the villagers.

The Committee members after completion of the meeting have examined the proforma filled by the villagers, oral statements made by the villagers, video recording of proceedings and representations given. It is evident that majority of the villagers have repeated the same grievances. The major points of statements made by each villager (in Kannada) have been translated to English and are appended as Annexure 17.

Thereafter the Committee held a meeting on 15<sup>th</sup> June 2013 with the representatives of the recipients of the land to seek clarification in regard to the issues/concerns raised by the villagers in their respective allotted land. The chairman made a presentation about the issues raised by the villagers. The representatives of each organisation replied to the issues/concern raised by the villagers. Subsequently they have also provided a written letter of assurance protecting the interest of the villagers in regard to specific issues in the allotted land.

**Observations of the Committee on the interactive meetings:**

- 1) The petitioners (Mr. Leo F Saldanha and Environment Support Group) submitted a document entitled "Forfeiting Our Commons" (185 Pages including Annexures) to the FFC on 27<sup>th</sup> June 2013. The document includes background of the case, details of Amrit Mahal Kaval, Flora and Fauna, terms of reference for the FFC, details of the visit of the FFC to Challakere Amrit Mahal Kavals and interaction with

population/stakeholders. In the preface of the document (page 4 and 5) the petitioners have claimed that

*“The applicants and their associates also assisted the Committee in holding public interactions in five locations covering the impacted population of about 70 villages.”*

This is far from truth. The Chairman or member of the FFC has not sought any help either from the applicants or from the beneficiaries of the land either for organizing the meetings or for mobilizing the population/stakeholders to attend the meetings. The Tahsildar of Challakere had organized the meetings with the population/stakeholders of villages on 24<sup>th</sup> and 25<sup>th</sup> May 2013 and he had also informed the visit of FFC to the villagers well in advance. The associates of the applicant were present in all the interactive meetings, discussing with the villagers, recording the statements made by them and video graphing the whole proceedings on both the days. On 25<sup>th</sup> May 2013, at Nayakanahatti, one of the associate of the petitioners met the Chairman during the interactions and indicated that he would assist him in recording/getting the proforma filled by the villagers. The Chairman of the FFC objected to this and warned him not to interfere with functioning of the FFC. It was very evident on both the days throughout the meetings that the associates of the petitioners were either guiding/interacting with the villagers in making their statements and discussing with the leaders of the village.

- 2) Majority of the villagers have repeated the same grievances. This is also evident in the representations given by them after their oral talk. The contents of the representation remain almost the same.

## **Grievances**

The grievances of villagers/stakeholders are summarized below:

- Kavals were the main source for firewood, sand, mud and other construction materials for the villagers located around the Kaval lands. For pottery work,

mud from Kaval land was used. Lime stones are available and villagers used to earn money from this by selling them.

- From considerable time, the land was used for grazing by sheep and cattle including Amrit Mahal breed. Now they have been denied of grazing. During the non-agricultural seasons, they were grazing in agricultural lands. During agricultural season, they do not graze in these lands and depended on Kaval lands. Now with the construction of boundary walls by the respective organisations, the villagers are unable to enter Kaval lands and allow their sheep/cattle to graze as also collect firewood, medicinal plants, edible fruits and greens, palm leaves and other items as said above.
- Whenever, villagers have entered Kavals with sheep/cattle, they have been arrested/beaten/threatened by security guards and few police case has been registered.
- Medicinal plants available in the Kaval lands were used by villagers for treating various diseases of sheep, cattle and in certain cases human beings. With the construction of boundary wall, they are unable to collect the medicinal plants from the Kaval lands.
- Wild fruits and greens grown in Kaval lands were collected for daily use during drought months. Even by selling those, villagers were earning their livelihood.
- Firewood for domestic use and selling them in the town enabled them to make a living.
- Palm tree leaves were used to prepare basket, mat and brooms which had good demand and villagers were able to make day to day earnings.
- The water sources located in the Kaval land have been blocked due to the construction of boundary walls and villagers cannot access to it even to the animals.
- Nearly a good portion of the Ullarti tank is now under the jurisdiction of ISRO and a boundary wall is being constructed which is blocking the flow of catchment water into the tank.

- Boredevaragudi located in the land allotted to KSSIDC may not be accessible to us if the fencing comes up in the future.
- The Kaluvehalli village mud road is blocked and it is difficult to reach agriculture lands located adjacent to the road.
- Establishment of BARC and enriching of radioactive materials would lead to radiation leakage and its hazards resulting in irreparable damages for the existing populace as also to their progeny.
- Ajjayanagudi rituals could not be carried out as the approach is blocked by fencing the area.
- Every year Hiriya Habba was celebrated at the Kaval (Khudapura). Now it cannot be celebrated due to fencing of the land.
- Before allotment of Kaval land, Gramasabha was not conducted or discussed at local Panchayat level.
- Bore wells sunk by BARC/ISRO in these allotted area has caused water problems in the villages as the bore wells used by villagers are shallow and dried-up.
- In the DRDO area, bombs were exploded and this has changed underground water aqua fissure ducts connectivity.
- Peacocks, Black Bucks, variety of birds, fox and hares were found in large numbers in the Kaval area were said to be co-existing with the local villagers in the Kaval when they go for grazing the cattle and stay in the area. After the constriction of boundary walls by these organisations Bio-diversity in these Kaval areas have considerably depleted.
- For centuries, Villagers have coexisted with Kaval lands. What will the future generation of villagers have? There is nothing left for posterity.

## **Observations of the Fact Finding Committee**

Fact Finding Committee having gathered information for each of the Terms of Reference of the National Green Tribunal – South Zone, Chennai, observing the facts during the site visit at Amrit Mahal Kaval, interacting with villagers/stakeholders and on examination of documents has made the following observations:

1. Amrit Mahal Kaval land:

Amrit Mahal Kaval grassland at Challakere, Chitradurga district, Karnataka State, is an undulating land covered with scrub and thorny bushes as also with isolated packets of sheet rocks and boulders. Vast stretches of the land is covered by varieties of grass and shrubs. Soil of the land is basically gravelly red to black with loam to sandy type.

From time immemorial (1617), the land has been used for grazing and maintenance of Amrit Mahal breed of Cattle. The land which was under the custody of Kings, changed hands from one ruler to another and then came under the rule of British. During their rule, the land was transferred to the Department of Agriculture in 1923. Subsequently in 1945, it was transferred to Department of Animal Husbandry and Veterinary Sciences, a unit of Department of Agriculture, Mysore. After the formation of Karnataka State in 1956, Department of Animal Husbandry and Veterinary Services was created, Amrit Mahal Kaval land was transferred to this department and utilized for grazing by Amrit Mahal breed of Cattle owned exclusively by the Government. Further, the breeding centre of this breed was also established. Sheep and cattle of villagers were allowed to graze in the land with payment of nominal fee to the department. Since, Challakere is a belt for sheep rearing, Government of Karnataka in 1970 established a sheep farm in the Kaval land at Khudapura. After the establishment of sheep farm, the local sheep and cattle were prevented to graze in the land. However, over the years, the success of breeding program of Amrit Mahal breed and sheep rearing deteriorated due to various reasons. All through this period, the land continued to be under the custody of Animal Husbandry and Veterinary Services. Due to the failure in the breeding program, Amrit Mahal breed was shifted to Ajjampura. From the above facts and records it is clear that, the land has been under the custody of Department of Animal

Husbandry and Veterinary Services, Government of Karnataka. The records available in the Department of Forest (Annexure 18 – Page 7) also indicate that they never had the custody of Amrit Mahal Kaval lands.

## 2. Amrit Mahal Cattle:

Amrit Mahal breed of Cattle, a progeny of Hallikar breed thrived in Kaval lands in large numbers and were maintained by the rulers of Mysore. After independence, their population decreased considerably due to Eco climatic conditions. Though the Animal Husbandry and Veterinary Services made efforts to maintain and breed them in kaval lands at Challakere, they could not achieve success. Hence, the left over population were shifted to Ajjampura and today the breed is maintained and developed in 6 sub-centres of Karnataka excluding Amrit Mahal Kaval. The villagers around the Kaval initially did possess the original breed of Amrit Mahal Cattle. Over the years, the pure breed lost its ground and today in most of these villages breeds related to Hallikar is available.

As per the Livestock Census of 2007, only 150 numbers of Amrit Mahal Cattle were found in the villages around kaval area. However, Livestock Census of 2012 confirms the total absence of Amrit Mahal breed cattle in the villages around kaval area. However, there are 13,348 indigenous cattle maintained by the villagers.

## 3. Sheep and Goat

The Challakere taluk has been the seat of rearing sheep and goats. As per the 18<sup>th</sup> Livestock Census (2007), 66,176 sheep and 16,468 goats were found in the villages around the kaval land. Livestock Census of 2012 indicates a considerable reduction in the population of sheep (54,975) and goats (13,976). Gomala lands were utilised for grazing by sheep and cattle. Grazing by livestock in the kaval land was also carried out on payment of small fee. During non-agricultural season, these livestock were found to graze in agricultural lands.

## 4. Bio Diversity:

The only information on Bio-diversity of Amrit Mahal Kaval pertains to Khudapura as published in Rapid Bio-diversity Survey conducted by Centre for Ecological Studies, IISc,

Bangalore. Study reveals Khudapura to be rich in flora and birds and a few species of their fauna. Since, information on bio-diversity in Ullarti and Varavu Kavals are not available, mere extrapolation of information of Khudapura to other kavals may not provide the true picture of the land. Further, the rapid bio-diversity survey has not quantified the population of each of the species. Hence, in the absence of information on density of each of the species, it may be premature to conclude the richness of the bio-diversity of the kaval area. It is appropriate that the beneficiaries of the land as also the Bio-diversity Management Committee of the region including other R&D institutions should establish the diversity and density of species of flora and fauna and then implement appropriate steps to conserve the same.

#### 5. Kaval land

Prior to handing over of the lands to different organisations, the Revenue Department, Challakere has conducted *mahajar* (Annexure 19). Records of revenue department provided to the Fact Finding Committee (Annexure 20) indicate total Kaval area in Khudapura is 2,819.23 acres, in Varavu Kaval 6,973.19 acres and in Ullarti Kaval 2,143.36 acres. This includes '*Kharab land*'. Besides, 1,138.38 acres of gomala land is also available. Government has allotted a total of 9,523 acres to the Central/State/Private organisations. This indicates that Kaval/gomala lands are still available.

#### 6. Issues of Concern raised by the villagers:

- Non availability of kaval land for grazing by livestock:

The recipients of the land have been constructing boundary wall (Figure 22). The villagers claim that this has prevented their livestock to graze in the kaval lands. As per records, until the presence of sheep farm, kaval lands were allowed for grazing by villagers with nominal fee. The construction of wall would prevent unauthorised entry of the livestock. The beneficiaries of the land have stated through letters that they would continue to allow grazing by livestock until complete establishment and also supply fodder to the villagers. (See original letters enclosed; Annexure 21). Further, in the meeting with the Chief Secretary, Government of Karnataka held on 29<sup>th</sup> June 2013, Chief Secretary assured the committee members that the remaining Kaval land at Challakere will not be diverted and will

be maintained in its natural condition for the benefit of the villagers. Subsequently, Assistant Deputy Commissioner of Chitradurga has sent a written confirmation of the same (Annexure 22). Hence, though the construction of compound wall would limit the entry of livestock into the kaval land, available kaval lands and the assurances given by the beneficiaries of the land would certainly facilitate grazing by the livestock and availability of fodder.

**Figure 22: Boundary Wall construction by Organisations**



- Medicinal plants and other products of Kaval land:

The villager's contention is that the Kaval lands provided variety of medicinal plants and products for livelihood. Although the entry of villagers to allotted kaval land would reduce in the days to come, the availability of remaining Kaval land in the same region (over 1900 acres) will have accessibility for such activities.

- Bore well

The bore wells located in the land allotted to ISRO have been supplying water to Ullarti village. The fear of the villagers is that these bore wells may not be available to them in future. ISRO have clearly stated that they will continue to provide water through these bore wells (Annexure 21).

- Ullarti Kaval Tank

The villagers have opined that considerable portion of the tank land is now under the custody of ISRO. This would reduce the water holding capacity and ruin the tank/catchment area. ISRO in their letter have stated that 70% of the tank is outside ISRO and only when the water level reaches the maximum overflow level of 544.5mtrs, the water spread enters the

ISRO land which is a rare phenomenon. There is no hindrance caused to the free flow of water to the tank from the nallas in the catchment areas (Annexure 21).

- Conduct of rituals in the place of worship/temples in kaval lands

The main contention of the villagers is that after the construction of boundary wall, worship places/temples like Boredevaragudi (in KSSIDC land), Hiriya Habba spot and Ajjayanagudi (in IISc land) are not be accessible for conducting the rituals every year. The respective organisations have indicated that they will not prevent the villagers in celebrations of pooja/festivals/rituals on the concerned days at these places and entry will be provided to the villagers on these days (Annexure 21).

**Figure 23: Places of worship and rituals**

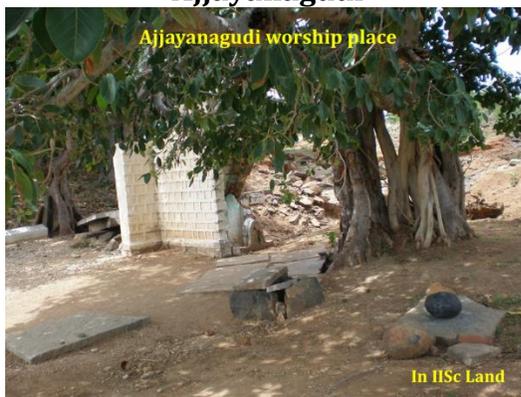
**Boredevaragudi**



**Hiriya Habba**



**Ajjayanagudi**



- Road Accessibility

The contention of the villager's is that the original road passing through the land allotted to BARC/ISRO is closed and people have to travel longer distance to reach Ullarti

village. For security reasons, BARC and ISRO have closed this road. However, they have spared a portion of their allotted land for the construction of a new road all along their boundary wall. This road is better laid (wide and asphalted). Although the distance to Ullarti village has increased by a margin of 2/3 km. the road enables the vehicles to travel smoothly.

Another issue is that, the mud road leading to Kaluvehalli located inside BARC land is closed and people are unable to reach their agricultural land or Kaluvehalli. BARC in their letter have stated that the temporary fence abutting the mud road near the south western corner of the land will be shifted suitably so as to open up a passage to let the villagers have an easier approach to their cultivated land and Kaluvehalli (Annexure 21). Further, they have also stated that in collaboration with IISc they would allow the villagers to move from the earlier sheep farm area to their land to the south of the allotted land at Khudapura (Annexure 21).

**Figure 24: Roads leading to Ullarti**



**Figure 24: Mud road leading to Kaluvehalli**



## Literature Reviewed

1. Centre for Ecological Sciences. (2011). *A Precious Heritage*. Bangalore: Indian Institute of Science.
2. D N Das, M. K. (n.d.). Malnad Gidda Cattle - A Valuable Native Breed of Karnataka.
3. D R Prasanna Kumar, B. Z. (2013, February). Periodical Census to Monitor Blackbucks Population at Jayamangali Blackbuck Conservation Reserve, Mydanahalli, Tumkur District, Karnataka. *International Journal of Environmental Protection*, 3(2), 27-30.
4. Gupta, R. K. (1971, July). Ecology of Challakere Taluk, Chitradurga District of Mysore State, with reference to Development and Conservation of Natural Resources in the South Indian Arid Zone. *My Forest*, 13-30.
5. Kunaji, C. (1998). *Amruthmahal Tali*. Bangalore: Prakruthi Prakashana.
6. Maithreya Institute for Environmental and Rural Studies. (2011). *Amruth Mahal Breed of Cattle's, Kavals (Grasslands) and its Bio-diversity - A Study Report*.
7. Mason, I. L. (1996). A World Dictionary of Livestock Breeds, Types and Varieties. *Fourth Edition*, 273.
8. R W Philips, N. R. (1953). Zebu Cattle of India and Pakistan. *FAO Agriculture Studies*, 19, 256.
9. Rahway, N. J. (1985). Cattle Breeds of the World.
10. Rice, B. L. (1897). *Mysore - A Gazetteer Compiled for Governemnt*. Mestminster, Archibald Constable and Company.
11. V T Hiremath, T. C. (2011, September). Phytotherapy associated with Jaundice in Chitradurga District, Karnataka. *Int. J. Med. Arom. Plants*, 1(2), 162-165.