PDEA'S

BABURAOJI GHOLAP COLLEGE, SANGVI-PUNE-27

"Report of Plastic collection drive 2022-2023"

Dates of activity- 22/06/2022, 22/07/2021, 02/09/2022, 27/09/2022, 20/10/2022, 22/11/2022, 27/01/2023, 06/02/2023 18/03/2023, 02/05/2023

Aim: To reduce plastic in waste streams saving non-renewable resources and to minimize the high rates of plastic pollution

Objectives:

- To make aware students and staff regarding plastic pollution and its health hazards
- To minimize the use of plastic at individual and family level
- To know the rate of plastic generation and find out alternative to reduce, reuse and recycle

Details of activity:

Of eight important inventions that changed the world, discovery of plastic is the fifth one. Alexander Park discovered plastic in 1990, this research accelerated its use being very handy and considered as inevitable component of life. Plastic pollution is the biggest challenge before us in 21st century. Though the earlier time plastic has many valuable uses with minimum use, now we have become addicted to single-use or disposable plastics with severe environmental consequences. Approximately one million plastic drinking bottles are purchased every minute around the World, while up to 5 trillion single- use plastic bags are used worldwide every year. In total, half of all plastic produced is designed to be used only once and then thrown away in surrounding areas. Plastic waste is now so ubiquitous in the natural environment that scientists have even suggested it could serve as a geological indicator of the Anthropocene era.

It is estimated that more than 8.3 billion tonnes of plastic has been produced since the early 1950s. About 60% of that plastic has ended up in either a landfill or the natural environment. Only 9% of all plastic waste ever produced has been recycled. About 12% has been incinerated, while the rest 79% has accumulated in landfills, dumps or the natural environment.

It's a very alarming and worrying situation everywhere. Since the 1950s, the rate of plastic production has grown faster than that of any other material used. We've also seen a

shift away from the production of durable plastic, and towards plastics that are meant to be thrown away after a single use. More than 99% of plastics are produced from chemicals derived from oil, natural gas and coal all of which are dirty, non-renewable resources. If current trends continue, by 2050 the plastic industry could account for 20% of the world's total oil consumption.

Plastic waste is also an equally big problem leading to pollution in seas, filling up landfill sites, clogging rivers, and generating pollution through open burning. Some plastics also contain and leach out hazardous chemicals, posing further risks to wildlife and people.

Baburaoji Gholap college has organized a "Plastic collection drive" on 22nd July 2022 on occasion of Birthday celebration of Hon. Ajitdada Pawar Leader of the Opposition in Maharashtra Legislative Assembly Ex. Deputy Chief Minister of Govt. of Maharashtra and President Pune District Education Association, Pune. In this activity the staff and students of B.R. Gholap Jr. college and highschool was also participated. To celebrate the birthday, the college has taken initiative to spread the activity across the Sangvi area for a very serious cause of plastic pollution. The main aim of this plastic collection drive was to reduce plastic in waste streams saving non-renewable resources and to minimize the high rates of plastic pollution. At the same time the objective of the drive was to make aware students and staff regarding plastic pollution and its health hazards, to minimize the use of plastic at individual and family level, and to know the rate of plastic generation and find out alternative to reduce, reuse and recycle. To spread this activity in masses the corporates from Pimpri-Chinchwad Mahanagarpalik was involved so that we can reach to every single person in the drive to minimize and recycle the plastic. Besides the college staff and students, the reputed persons from Sangvi viz. Atul Shitole, Shayam Jagtap, Ujjwalatai Dhore, Shivaji Padole, Mr. Prashant Sapkal and others are involved very actively in this drive.

The plastic collection drive programme and tree plantation activity was organized on 22nd July 2022 in presence of Chief guest Dr. Digamber Durgade, Chairman P.D.C. Bank, Pune, President of programme Hon. Adv. Mohanrao Deshmukh, corporates from Pimpri Chinchwad Mahanagarpalika Mr. Atul Shitole, Mrs. Ujjwalatai Dhore, Mr. Atul Kate, Mr. Shivaji Padule, Mr. Shayam Jagtap, Mr. B. G. Mapari, Principal B.R. Jr. College and highschool & Prin. Dr. Nitin Ghorpade. Programme was initiated with the introductory speech by Hon. Prin. Nitin Ghorpade, where he explained the idea behind the 'plastic

collection drive' and its importance to create social awareness and reduce the plastic pollution and the efforts taken by the college towards this activity.

Mr. Atul Shitole, Mr. Shivaji Padule also wished Hon. Ajitdada on his birthday and shared their views regarding social issues, and their commitment towards plastic collection drive and its need to reduce the pollution. They promised to take part in every months plastic collection drive.

Dr. Digamber Durgade in his speech gave birthday wishes to Hon. Aitdada Pawar and shared his experiences with Hon. Ajitdada and his various multitasking facets by which all staff gets inspired and motivated. He also congratulated the authorities of PDEA, Principal of the college, staff and students for activie participation in the drive and such social activity where everyone has role to reduce such kind of pollution.

In the presidential address Adv. Mohanrao Deshmukh gave blessings on his birthday and also congratulated the college for organizing 'Plastic collection Drive' and active role in this activity since last two years and for being the active role in social cause to reduce, recycle and reuse of plastic pollution which is need of this time.

Oath was taken by teachers, and students to Bann the single use plastic, and to aware others to reduce, reuse and recycle it. Dr. Latesh Nikam Vice Principal proposed the vote of thanks, the programme was coordinated by Dr. Rani Bhagat. The programme was held both offline and online mode on zoom platform, the link of the programme is https://youtube.com/watchv=TGuZ1TiTP2g&feature=share.

Our planet is drowning in plastic pollution. For a long time, plastic bags were used as a free and painless solution for carrying your weekly supermarket shop and for a range of other purposes. Plastic pollution causes harm to humans, animals and plants through toxic pollutants. It can take hundreds or even thousands of years for plastic to break down so the environmental damage is long-lasting. It affects all organisms in the food chain from tiny species like plankton through to whales. Toxins work their way up the food chain when plastic is ingested and can even be present in the fish people eat.

Identifying the main challenges and barriers for reducing plastic waste, college had taken an initiative to collect home stored plastic since last three years the activity is run without fail which was started on occasion of birthday of Hon. Ajitdada pawar on 22nd July 2020 with total 31 plastic collection drives was conducted successfully. In academic year

2022-23. The collected plastic is handover to NGO named "Sagramitra Foundation" for further processing and proper management of plastic at the same time to make aware the students and staff for prevention, reduction of reuse of plastic. There is need to slow the flow of plastic at its source, and also to improve the way we manage our plastic waste. Thus the staff and students are encouraged to use alternative sources for carrying purchased items so as to save the mother earth from the plastic pollution. To encourage the staff and students of college Dr. N.S. Umrani the Pro-Vice Chancellor of Savitribai Phule Pune University (SPPU) visited college and appreciated the efforts.

In connection with above aims and objectives and motto of plastic collection drive in academic year 2022-23 we handover 397 kg of plastic to Sagrmitra Foundation and Cummins for processing in which total 327 students and staff were participated in this activity (See Table).

Table: Plastic Collection Drive activity details

Sr. No.	Date	Weight Kg	No. of Participants
1	22/06/2022	26	26
2	22/07/2022	142	107
3	02/09/2022	47	34
4	27/09/2022	16	64
5	20/10/2022	27	09
6	22/11/2022	30	23
7	17/01/2023	26	15
8	06/02/2023	27	09
9	18/03/2023	14	11
10	02/05/2023	42	29
	Total	**397 Kg**	**327**

Dr. Rani B. Bhagat
Co-ordinator

Dr. B.N. Zaware
Principal
PRINCIPAL
Baburaoji Gholap College
Sangvi, Pune - 411 027

Pune District Education Association's

Baburaoji Gholap College

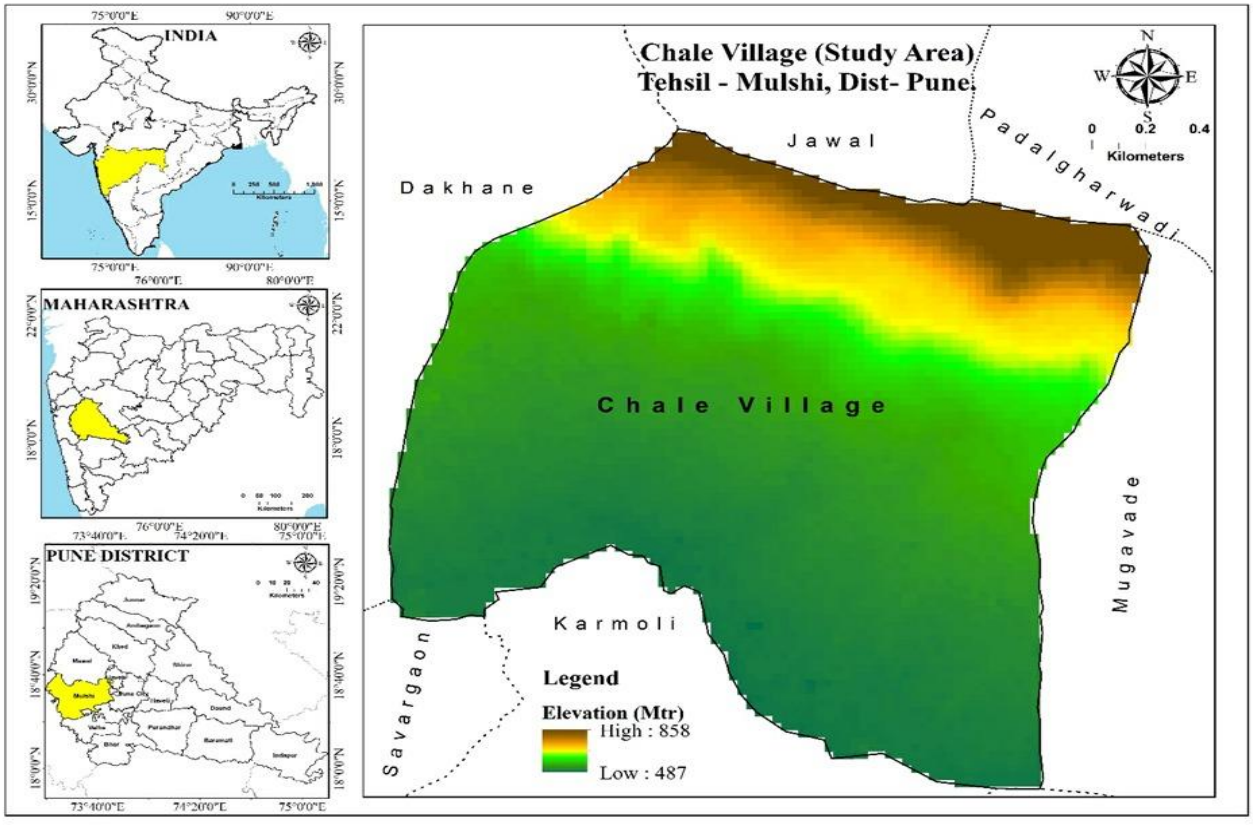
Sangvi, Pune 411027

Affiliated to

SAVITRIBAI PHULE PUNE UNIVERSIT, PUNE 411007, MAHARASHTRA (INDIA)

A Village Baseline Study of Chale (Tal. Mulshi, Dist. Pune)

2022-2023



Edited By

Dr. Balkrishna Zaware (Principal)

Dr. L. K. Nikam (Vice Principal)

Prof. Dr. D.M. Mahajan


Chale Village Map
Tal. Mulshi, Dist. Pune
Legend
Chale village
Sai Ganesh Mandap Karyalay
Subhadra Lawns
Hotel Sai
Kolwan - Paud Rd
Google Earth
200 m
N


ग्रुप ग्रामपंचायत-चाले
GPS Map Camera
Mulshi, Maharashtra, India
HJ22+GG5, Chale, Maharashtra 412108, India
Lat 18.551127°
Long 73.601359°
30/12/22 11:39 AM GMT +05:30
Google


एकात्मिक बाल विकास सेवा योजना
अंगणवाडी
ग्रामपंचायत- चाले
GPS Map Camera
Chale, Maharashtra, India
HJ22+FVM, Chale, Maharashtra 412108, India
Lat 18.551207°
Long 73.601813°
30/12/22 01:27 PM GMT +05:30
Google


GPS Map Camera
Mulshi, Maharashtra, India
HJ22+G47, Kolwan - Paud Rd, Mulshi, Maharashtra 412108, India
Lat 18.552041°
Long 73.599824°
30/12/22 06:17 PM GMT +05:30
Google


GPS Map Camera
Chale, Maharashtra, India
HJ22+86G, Chale, Maharashtra 412108, India
Lat 18.550771°
Long 73.600812°
30/12/22 06:34 PM GMT +05:30
Google

A Village Baseline Study of Village Chale (Tal. Mulshi, Dist. Pune).

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Prin. Dr. Balkrushna N. Zaware
Dr. Latesh K. Nikam
&
Prof. Dr. D.M. Mahajan

Departments Involved

Botany	**History**
Chemistry	**Marathi**
Commerce	**Physics**
Geography	**Politics**
Economics	**Travel & Tourism Management**

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2023

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3	Marathi	Dr. Suvarna Khodade Dr. Vijay Balghare	Sahil Kamble, Shubham Sathe, Harshada Kaduskar
4	Politics	Prof. Kirti Karanjwane Prof. Prajakta Kumbhar	Sabale Mayur, Bhande Madhuri, Kiran Varma
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6	Chemistry	Dr. Latesh K. Nikam Dr. Sujata Modhave	Yash Wani, Omkar Bhujgurav, Nikhil Ghadge, Madhuri Sahane, Pallavi Gaikwad, Harshad Udhnde
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8	Economics	Prof. Santosh Sasturkar	Santoshi Bhalerao, Aishwarya Waghmare, Sakshi Khawale, Swapnil Andhare
9	Travel & Tourism	Prof. Saddamhussein Ghatwale	Amitraj Dongare, Shahin Shaha, Pratik Patil, Sonali Yewale, Dewang Nivadekar

Preface

A large section of India's population lives in rural areas. It was thus relevant to know the quality of life of the people in the villages. The village people largely depended on the facilities available to the villages. The policy interventions aimed at improving the quality of life in the villages demanded information on the facilities available to the people of rural India. To understand the ground reality about the facilities and resources available in rural areas, our college has decided and undertaken the village surveys in Mulshi Tahsil of Pune District.

The survey included the collection of information on availability of facilities in the village. Understanding the socioeconomic transformation of rural society/economy has been in the agenda of social scientists for last many years. Better understanding of rural/village society facilitates policy makers to initiate appropriate policies to set in the motion of rural transformation. For understanding the rural society, social scientists have devised different methods of enquiry and established a rich tradition of intensive and in-depth village studies. Several scholars have followed a multi-disciplinary approach to understand various issues of villagers.

Baseline survey of a village involved systematic collection and compilation of data on the following areas like basic data, demographic data, housing, economic status of households, land-holding pattern, agriculture, animal husbandry, non-farm activities and its potential, health & nutritional status of women & children, educational dynamics, availability of infrastructure (physical, social, economic), social dynamics and strengths, availability of civic bodies/civil society groups, banking & credit, and coverage under various development schemes.

The Baseline Survey resulted in identifying the major socio-economic indicators of the village, and important development needs of the village.

Adv. Sandeep Kadam
Hon. Secretary
Pune District Education Association
Erandwane, Pune-411038

CERTIFICATE

This is to certify that the work incorporated in this report entitled "**A Village Baseline Study of Village Chale (Tal. Mulshi, Dist. Pune)"** prepared by the students and teachers of various departments of Baburaoji Gholap College, Sangvi, Pune-411027 was carried out under my supervision. The findings in this report are solely primary data obtained through the field surveys made in December 2021.

Prin. Dr. Balkrushna N. Zaware

ACKNOWLEDGEMENTS

I am grateful to authorities of Pune District Education Association for their kind support and encouragement for this kind of work. I am grateful to my fellow colleagues for their enthusiasm and interest in my dream work of village surveys. I would like to express my deepest feelings of gratitude towards the authorities of village Chale for providing support throughout filed surveys. I also express my profound gratitude to teaching, technical and non-teaching staff members of Baburaoji Gholap College for supporting in my interest. I would also like to express my gratitude towards the village leaders for providing me access to the study area.

I am thankful to all those who directly or indirectly helped and contributed at various stages of this work.

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CHAPTER-1
INTRODUCTION

This report presents the findings of survey of village Chale of Maharashtra. The survey was conducted on 29th December 2022. The living standards of people in rural areas of Maharashtra has limited dimensions. The facilities available in rural areas are limited, and access to these facilities is another problem. To understand the ground reality about the facilities and resources available in rural areas, our college has decided and undertaken the village surveys in Mulshi Tahsil of Pune District. The idea of village survey was conceived by Hon. Prin. Dr. Balkrishna Zaware. Under his able guidance, the college has selected the village Chale in Mulshi Tehsil of Pune District (Maharashtra).

The overall objective of the study was to create a dataset of various natural resources (Plants, Crops, Wildlife, Soil, Water, etc.), to capture the cultural, political, and socio-economic dynamics of the Chale village. The purpose is to assess the pace, process, and pattern of rural change by means of survey in the selected village. The focus was on socio-economic, political, and agricultural change and changing pattern of rural livelihoods and its implication for future development. The study also evaluates the efficacy of government interventions in rural areas and key drivers of changes in village economy. The study will also provide a clear picture about diagonally opposite view regarding success or failures of development schemes, besides providing panel data for policy formulations.

Methodology:

The college has designed a questionnaire to obtain relevant information from the villages. The information was collected through student's participation. A detailed enquiry on village facilities was conducted. The nature of the questionnaire is both the qualitative and quantitative to establish baseline data and to keep track of the changes over time. Qualitative data is collected through open-ended questions. It is then filled by the numerical data provided by quantitative questions. The surveys on village facilities included questions on availability of nonconventional energy sources, electricity, drinking water, irrigation and drainage systems, cooperative societies and self-help groups was enquired into, and whether any Government development schemes relating to drinking water, housing, sanitation, approach road, employment generation, pension, literacy, etc., was in force. The distance of the villages from the nearest bus stop, railway station, market, primary school, hospital, etc., and from facilities for the disabled was also recorded. The results of the enquiry on village facilities are presented in this report.

Village survey studies are complex and multidisciplinary in nature. It requires clear idea regarding village society, their livelihood, faith, and beliefs. Village studies are often influenced by the alien concepts (of the researchers) and in many cases are not representative in nature. Village studies also tend to exaggerate the unity and self-sufficiency of the village. In many instances, the scholars tried to study village community in a biotic frame of reference. They practically ignore a basic reality that Indian village is a synthesized community.

Chale Village Map

Methodology of Data Analysis:

The data compilation was performed using MS Excel, analyzing them, and returning to the villages for more details mainly in education and health sector. Google Earth was used to study the different topography around Chale village.

The data were compiled for total people in the house, sex ratio, energy use, gas connection, ration card availability, color of the ration card, education, total farmland holding, average productivity of major crops grown such as rice, wheat, channa, sugarcane, no of domestic animals (Cattlestock), whether milk is sold, vaccination, major source of income, drinking water facility, irrigation facility, whether part of SHG, farmer's union, seasonal migration, permanent migration, toilet facility, type of bank account and bank name. Then the data compiled was illustrated through graphs, pie charts, tables, histograms for the ease of analysis using MS Excel.

Interviews were conducted with the villagers. Twenty-five families were identified for the interview. Twenty different questions were asked to the villagers. The questions were regarding the income sources, expenditure, savings, government schemes, digital literacy, landuse and land cover, weather, natural resources, education, health, and sanitation, dirinking water facility, cropping pattern, animal husbandry, etc. The data was collected and presented in the report.

CHAPTER-2

चाले गावाचा स्थानिक इतिहास लेखन

डॉ . जितेंद्र यशवंत वडशिंगकर
इतिहास विभाग

शैक्षणिक वर्षे २०२२ -२3 मधील राष्ट्रीय सेवा योजनेचे हिवाळी शिबीर २६ डिसेंबर २०२२ ते १ जानेवारी २०२३ या कालावधी मध्ये मुळशी येथील चाले या गावी घेण्यात आला. चाले या गावचे राजकीय सर्वेक्षण करण्यात आले त्याचा अहवाल खालील प्रमाणे.

ध्येय: गावच्या इतिहास अभ्यासातून गावाचे ऐतिहासिक व संस्कृतिक महत्व याचा विचार करणे.
उदिष्टे: स्थानिक इतिहासाचा अभ्यास करणे

गावाचा सामाजिक,आर्थिक,सांस्कृतिक धार्मिक जीवनाचा व परंपरेचा अभ्यास करणे.

गृहीतके: प्रस्तुत गावाच्या इतिहासाच्या अनुषंगाने खालील गृहतके मांडण्यात आली आहे.

- पुण्याच्या ३० कि.मी. गाव असून ही गावात शैक्षणीक प्रगती म्हणावी एवढी झाली नाही.
- आधुनिक काळानुसार सोई सुविधांचा विकास झालेला आहे .
- सामाजिक बदल झालेला असून सर्व लोक गुण्या गोविंदाने नांदत आहेत असे दिसून आले.
- सदर गावातील तरुणांनी शहराकडे स्थलांतरित केल्यामुळे आर्थिक स्थिति सुधारल्याचे दिसून येते. स्त्रियाची स्थितित बदल झालेला नाही.

प्रस्तावना :

प्रत्येक माणसाला आपला भूतकाळ जाणून घेण्याची इछा असते. माणसाला आपल्या गावाचा इतिहास माहिती असणे आवश्यक आहे. आपणास जर आपल्या गावाचा इतिहास माहिती नसेन तर देशाचा इतिहास कसा माहिती असेल म्हणून चालेगावचा इतिहास शोधून त्याचे लेखन करण्याचे प्रयोजन जग, खंड. देश, राज्य, जिल्हा, तालुका व गाव अश्या पिऱ्यामिड पद्धतीने इतिहासाचा अभ्यास केला जातो. गावागावाचा इतिहास मिळून देशाचा इतिहास बनणार आहे, म्हणून कुसगावचा इतिहास शोधून त्या गावाची ऐतिहासिक पार्श्वभूमी विशद करणे.

अलिकडचा इतिहास हा राजे राजवाड्यांच्या व्यक्तीगत जीवनातून बाहेर पडून इतिहाच्या अभ्यासाच्या कक्षा सौराष्ट्र आहेत. इतिहास विषयाची व्याप्ती वाढत आहे. त्यातच त्या गावाचा, जिल्हाचा. तालुक्याचा असेल तो जिल्ह्याचा प्रकल्प सुरू आहे स्थानिक इतिहास हा इतिहासाचाच एक प्रकल्प आहे. स्थानिक कुसगावच्या सामाजिक, राजकीय, आर्थिक, जीवनाच्या रूढी परंपरांचा अभ्यास करणे हाही एक उद्देश आहे.

चतु:सीमा:

चाले गाव मुळशी तालुक्यातील एक गाव आहे. चाले गावची एकूण जमीन ४४७.९५ हेक्टर एवढी आहे. या चाले, सावरगाव आणि करमोळी या तीन गावांची मिळून ग्रुप ग्रामपंचायत चाले या गावी आहे. ही तीनही गावांची एकूण जमीन ९७८.९७ हेक्टर एवढी आहे. या तीनही गावांची लोकसंख्या ही २०११ च्या जनगणनेनुसार पुढीलप्रमाणे आहे.

१. चाले :- ८३७

२. सावरगाव :- ८८४

३. करमोळी :- ४३९

चालेगावची ऐतिहासिक पार्श्वभूमी:

सदरचे गाव मुळशी परिसरातील असून मुळशी परिसरातील आहे. चालेगाव हे एक छोटे गाव असून चोहू बाजूला डोंगर रांगा आहे. चाले गावाच्या चारी बाजूला डोंगर रांगां आहेत. गावात चार वाड्या आहेत.

गावचे समाजजीवन:

प्राचीन काळानुसार चाले गावाचा व समाजाचा विकास होत गेलेला दिसतो. समाज व्यवस्थेत एकत्र कुटुंबपद्धती आहे. कुटुंबात पितृसताक पद्धती आहे. सर्व कुटुंबातील सर्व गुण्या गोविंदाने राहत असलेले दिसतात. सामाजात आर्थिक बाबतीत एकोपा असल्याचे दिसून येते. समाज रचनेवरून गावात सर्व जाती जमातींना समान वागणूक दिली जाते त्यामुळे गावातील वातावरन शांत आहे. कोणत्याही प्रकारचे जातीय गट तर नाहीत. सर्व जाती धर्माचे लोक गावामध्ये एकोप्याने राहतात गावाच्या एकंदरीत पहाणीवरून व काही ग्रामस्थांच्या मुलाखतींमधून असे स्पष्ट जाणवले की या गावात हिंदू समाज मोठ्या प्रमाणात आहे.

सर्वसाधारणपणे खुला वर्ग मोठ्या प्रमाणात आहे. दहिभाते आणि खैरे या आडनावाचे लोक जास्त आहेत. त्याचबरोबर बौद्ध, मातंग, तेली, कोळी आणि वडार समाज चाले गावात आढळतात. मात्र मुस्लीम समाज या गावामध्ये नाही. या गावातील प्रमुख व्यवसाय शेती आहे. भातशेती आहे त्याचबरोबर उसाचे पीक देखील घेतले जाते पण त्याचे प्रमाण अल्प आहे. काही प्रमाणात कडधान्ये देखील घेतले जातात उदा. मसूर, वाटणा आणि हरभरा इ. शेतीला पूरक असे जोड धंदे म्हणजे दुग्ध व्यवसाय आणि पशुपालन होय. या गावातील काही कुटुंबामधील लोक नोकरीसाठी पुणे आणि मुंबई या दोन शहरांमध्ये स्थाईक झाले आहेत. गावामध्ये किराणा मालाची तीन दुकाने आहेत आणि दुध डेरी दोन आहे. कोरोना महामारीच्या काळात ग्रामपंचायतीच्या मार्फत सॅनीटायजर, साबण, मास्क यांचे वाटप करण्यात आले. या महामारीच्या संदर्भात आवश्यक ती जनजागृती करण्यात आली होती.

गृहरचना:

चालेगाव हे चोहो बाजूंनी डोंगररांगाणी वेढलेले असल्या मुळे तेथे पावसाचे प्रमाण जास्त आहे. त्यामुळे गावातील घरांची रचना उतरत्या छपरांचीआहेत. थोड्याफार प्रमाणात आधुनिकतेची जोड दिसून येते काही घरे सीमेंट कॉन्क्रेटची पण आहेत.

आर्थिक जीवन:

चालेगावात परंपरागत चालत आलेला शेती व्यवसाय आहे, मुख्यपीक गहू, भात, ऊस, मका, ज्वारी हे आहेत. त्या प्रमाणे शेतीला पूरक जोड व्यवसाय म्हणून दुध व्यवसाय, पशुपालन हे व्यवसाय दिसून येतात. या गावात गोमुख संस्था कार्यरत असल्याच्या खुणा आढळून आल्या. चाले गावामध्ये किराणा 3 दुकान आहेत. गावात आठवडे बाजार भरत नाही. पौड या ठिकाणी आठवडे बाजरासाठी जावे लागते. गावातील तरुण मुलांचा नोकरीसाठी शहराकडे ओढा असलेला दिसून येतो. त्यामुळे गाव आर्थिक दृष्ट्या संपन्न असल्याचे दिसले.

गावाचा शैक्षणीक विकास:

चाले गावामध्ये लहान मुलांसाठी आंगणवाडी व आहे. जिल्हा परिषदेची प्राथमिक शाळेचे सांगणिकरण झालेले आहे. सदरची शाळा १ मे १९५६ पासून सुरु झालेली आहे. या शाळेत इयत्ता ७वी पर्यंत शिक्षण दिले जाते. व माध्यमिक व व्यवसायिक शिक्षणासाठी पौड व करमोळी या ठिकाणी जावे लागते.

धार्मिक जीवन:

चाले या गावातील धार्मिक दृष्ट्या या गावाला खूप महत्व आहे. गावात एकूण 3 मंदिर आहेत. गावात भैरवनाथ, जाखुबाई व विठ्ठल रुक्मिणीचे मंदिर, इ. मंदिरे आहेत. या गावात विठ्ठल रुक्मिणीच्या मंदिरात हरीनाम सप्ताहामध्ये भजन कीर्तन महाप्रसाद हे कार्यक्रम आयोजित केले जातात. गावामध्ये छोटे मोठे सन आनंदाणे साजरे केले जातात. या वेळेस सर्व जाती जमातीचे लोक एकत्र येतात.

राजकीय जीवन:

चालेगावाची लोकसंख्या १३१४ असून गावात ग्रामपंचायत आहे. गावतील सखाराम गेनू केदारी, व सुनिल तुकाराम केदारी हे पंचायत समितिवर सदस्य आहेत. कुसगाव हे कुस्ती क्रीडा क्षेत्रातिल नावाजलेले गावात ग्राम सेवकाचे कार्यालय आहे. ते १९७० साली स्थापन झाले आहे. गावाचे तलाठी कार्यालय पाचाने या गावी आहे. गावातील पहिले सरपंच म्हणून सखाराम गेनू केदारी हे १९७० साली पहिले सरपंच झाले. गावात मुस्लिम समाजाची १८ घरे आहेत. गावात भैरवनाथच्या

मंदिरात तंटा मुक्ती केंद्र भरते. गावामध्ये छोटे ग्रंथालय आहे. या गावामध्ये निवडणूक न होता ग्रामपंचायत सर्व सदस्य बिनविरोध निवडले गेले आहेत मुळशी तालुक्यातील हे पहिले गाव आहे.

गावाच्या एकंदरीत पहाणीवरून व काही ग्रामस्थांच्या मुलाखतींमधून असे स्पष्ट जाणवले की या गावात हिंदू समाज मोठ्या प्रमाणात आहे. सर्वसाधारण खुला वर्ग मोठ्या प्रमाणात आहेत. दहिभाते आणि खैरे या आडनावाचे लोक जास्त आहेत. त्याचबरोबर बौद्ध, मातंग, तेली, कोळी आणि वडार समाज चाले गावात आढळतो मात्र मुस्लीम समाज या गावामध्ये नाही. या गावातील प्रमुख व्यवसाय शेती आहे. भातशेती आहे त्याचबरोबर उसाचे पीक देखील घेतले जाते पण त्याचे प्रमाण अल्प आहे. काही प्रमाणात कडधान्ये देखील घेतले जातात उदा. मसूर, वाटणा आणि हरभरा इ. शेतीला पूरक असे जोड धंदे म्हणजे दुग्ध व्यवसाय आणि पशुपालन होय. या गावातील काही कुटुंबामधील लोक नोकरीसाठी पुणे आणि मुंबई या दोन शहरांमध्ये स्थाईक झाले आहेत. गावामध्ये किराणा मालाची तीन दुकाने आहेत आणि दुध डेरी दोन आहे. कोरोना महामारीच्या काळात ग्रामपंचायतीच्यामार्फत सॅनीटायजर, साबण, मास्क यांचे वाटप करण्यात आले. या महामारीच्या संदर्भात आवश्यक ती जनजागृती करण्यात आली होती.

चाले गावतील राजकीय व्यवस्था:

चाले गाव मावळ विधानसभा आणि लोकसभा मतदार संघात येते. या गावचे आमदार सुनील शेळके आहेत. तसेच बारामती लोकसभा मतदार संघाअंतर्गत हे गाव येत असल्यामुळे सध्या सुप्रियाताई सुळे या लोकसभा मतदार संघातील लोकसभा खासदार आहेत. गावामध्ये ग्रुप ग्रामपंचायत कार्यालय आहे. चाले गाव ग्रामपंचायतीची स्थापना १९५६ साली झाली. गावातील पहिले सरपंच बनण्याचा मान १९५६ साली कोंडीबा धों. दहिभाते यांना मिळाला होता. या गावामध्ये शिवसेना व राष्ट्रवादी कॉंग्रेस या दोन्ही पक्षाचे मोठ्या प्रमाणात वर्चस्व आहे. चाले या ग्रुप ग्रामपंचायतीचे सरपंच सध्या शिवसेनेचे आहेत. त्यांचे नाव श्री. गणेश नथू दहिभाते आहे. तर उपसरपंच सौ. रुपाली कैलास साठे या आहेत.

एकूण नऊ ग्रामपंचायत सदस्य आहेत त्यांची नावे पुढीलप्रमाणे

१. श्री. शरद मारुती केदारी
२. सौ. अरुणा दिगंबर केदारी
३. सौ. राजश्री शेखर जायगुडे
४. श्री. निलेश जयवंत दहिभाते
५. श्री. दीपक कचरनाथ चाळेकर
६. सौ. मंगल सुरेश साळुंखे

महिलांचे प्रमाण राजकारणात अल्प आहे. पहिली महिला सरपंच २००५ साली झाली. एकूण आत्ता पर्यंत पाच महिला सरपंच पदी निवडून आलेल्या आहेत. त्यांची नावे:-

१. सौ. मुक्ताबाई ह. दहिभाते (पहिली महिला सरपंच)

२. सौ. श्रद्धा महेश आल्हाट
३. सौ. भारती पांडुरंग जायगुडे (प्रभारी)
४. सौ. प्रियांका मनीष गायकवाड
५. सौ. रुपाली कैलास साठे (प्रभारी)

सद्या चाले ग्रुप ग्रामपंचायतच्या ग्रामसेविका सौ. राणी डी. अडसूळ या आहेत. तर तीनही गावचे पोलीस पाटील पुढीलप्रमाणे

१. चाले – श्री. ओंकार शंकर दहिभाते
२. करमोळी – श्री. महेश विलास आल्हाट
३. सावरगाव – सौ. सरोज नितीन साळुंखे

चाले गावात महाराष्ट्र राज्य ग्रामीण जीवन उन्नती अभियानांतर्गत वरिष्ठ वर्धीनींची फेरी या अंतर्गत महिलांच्या सक्षमीकरणासाठी वरिष्ठ वर्धीनी येऊन काम करतात. या अभियानाचा उद्देश गरिबी निर्मुलन, महिला सक्षमीकरण, शास्वत उपजीविका यावर प्रशिक्षण देणे हा आहे. या अभियानांतर्गत गावातील बचत गटांना एकत्रित करून त्यांचा ग्रामसंघ बांधून त्यांना पाच दिवसाचे प्रशिक्षण वरिष्ठ वर्धिनींकडून दिले जाते. हे अभियान प्रामुख्याने महिलांसाठी आहे.

शैक्षणिक परिस्थिती:

शैक्षणिकदृष्ट्या गाव मागास असल्याचे निदर्शनास आले कारण गावामध्ये एक अंगणवाडी आणि एकच जिल्हा परिषद प्राथमिक शाळा आहे अंगणवाडी मध्ये एकूण २९ विद्यार्थी आहेत. प्राथमिक शाळेत १ ली ते ७ वी मध्ये एकूण ७५ विद्यार्थी आहे. त्यामध्ये मुलगे ३९ आहेत आणि मुली ३५ आहेत. ७५ विद्यार्थ्यांमागे ४ शिक्षक आहेत. माध्यमिक शाळा मात्र गावामध्ये नाही त्यासाठी पौड या गावी जावे लागते. सावरगाव या ठिकाणी आयटीआयचे आपल्याच पुणे जिल्हा शिक्षण मंडळाचे महाविद्यालय आहे.

निष्कर्ष:

- सदर गाव हे डोंगरामध्ये वसलेले असल्या मुळे गावाचा फारसा विकास झालेला नाही.
- गाव हमरस्त्यावर असल्याने अत्याधुनिक सुविधा थोड्या प्रमाणात विकसीत होत आहे.
- स्त्रियांच्या सामाजिक स्थितितील सुधारणा होण्याची गरज आहे.
- गावातील तरुणांचा खूप मोठ्या प्रमाणावर शहराकडे ओढा आह. तो थांबबून गावाचा विकास होण्याची गरज आहे.
- सदर गाव डोंगराच्या कुशीत वसलेले असल्याने गावातील लोक खूप जिद्दी व कष्टाळू आहे.
- सदर गावात भात शेती मोठ्या प्रमाणावर आहे भात भरडण्याच्या३ गिरण्या आहेत.

उपाय योजना:

१.या भागात पावसाचे प्रमाण जास्त असल्यामुळे पाणी आडवा पाणी जिरवा ही योजना राबवण्याची गरज आहे.

२.गावाचा औद्योगिक विकास होण्याची गरज आहे.

३.गावात रोजगाराच्या संधी उपलब्ध केल्या पाहिजे.

४.सदर गावाला लाभलेल्या निसर्गाचा पर्यटनासाठी केला पाहिजे.

५. गावात आठवडा बाजार भरवण्याची गरज आहे.

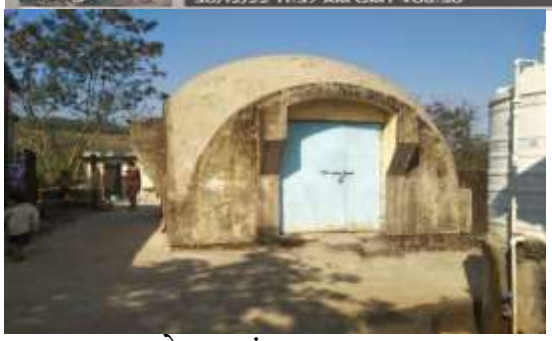
६. गावातील ऐतिहासिक विरगळ जतन करण्याची गरज आहे.

संदर्भ : चालेगावचा मौखिक इतिहास

मुलाखती : १) श्री. शरद मारुती केदारी
२) सौ. अरुणा दिगंबर केदारी
३) राणी अडसूळ ग्रामसेविका

चाले ग्रुप ग्राम पंचायतीमध्ये जाऊन ग्रामसेविका सौ. राणी अडसूळ यांच्याकडून माहिती घेताना

इंटरनेटवरून काढलेले छायाचित्र



गोमुख संस्था

चाले गावाचा नकाशा गुगल वरून

चाले गावातील पूर्वजांचे शिल्प

चाले गावातील पूर्वजांचे शिल्प

चाले गावातील पूर्वजांचे शिल्प

सावरगाव येथील शाळा

सावरगाव येथील विरगळ

CHAPTER-3

चाले गावचे भाषिक सर्व्हेक्षण

डॉ. सुवर्णा खोडदे, डॉ. विजय बालघरे
मराठी विभाग

प्रास्ताविक:

महाराष्ट्रात पुणे जिल्ह्यातील मुळशी तालुक्यापासून जवळच निसर्ग सौंदर्याने नटलेले व चहुबाजूने सह्याद्रीच्या पर्वतरांगा मध्ये वसलेले चाले हे छोटेसे गाव आहे. या गावात दहिभाते, केदारी, जायगुडे, कोळी, वाघिरे, कुडले, गायकवाड, कुंभार, जाधव, सुतार, साठे आडनावाच्या लोकांची वसाहत आहे. या गावातील प्रमुख व्यवसाय शेती असल्यामुळे वृद्ध व्यक्ती शेतामध्ये काम करताना दिसतात. या गावातील लोकांचे राहणीमान साधे असून या गावातील लोकांचा स्वभाव मायाळू व दुसऱ्याला मदत करणारा आहे. असे गावाचे संशोधन करताना दिसून आले. या परिसरात सर्व जाती धर्माचे लोक गुण्यागोविंदाने व सलोख्याने राहतात. गावामध्ये एकत्र कुटुंब पद्धती अस्तित्वात असून सामाजिक ऐक्य व एकोपा दिसून येतो. गावातील तरुण मंडळी रोजगाराच्या निमित्ताने शहराकडे स्थलांतरीत झाले आहेत. घराची रचना ही एकासारखी नसून वैविध्यपूर्ण आहे. चाले हे गाव पुणे शहरापासून जवळ असल्यामुळे शहरीकरण वाढले आहे. त्यामुळे पुण्याचा विस्तार गावापर्यत झाला आहे. या गावातील महिलांच्या व पुरुषांच्या पोषाखामध्ये नागरी संस्कृतीचा प्रभाव दिसतो. सह्याद्रीच्या पर्वत रांगामध्ये हा परिसर वसलेला असल्यामुळे या परिसरात पावसाचे प्रमाण जास्त आहे. त्यामुळे गावातील प्रमुख पिक भात (तांदूळ) शेती आहे. या परिसरातून वाहणाऱ्या मुळा नदीवर मुळशी हे धरण बांधले असून वर्षभर या नदीला पाणी असते. चाले हे गाव मुळा नदीच्या तीरावर वसलेले असल्याने वर्षभर पाणी मुबलक प्रमाणात उपलब्ध होते. याचा फायदा शेतकरी वर्गाला होतो. त्यामुळे उस शेती व भाजीपाला येथे पिकविला जातो. या गावात प्रामुख्याने मुळा, मेथी, कांदे, पावटा, वांगी, इ. पिके घेतली जातात. या गावाला बाजारपेठचे ठिकाण पौडगाव जवळ आहे, तसेच पुणे येथील बाजार पेठेत शेतमाल विक्रीसाठी पाठवला जातो. शेती बरोबरच दुग्ध व्यवसाय गावामध्ये जोडव्यवसाय म्हणून केला जातो. अलीकडच्या काळात कुक्कुटपालन हा व्यवसाय या भागात विकसित होत आहे. गावात चौथी पर्यंत मराठी माध्यमाची जिल्हा परिषद प्राथमिक शाळा आहे. मुलांना पुढील शिक्षणासाठी पौड, पिरंगुट अथवा पुणे शहरात जावे लागते. शहरी भागात शिक्षण घेतलेले तरुण- तरुणी रोजगारसाठी शहरात स्थिर होतात. तर जे अल्प भूधारक आहेत ते शहरात अकुशल कामात गुंतलेले दिसतात. त्यामुळे गावात वयोवृद्ध माणसे अधिक असून जवळ पिरंगुट येथे औद्योगिक वसाहत

असल्याने स्थलांतरीत लोकांचे प्रमाण अधिक असल्याने त्याचा गावातील भाषेवर प्रभाव दिसून येतो. शहरीकरणाच्या प्रभावाने गावाची लोकसंस्कृती, लोकगीते, लोककथा, सणउत्सवाची गाणी हळू हळू लुप्त होत चालली आहेत.

उद्दिष्टे

१) गावातील लोकसंस्कृती, लोकभाषा आणि लोकसमजूतीचा अभ्यास करणे.

२) लोकजीवनात होणारे परिवर्तन तपासून पाहणे.

३) प्रसारमाध्यमामुळे बोली भाषेवर पडलेला प्रभाव अभ्यासणे.

अभ्यास पद्धती:

सदर गावाचा भाषिक व लोकवाङ्मयीन अभ्यास करताना मुलाखती, चर्चा आणि निरीक्षण व प्रश्नावली या पद्धतीचा वापर केला आहे. गावातील ग्रामस्थांकडून २० प्रश्नांची प्रश्नावली विविध विषयांच्या अनुशंगाने भरून घेण्यात आली. सदर अभ्यास महाविद्यालयातील कु. साहिल कांबळे, शुभम साठे, हर्षदा कडूसकर या विद्यार्थ्यानी प्रत्यक्ष भेटी व्दारे केला आहे .

गावातील धार्मिक व सांस्कृतिक जीवन :

चाले या गावात विविध जाती धर्माचे लोक समूह भावनेने एकत्र राहतात. स्थानिक स्वराज्य संस्था मध्ये चाले, करमोळी व सावरगाव अशी गावाची ग्रुप ग्रामपंचायत आहे. हे गाव पौड कोळवण मुख्य रस्त्या लगत आहे. या गावाचे श्री जाखोबाई देवी मंदिर हे गावचे ग्राम दैवत असून गावात त्याचे शेजारीच मंदिर आहे, या शिवाय गावात गणपती, मारुती, शंकर, विठ्ठल- रुक्मिणी मंदिर, श्री जाखोबाई देवीमंदिर असून या दैवतांची यांची पूजा लोक मनोभावे करतात. गावात कार्तिकी एकादशीला आणि मृत्युनतर तेराव्याला भजन होते. श्रीजोखाबाई ग्रामदैवत आहे. या गरम दैवताच उत्सव जानेवारी महिन्यात असतो. तर गावचा उरुस फेब्रुवारी महिन्यात साजरा केला जातो. . या शिवाय पारंपरिक खेळ, फुगड्या, फेर, इ. माध्यमातून गावातील स्त्रिया उत्सवाच्या निमित्ताने श्रम परिहार करताना आढळतात. गावात माळी, मराठा, कोळी, गुरव, बौद्ध, इ जाती धर्माचे लोक सर्व

धर्मीयांचे सण उत्सव मोठ्या उत्साहात साजरे करतात. तसेच एकमेकांच्या सुख दु:खात सहभागी होतात.

करमणूकीची साधने :

आधुनिक काळात गावातील करमणूकीची साधने बदलली आहेत. पारंपारिक साधनाबरोबरच टीव्ही, मोबाईल, या माध्यमाचा करमणूकीसाठी वापर करतात. पारंपरिक सणाच्या निमित्तने नागपंचमी, दसरा, दिवाळी , लग्नविधी, हळदी समारंभ आदि प्रसंगी स्त्रिया पारंपारिक उत्सवाची गाणी व लोकगीते म्हणताना आढळतात.

गावाचा भाषिक अभ्यास :

चाले गावात मराठी ही प्रमुख भाषा असून बहुतेक लोकांची ती बोली भाषा व मातृभाषा आहे. हिंदी सिनेमाच्या प्रभावाने हिंदी भाषा लोकांना अवगत आहे. गावाचा प्रमुख व्यवसाय शेती असल्याने शेती व्यवहाराशी निगडित शब्दप्रयोग लोकांच्या भाषेमध्ये मोठ्या प्रमाणात वापरले जातात. उदा. आंबवणे चिंबवणे, वाफे, सारा, पेरणी, पाभार, मोघणे इ. शब्द वापरले जातात. अलीकडच्या काळात नागरीकरणामुळे गावात रोजगाराच्या संधी वाढल्या असून शेतीकडे लोकांचे दुर्लक्ष होत आहे. त्यामुळे पारंपरिक अवजारे जाऊन त्याऐवजी ट्रॅक्टर व इतर तत्सम साधने शेतीसाठी वापरली जातात. त्यामुळे अत्याधुनिक शब्दाचा वापर सर्रास होताना दिसतो. परिणामी शेतीशी संबंधित अनेक शब्द लुप्त पावत चालले आहेत. उदा. गंजी(पेढ्याचा माच), कडबा, आंबवण. साळी, औत, इ. त्याच बरोबर सरपण, माळ लावणे, पैसा लावणे, बाज, वरवंटा, सरपण, विस्तव, इ. शब्द प्रयोग ही लोप पावत चालले आहेत.

स्त्रियांची स्थिती :

गावात पुरुषसत्ताक कुटुंबपद्धती असली तरी कुटुंबातील स्त्रियांना देखील अलीकडे महत्त्व प्राप्त झाले आहे. गावातील बहुतेक स्त्रिया शिकल्या असून त्या गृहिणी बरोबर ग्रामपंचायत सदस्य, शिक्षक, डॉक्टर, वकील, या पदावर कार्यरत आहेत. या शिवाय काही महिला औद्योगीकिकरणामुळे कारखान्यात कामगार म्हणून कार्यरत आहेत.

लोकगीते :

गावात वैशिष्टयपूर्ण व पारंपरिक ढंगाची लोकगीते अजुनही जुन्या जाणत्या स्त्रियांना मुखोद्गत आहेत. याचा सर्व्हेदरम्यान प्रत्यय आला. त्यांच्या नंतर मात्र ही लोकगीते लोप तर पावणार नाहीत ना ? असा प्रश्न पडतो. म्हणूनच त्यांचे जतन व संवर्धन करणे गरजेचे वाटते.

हळदीचे गाणे

बाळ ग याला माझ्या नवऱ्या हळद लागयली

जात्यान ईस्वर तीळ तादळाचा घाना

आता ग माझा बाळ नवरा मोतियाचा दाणा

जात्यान ईश्वर तुला तीळ तांदळाचा घास

आता ग माझ बाळ नवरा मोतियाचा घोस

मांडवाच्या दारी हळदी बाईच वाळवण माझ्या बाई ची वाळवण

आता मग माझ्या बाळ नवरा बाळाच तेलवण

लेक जाती सासरला चुलती म्हणती जाग बाई

माडवाच्या दरी हळदी कुंकवाचा पाट गेला.

तिची ग मावयली पदराला डोळा लावी, डोळ्याला पदर लावी

मांडवाच्या दरी हंड्या भांडयाच्या चवडी

हौऊसाईचा मामा बाळ घंगाळ निवडी

नवरीइचा बाप देय घेया झाला वाणी

वय सगळी घालतानि डोळ्या आल पाणी

नवरीचा बाप मांडी घालून बसला

हुंडा ग मोजताना बाप कंबरी कसला

मौखिक परंपरेने चालत लग्नातील गावयाची गाणी त्या निर्मितीमागे असलेल्या संस्कारित मनाचे प्रतिबिंब ओवीगीतामध्ये दिसून येतात. लोकसाहित्य म्हणजे पारंपरिक लोकजीवन पद्धती,

लोक माणसाची अभिव्यक्ती, लोकश्रध्दा, लोकसमजुती, लोकभ्रम, लोकरूढी, लोकविधी,परंपरेने चालत आलेल्या प्रथा , आचार , विचार , तसेच लोककला आणि मौखिक रूपातील शब्द इत्यादी बाबींचा समावेश लोकसाहित्यात येत असल्याने, लोकसाहित्य लोकजीवनाला व्यापले असेच म्हणता येईल. मौखिक रुपातील शब्द अविष्कारात लोककथा, लोकगीते, लोककला, उखाणे, म्हणी यांचा समावेश होतो.

मांडवाच्या दारी चौघडा

हातात भरला हिरवा चुडा

पायात सजला चांदीचा तोडा

झाला साखर पुडा

नारळ आता फोडां

वरातीला आणा हिरवा रंगी घोडा

..... रावच्या आणि माझा राम सीतेचा जोड ‘’

अशा प्रकारे लोकसाहित्यातील उखाणे, गोलनी उत्सवाची गाणी, हळदीची गाणी, जात्यावरची गाणी ऐकण्याची संधी या भेटी दरम्यान मिळाली.वरील गीतातून सासरी जाणाऱ्या मुलीचे वर्णन केले आहे.

जात्यावरील ओव्या

आरव्या ग वनामध्ये , कोण रडत आहे आईका

कोण रडत आईका, कोण रडत आईका

बोरी बाभळी बायका, बोरी बाभळी बायका

सीतेला ग समजावया,बोरी बाभळी बायका

आज शिक्षण, प्रसारमाध्यमे , जागतिकीकरण वैज्ञानिक शोध व वाढता विकास यामुळे अनेक नागरी आणि पाश्चात्य संस्कृतीचा प्रभाव चाले गावाच्या बोलीवर पडलेला असला तरी, त्यांच्या लोकगीतातून, म्हणी, उखाणा, पोशाख, खानपान, सण-उत्सव , चालीरीती, रूढी , व्यवसाय आणि बोलीभाषेतून लोकसंस्कृतीचा झरा अजूनही वाहताना दिसत आहे.

भाषेतील बदल सहज लोकांनी स्वीकारले. न्याहारी ऐवजी नास्ता, स्वच्छतागृहा ऐवजी टॉयलेट, पंजाबी, सूट, पेस्ट, परकर, गाऊन, कंडक्टर, ब्लाउज, बिस्किट, कार, बस, तिकीट, चेक,

पेमेंट, सिलेंडर, कुलर, टेबल असे कितीतरी शब्दांचा वापर सर्रास ग्रामीण बोलीमधून पहावयास मिळते.

मुळशी तालुक्यातील बोलीभाषेवर प्रसारमाध्यमाचा फार मोठा प्रभाव दिसतो. इंग्रजी, हिंदी मराठी या भाषांचा प्रभाव पुढील प्रमाणे दिसतो. उदा. star प्रवाह, माझा वाहिनी, व्हील, स्मार्त सुनबाई, डॉक्टर, क्लोजप, नॉनमॉटरीक सुपर डान्सर, Breaking News, Ok, Yes, रेडिओ, मोबाईल, कॉम्प्यूटर, सीरिअल, sms, message, delete, contacts, image, menu, inbox, sent, recharge, sound, clops या सारख्या कितीतरी शब्दांचा समावेश चाले गावच्या बोली भाषेत झाल्याचे निदर्शनास आले. आज खेड्यापाड्यात सुद्धा वर्तमानपत्रापेक्षा आकाशवाणी आणि दूरदर्शन, मोबाईल या प्रसारमाध्यमांचा जास्त प्रभाव दिसतो. कारण दूरदर्शनच्या माध्यमातून लोककलावंत व अभिजन कलावंत, शहरीभाषा, ग्रामीण भाषा, परप्रांतीय भाषा, पाश्चात्य भाषा. विविध बोलीभाषांचा प्रभाव चाले परिसरातील बोलीभाषेवर पडलेला दिसतो.

निष्कर्ष:

- बोली भाषेतील काही शब्द लुप्त होत आहेत.
- लोककथा, लोकगीते, लोककला आणि म्हणी हे लोकवाङ्मय यामध्ये परिवर्तन झालेले दिसले.
- गावात रोजगार उपलब्ध नसल्यामुळे तरुणांचा शहरी भागाकडे ओढ असल्यामुळे ग्रामसंस्कृती व कृषीसंस्कृती नाहीशी होत आहे.
- या गावात सरकारी योजना असल्यामुळे स्वच्छतागृह, रस्ता, आरोग्य केंद्र, शाळा यांची समस्या जाणवली नाही .
- या गावातील शेतकरी महिला एकमेकांच्या शेतावर एकोप्याने व आनंदाने एकमेकांना मदत करतात.
- ग्रामीण भागातील माणुसकी अजून जिवंत आहे.

सहभागी विद्यार्थी: कु.साहिल कांबळे, शुभम साठे, हर्षदा कडूसकर

काही संदर्भ चित्रे

लोकगीते संकलित करताना मराठी विभागाचे विद्यार्थी *आणि लोकगीत सादर करताना* गावातील महिला

भाषिक सर्व्हेक्षण व गावभेटी दरम्यानची काही बोलकी छायाचित्रे पारंपरिक चूल

गावातील वीरगळ *पारंपरिक शेती अवजारे बैलगाडी*

गावातील विठ्ठल रुक्मिणी मंदिर

क्षेत्र भेटीदरम्यान विद्यार्थी

आधुनिक काळातही आपल्या देशी खिलार वाणाचे संवर्धन करणारी नवीन पिढी

CHAPTER-4

चाले गावच्या राजकीय आणि सामाजिक स्थितीचा अभ्यास.

प्रा. किर्ति करंजावणे, प्रा. प्राजक्ता कुंभार
राज्यशास्त्र विभाग

शैक्षणिक वर्षे २०२१-२२ मधील राष्ट्रीय सेवा योजनेचे हिवाळी शिबीर २६ डिसेंबर २०२२ ते १ जानेवारी २०२३ या कालावधी मध्ये मुळशी येथील चाले या गावी घेण्यात आला. चाले या गावचे राजकीय सर्वेक्षण करण्यात आले त्याचा अहवाल.

ध्येय:- चाले या गावची राजकीय व सामाजिक स्थिती अभ्यासणे.

उद्दिष्टे :-

१. चाले गावातील नागरिकांच्या राजकीय सहभागाचा अभ्यास करणे.
२. चाले गावचा सामाजिक विकास अभ्यासणे.
३. चाले गावातील नागरिकांची राजकीय जडणघडण तपासणे.
४. ग्रामपंचायतीची विकास कामे अभ्यासणे.

गृहीतके :-

१. चाले गावातील नागरिक राजकीयदृष्ट्या जागरूक आहे.
२. चाले गावच्या विकासात राजकीय नेतृत्वाचा सहभाग आहे.
३. चाले गावच्या राजकारणात महिलांचा सक्रीय सहभाग आहे.
४. चाले गावचा सामाजिक विकास शासकीय योजनांच्या अवलंबनाने झाला आहे.

अभ्यास/संशोधन पद्धती :-

चाले गावचा राजकीय व सामाजिक अभ्यास हा केसस्टडी पद्धतीने केला आहे. ग्रामस्थांच्या मुलाखती घेऊन राजकीय स्थितीचा अभ्यास केलेला आहे. प्राथमिक व दुय्यम साधनांद्वारे अभ्यास केलेला आहे.

प्रस्तावना :-

चाले गाव मुळशी तालुक्यातील एक गाव आहे. चाले गावची एकूण जमीन ४४७.९५ हेक्टर एवढी आहे. या चाले,सावरगाव आणि करमोळी या तीन गावांची मिळून ग्रुप ग्रामपंचायत चाले या गावी आहे. ही तीनही गावांची एकूण जमीन ९७८.९७ हेक्टर एवढी आहे. या तीनही गावांची लोकसंख्या ही २०११ च्या जनगणनेनुसार पुढीलप्रमाणे आहे.

१. चाले :- ८३७
२. सावरगाव :- ८८४
३. करमोळी :- ४३९

सामाजिक स्थिती :-

गावाच्या एकंदरीत पहाणीवरून व काही ग्रामस्थांच्या मुलाखतींमधून असे स्पष्ट जाणवले की या गावात हिंदू समाज मोठ्या प्रमाणात आहे. सर्वसाधारण खुला वर्ग मोठ्या प्रमाणात आहेत. दहिभाते आणि खैरे या आडनावाचे लोक जास्त आहेत. त्याचबरोबर बौद्ध, मातंग, तेली, कोळी आणि वडार समाज चाले गावात आढळतो मात्र मुस्लीम समाज या गावामध्ये नाही. या गावातील प्रमुख व्यवसाय शेती आहे. भातशेती आहे त्याचबरोबर उसाचे पीक देखील घेतले जाते पण त्याचे प्रमाण अल्प आहे. काही प्रमाणात कडधान्ये देखील घेतले जातात उदा. मसूर, वाटणा आणि हरभरा इ. शेतीला पूरक असे जोड धंदे म्हणजे दुग्ध व्यवसाय आणि पशुपालन होय. या गावातील काही कुटुंबामधील लोक नोकरीसाठी पुणे आणि मुंबई या दोन शहरांमध्ये स्थाईक झाले आहेत.गावामध्ये किराणा मालाची तीन दुकाने आहेत आणि दुध डेरी दोन आहे. कोरोना महामारीच्या काळात ग्रामपंचायतीच्यामार्फत सॅनीटायजर, साबण, मास्क यांचे वाटप करण्यात आले. या महामारीच्या संदर्भात आवश्यक ती जनजागृती करण्यात आली होती.

शैक्षणिक परिस्थिती :-

शैक्षणिकदृष्ट्या गाव मागास असल्याचे निदर्शनास आले कारण गावामध्ये एक अंगणवाडी आणि एकच जिल्हा परिषद प्राथमिक शाळा आहे अंगणवाडी मध्ये एकूण २९ विद्यार्थी आहेत. २९ पैकी ६ मुली आहेत तर २३ मुलगे आहेत . ३ ते ४, ४ ते ५ आणि ५ ते ६ असा वयोगट केला जातो व अंगणवाडीचे वर्ग घेतले जातात.प्राथमिक शाळेत १ ली ते ७ वी मध्ये एकूण ७५ विद्यार्थी आहे. त्यामध्ये मुलगे ३९ आहेत आणि मुली ३५ आहेत. ७५ विद्यार्थ्यांमागे ४ शिक्षक आहेत. माध्यमिक शाळा मात्र गावामध्ये नाही त्यासाठी पौड या गावी जावे लागते. सावरगाव या ठिकाणी आयटीआयचे आपल्याच पुणे जिल्हा शिक्षण मंडळाचे महाविद्यालय आहे.

राजकीय अभ्यास:-

चाले गाव मावळ विधानसभा आणि लोकसभा मतदार संघात येते. या गावचे आमदार सुनील शेळके आहेत. तसेच बारामती लोकसभा मतदार संघाअंतर्गत हे गाव येत असल्यामुळे सध्या सुप्रियाताई सुळे या लोकसभा मतदार संघातील लोकसभा खासदार आहेत. गावामध्ये ग्रुप ग्रामपंचायत कार्यालय आहे. चाले गाव ग्रामपंचायतीची स्थापना १९५६ साली झाली. गावातील पहिले सरपंच बनण्याचा मान १९५६ साली कोंडीबा धों. दहिभाते यांना मिळाला होता. या गावामध्ये शिवसेना व राष्ट्रवादी कॉंग्रेस या दोन्ही पक्षाचे मोठ्या प्रमाणात वर्चस्व आहे. चाले या ग्रुप ग्रामपंचायतीचे सरपंच सध्या शिवसेनेचे आहेत. त्यांचे नाव श्री. गणेश नथू दहिभाते आहे. तर उपसरपंच सौ. रुपाली कैलास साठे या आहेत.

एकूण नऊ ग्रामपंचायत सदस्य आहेत त्यांची नावे पुढीलप्रमाणे

१. श्री. शरद मारुती केदारी
२. सौ. अरुणा दिगंबर केदारी
३. सौ. राजश्री शेखर जायगुडे
४. श्री. निलेश जयवंत दहिभाते
५. श्री. दीपक कचरनाथ चाळेकर
६. सौ. मंगल सुरेश साळुंखे

महिलांचे प्रमाण राजकारणात अल्प आहे. पहिली महिला सरपंच २००५ साली झाली. एकूण आत्ता पर्यंत पाच महिला सरपंच पदी निवडून आलेल्या आहेत. त्यांची नावे:-

१. सौ. मुक्ताबाई ह. दहिभाते (पहिली महिला सरपंच)
२. सौ. श्रद्धा महेश आल्हाट
३. सौ. भारती पांडुरंग जायगुडे (प्रभारी)
४. सौ. प्रियांका मनीष गायकवाड
५. सौ. रुपाली कैलास साठे (प्रभारी)

सद्या चाले ग्रुप ग्रामपंचायतच्या ग्रामसेविका सौ. राणी डी. अडसूळ या आहेत. तर तीनही गावचे पोलीस पाटील पुढीलप्रमाणे

१. चाले – श्री. ओंकार शंकर दहिभाते
२. करमोळी – श्री. महेश विलास आल्हाट
३. सावरगाव – सौ. सरोज नितीन साळुंखे

चाले गावात महाराष्ट्र राज्य ग्रामीण जीवन उन्नती अभियानांतर्गत वरिष्ठ वर्धीनींची फेरी या अंतर्गत महिलांच्या सक्षमीकरणासाठी वरिष्ठ वर्धीनी येऊन काम करतात. या अभियानाचा उद्देश गरिबी निर्मुलन, महिला सक्षमीकरण, शास्वत उपजीविका यावर प्रशिक्षण देणे हा आहे. या अभियानांतर्गत गावातील बचत गटांना एकत्रित करून त्यांचा ग्रामसंघ बांधून त्यांना पाच दिवसाचे प्रशिक्षण वरिष्ठ वर्धिनींकडून दिले जाते.हे अभियान प्रामुख्याने महिलांसाठी आहे.

चाले विकास:-

१९५६ साली स्थापन झालेल्या ग्रामपंचायती मार्फत गावामध्ये आज पर्यंत अनेक विकास कामे झाली आहे. ती पुढीलप्रमाणे.

१. स्वजलधारा योजनेअंतर्गत विहिरीचे काम झाले आहे तरीही पाण्याचा प्रश्न गंभीर आहे.

२. गावात इयत्ता १ली ते ७ वी पर्यंत शिक्षणाची सोय आहे. म्हणजेच प्राथमिक शिक्षणाची सोय आहे.
३. विद्यार्थ्यांसाठी पोषक आहार योजना राबविली जाते.
४. गावात विविध आरोग्य शिबिरे घेतले जातात.
५. महाराष्ट्र राज्य ग्रामीण जीवन उन्नती अभियानांतर्गत वरिष्ठ वर्धीनींची फेरी या अंतर्गत महिलांच्या सक्षमीकरणासाठी काम केले जाते.

निष्कर्ष:-

१. खुल्या गटातील नागरिकांचे विशेषतः मराठा समाज मोठ्या प्रमाणात गावात आहे.
२. OBC, ST आणि SC प्रवर्गातील समाज गावामध्ये आहे.
३. राजकीय प्रक्रियेमध्ये महिलांचा सहभाग आहे.
४. महिलांनी सरपंच हे प्रमुख पद भूषविलेले आहे.
५. विविध शासकीय योजनांद्वारे विकासाची काहीप्रमाणात कामे झालेली आहेत पण प्रमुख समस्या मात्र अजूनही सुटलेल्या नाहीत, पाणी प्रश्नखूप मोठ्या प्रमाणावर आहे चार चार दिवस पाणी येत नाही, रस्ते दुरुस्ती, सरकारी दळणवळण साधनांचा अभाव, स्मशानभूमी दुरुस्ती

निरीक्षण:-

१. गावामध्ये शिवसेना आणि राष्ट्रवादी कॉंग्रेस पक्षाचा प्रभाव आणि वर्चस्व आहे.
२. ग्रामपंचायत असूनही पाणी, रस्ते, दळणवळण, स्मशानभूमी बाबतचे प्रश्न आजही अनुत्तीर्ण आहेत.
३. शासनाच्या योजनांमुळे गावाचा काहीप्रमाणात विकास झालेला आहे.
४. गावात फक्त प्राथमिक शिक्षणाची सोय आहे. माध्यमिक व उच्च शिक्षणासाठी गावाच्या बाहेर जावे लागते.
५. डिजिटल इंडिया या संकल्पनेनुसार ग्रामपंचायतीमध्ये संगणक, इंटरनेट सुविधा आहेत त्याचा वापर केला जातो.

सूचना:-

१. सर्वात महत्वाचे माध्यमिक व उच्च शिक्षणाची सोय गावासाठी आवश्यक आहे.
२. गावामध्ये जाण्यासाठी जो रस्ता आहे तो अतिशय खराब आहे त्यामुळे रस्त्याची सोय करणे आवश्यक आहे.
३. जीवनासाठी आवश्यक अशा पाण्याचा प्रश्न सुटणे आवश्यक आहे.

सर्वेक्षणाचे काही फोटो :-

ग्रामस्थांशी चर्चा करतानाचे व माहिती घेतानाचे क्षणचित्रे

अंगणवाडीची माहिती घेताना

प्राथमिक शाळेची माहिती घेताना

महाराष्ट्र राज्य ग्रामीण जीवन उन्नती अभियानांतर्गत वरिष्ठ वर्धीनींची फेरी या उपक्रमाची माहिती वरिष्ठ वर्धीनींकडून घेताना

चाले ग्रुप ग्राम पंचायतीमध्ये जाऊन ग्रामसेविका सौ. राणी अडसूळ यांच्याकडून माहिती घेताना

CHAPTER-5

चाले गावचे आर्थिक सर्व्हेक्षण

प्रा संतोष सास्तुरकर
अर्थशास्त्र विभाग

Best Village Practice अंतर्गत अर्थशास्त्र विभागाच्या वतीने गाव: चाले तालुका: मुळशी, जिल्हा पुणे या ठिकाणी आर्थिक सर्वे करून गावातील आर्थिक परिस्थिती अभ्यासत असताना महात्मा गांधीजींच्या विचाराप्रमाणे खऱ्या अर्थाने ग्रामीण भागाची आर्थिक उन्नती घडून आली, तरच राष्ट्रीय उन्नती होऊन सक्षम भारत होण्यास फार काळ लागणार नाही यासाठी ग्रामीण भागातील शेतकरी, शेती व्यवसाया बरोबर जोड व्यवसाय करत असेल तरच उत्पन्न वाढीचा वेग उत्तरोत्तर वाढत जाईल म्हणून हा सर्वे भविष्यकाळात चाले येथील गावकऱ्यांना तसेच शेतकऱ्यांना मार्गदर्शक ठरेल.

सर्वेक्षणाची उद्दिष्टे:

1) चाले गावातील शेतकऱ्यांची आर्थिक स्थिती उंचावण्यासाठी प्रयत्न करणे.
2) शेती व्यवसायाबरोबरच मोठ्या प्रमाणात जोड व्यवसाय कसा करता येईल या संदर्भात मार्गदर्शन करणे.

चाले गावाची आर्थिक आणि सामाजिक स्थिती:

नियमित शेती व्यवसायाप्रमाणे लोक उपजीविका करताना दिसून आले फक्त शेती करणारे 74 शेतकरी होते तसेच गावामध्ये बहुतांशी शेतकरी, शेती व्यवसायाबरोबरच जोड व्यवसाय करतानाही दिसून आले अशा शेतकऱ्यांची संख्या 117 होती. यामुळे शेतकरी हा आपल्या मर्यादित धारण क्षेत्रांमध्ये जास्तीत जास्त उत्पन्न वाढीसाठी प्रयत्न करत आहे त्यामुळे शेती व्यवसायाला आधुनिक तंत्रज्ञानाची जोड प्राप्त झाल्याचे दिसून आले.

शेती व्यवसायाला शासकीय मदत:

आधुनिक तंत्रज्ञानाच्या साह्याने शेती करत असताना यांत्रिक शेती विकसित झाली यामध्ये पारंपरिक शेती ऐवजी व्यापारी शेतीकडे शेतकरी वळले. यासाठी मर्यादित भांडवलाच्या साह्याने शेती करताना सरकारची भूमिका आणि मदत पीक हमी योजना, योग्य बाजार भाव योजना, अवर्षण प्रवण मदत, अति अतिवृष्टी मदत अशा वेगवेगळ्या योजनेच्या साह्याने मदत प्राप्त होताना दिसून आले त्यांच्या मते जेवढ्या अधिक सुविधा आणि आधार शासन उपलब्ध करून देईल तेवढ्या अधिक प्रमाणात शेतकरीसुद्धा या योजनेचा लाभ घेताना दिसून येईल, अशा पद्धतीचे काही शेतकऱ्यांनी आपले मत सर्वेक्षण करताना मुलाखतीमध्ये व्यक्त केले.

शेती व्यवसायाचे व्यापारीकरण:

चाले गावातील शेतकरी पारंपरिक शेती करत असताना आधुनिक शेती व्यवसायाकडे वाटचाल करत असताना ऊस, कापूस, भात शेती, वेगवेगळ्या प्रकारची फुले, अशा व्यवसायाकडे वळले आहेत त्यामुळे त्यांच्या वस्तूंना अतिरिक्त बाजार भाव मिळून त्यांची आर्थिक उन्नती होताना दिसून आले. तसेच त्यांना माती परीक्षण करून घेण्यासाठी मार्गदर्शन केले आणि रासायनिक खतांचा अतिरिक्त वापर पिकांना किती हानिकारक आहे त्यामुळे

जमिनीची सुपीकता दिवसेंदिवस कमी होत चाललेले आहे याचेही मार्गदर्शन केले त्यामुळे शेतकरी जैविक आणि सेंद्रिय लागवडीचा विकास करण्यासाठी तयार झाल्याचे दिसून आले.

बँक खातेधारक शेतकरी:
शेतकऱ्यांचा अभ्यास करत असताना 92 टक्के शेतकऱ्यांकडे बँक खाती होती. उर्वरित 8% शेतकऱ्यांचे बँकेमध्ये खाते नव्हते तसेच त्यामुळे त्यांना कोणत्याही पद्धतीचा आर्थिक लाभ घेता आला नाही हे आर्थिक सर्वेक्षणाच्या साह्याने तूट दिसून आले.

अत्यावश्यक कागदपत्राचा अभाव:
शासकीय योजनेचा लाभ घेण्यासाठी आधार कार्ड, पॅन कार्ड,बँक खाते, रेशन कार्ड,रहिवासी दाखला इत्यादी. वेगवेगळ्या कागदपत्रांची आवश्यकता असते यातील 2 टक्के शेतकऱ्यांकडे वरील पैकी एखादा कागदपत्राचा अभाव असल्याचे दिसून आले.

सर्वेक्षणामुळे फलश्रुती:
चाले या गावामध्ये आर्थिक सर्वे केल्यामुळे लोकांची शेतकऱ्यांची मजूर वर्गाची अभ्यास करता आला त्यामुळे त्यांच्या स्तरांमध्ये कशा पद्धतीने उत्पन्न वाढवता येईल याचे मार्गदर्शन करण्यात आले शेतकऱ्यांना जोडव्यवसाय किती महत्वाचा आहे याचे महत्त्व पटवून दिले त्यामुळे खरा विकसित भारत ग्रामीण भागातच असल्याचे सिद्ध होत असल्याचे पहावयास मिळाले.

प्रत्यक्ष सर्वेक्षणामध्ये **प्रा संतोष सास्तुरकर** यांनी संतोषी भालेराव , ऐश्वर्या वाघमारे, खवले साक्षी आणि अंधारे स्वप्नील या विद्यार्थ्यांच्या सहाय्याने प्रत्यक्ष शेतकरी आणि गावकऱ्यांकडून प्रश्नावली च्या साह्याने सर्वेक्षण पूर्ण केले. सदर सर्वेक्षण करण्यासाठी प्रश्नावली तयार करताना अर्थशास्त्र विभाग प्रमुख डॉ. एस एन माने, डॉ क्रांती बोरावके प्रा विक्रमादित्य मालतूमकर, डॉ दीपाली चिंचवडे, डॉ. रोहिणी येवले, प्रा.निशिगंधा देशमुख यांचे सहकार्य लाभले.

CHAPTER-6

चाले गावातील पर्यटनाच्या संधी

प्रा. सद्दामहुसेन घाटवाले
ट्रॅवल अँड टुरिझम विभाग

वैविध्यपूर्ण निसर्गाच्या सानिध्यात वसलेल्या मुळशी तालुक्यातील मौजे चाले गावामध्ये व्यावसायिक अभ्यासक्रम अंतर्गत चालणाऱ्या ट्रॅवल अँड टुरिझम विभागामार्फत चाले गावाला लाभलेल्या समृद्ध ऐतिहासिक व नैसर्गिक वारश्याने भविष्यामध्ये शाश्वत पर्यटन कसे विकसित करता येईल याबाबत सर्वेक्षण केले. सदर ग्राम सर्वेक्षणासाठी गावामध्ये पोहोचल्यानंतर सर्वात अगोदर दगडावर कोरिप काम केलेले शिल्प दिसतात ज्यांना इतिहासाच्या भाषेमध्ये वीरगळ असे म्हणतात.

वरील चित्रामध्ये चाले गावामध्ये आढळणाऱ्या या महत्वाच्या वीरगळी आहेत.

जागतिक स्तरावर झालेल्या जागतिकीकरण, खाजगीकरण व उदारीकरण यामुळे पारंपारिक सामाजिक जीवनाची संकल्पना बदलत आहे. विशेषतः सामाजिक ऐक्य व संस्कृती टिकवण्यासाठी ग्रामीण भागाचे महत्त्वाचे

योगदान असुन आज शहरी भागांमध्ये कृत्रिम पद्धतीने ग्रामीण जीवनाच्या अनुभूतीचा देखावा सादर केला जात आहे. त्यामुळे ग्रामीण व कृषी पर्यटनाद्वारे समाज, संस्कृती, साहित्य, लोककला समजून घेण्यासाठी कृषि व ग्रामीण पर्यटन संकल्पना विषाद केली. विशेषत कोविड - १९ काळामध्ये आंतरराष्ट्रीय पर्यटन क्षेत्राला मोठ्या प्रमाणात फटका बसलेला असताना देशांतर्गत पर्यटनामध्ये झालेल्या वाढीमुळे खऱ्या अर्थाने आपला इतिहास व संस्कृती समजून येईल. त्यामुळे कृषी पर्यटनाबरोबरच नैसर्गिक संपन्नता लाभलेल्या ग्रामीण भागामध्ये साहसी पर्यटनाचा विचार कशा प्रकारे करता येईल याबाबत माहिती देत कृषी व ग्रामीण पर्यटन विषयक विविध शासकीय योजनांची माहिती उपस्थितांना दिली. या सर्वेक्षणांनंतर पर्यटन व्यवसायाची कास धरत ग्रामीण भागामध्ये आर्थिक उत्पन्नाचे स्त्रोत निर्माण होत गावचा विकास व कायापालट कसा होईल याबाबत ट्रॅवल अँड टुरिझम विभाग सदैव प्रयतनशील असणार आहे.

CHAPTER-7

Socio economics status of Village Chale

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Chale is a Village in Mulshi Taluka in Pune District of Maharashtra State, It belongs to Desh or Paschim Maharashtra region Fig. 1 represent the location of village Chale with the reference of India.

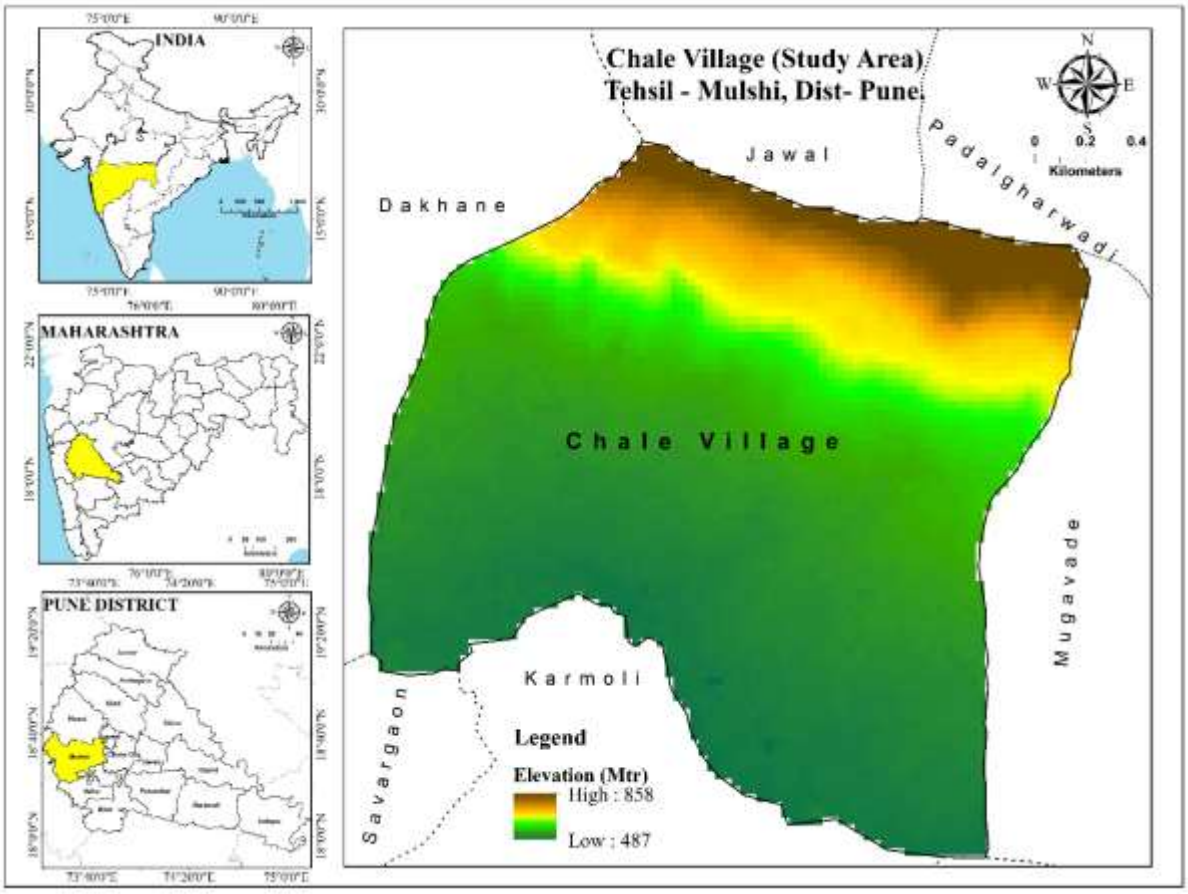

Fig.1 Location Map of Village Chale

Population characteristic of village Chale: -

According to the available data, the total population of Village Chale is 845, out of which 452 are male and 393 are female. The population below 6 years is 111, with 62 being male and 49 being female. In terms of caste composition, the population of Scheduled Caste (SC) is 23, with 12 being male and 11 being female. The population of Scheduled Tribe (ST)

is 7, with 4 being male and 3 being female. The literacy rate in Village Chale is 56.68%, with a total of 479 literate individuals. Out of these, 317 are male and 162 are female. Overall, the population in Village Chale seems to be fairly distributed between males and females, with a moderate literacy rate. However, the lower representation of Scheduled Castes and Scheduled Tribes is a point of concern and indicates the need for inclusive development policies in the area. Village Chale has a total population of 845 individuals, with 452 males and 393 females. The population below 6 years is 111, with 62 being male and 49 being female. The village has a total population of 23 Scheduled Castes (SC), with 12 being male and 11 being female. The Scheduled Tribe (ST) population in the village is 7, with 4 being male and 3 being female. In terms of literacy, the village has a total of 479 literate individuals, with 317 being male and 162 being female. It is good to see that the number of male literates is higher than that of female literates. However, the village needs to take measures to improve female literacy levels. Furthermore, the village has a total of 289 cultivators, with 128 being male and 161 being female (Table 1). There are 63 agriculture workers in the village, with 29 being male and 34 being female. Additionally, 39 individuals work as household workers, with 33 being male and 6 being female. There are also 94 other workers in the village, with 86 being male and 8 being female. The total number of workers, including both main and marginal workers, is 486, with 277 being male and 209 being female. There is only one marginal worker in the village, who is a male. Lastly, the village has a total of 359 non-workers, with 175 being male and 184 being female. It is essential to create employment opportunities in the village to provide more options for the non-working population. Overall, the population report shows that Village Chale has a decent population size, with good gender representation. The village needs to focus on improving female literacy levels and creating more employment opportunities.

Table 1: Population distribution of Chale

Total Population	845		Total Main Female Workers Population	209
Total Male Population	452		Total Cultivators Population	289
Total Female Population	393		Total Male Cultivators Population	128
Total Population below 6 years	111		Total Female Cultivators Population	161
Total Population below 6 years Male	62		Total Agriculture Workers Population	63
Total Population below 6 years Female	49		Total Male Agriculture Workers Population	29

Total Population of SC	23		Total Agriculture Workers Population	34
SC Male Population	12		Total Household Workers Population	39
SC Female Population	11		Total Male Household Workers Population	33
Total Population of ST	7		Total Female Household Workers Population	6
ST Male Population	4		Total Other Workers Population	94
ST Female Population	3		Total Other Male Workers Population	86
Literate Population	479		Total Other Female Workers Population	8
Male Literate	317		Total Marginal Workers	1
Female Literate	162		Total Male Marginal Workers	1
Total Workers (Main and Marginal) Population	486		Total Female Marginal Workers	0
Total Workers (Main and Marginal) Male Population	277		Total Non wokrers Population	359
Total Workers (Main and Marginal) Female Population	209		Total Male Non-Workers Population	175
Total Main Workers Population	485		Total Female Non-Workers Population	184
Total Main Male Workers Population	276			

Animal Husbandry Report: Village Chale: -

Animal husbandry plays a crucial role in the livelihoods of many households in Village Chale. The village has a significant number of livestock, including cows, buffaloes, goats, sheep, and poultry. Animal husbandry not only provides food and nutrition but also generates income for many households in the village. The village has a total of 110 cows, with 56 being male and 54 being female. The number of buffaloes in the village is 148, with 79 being male and 69 being female. Furthermore, the village has a total of 216 goats, with 119 being male and 97 being female. The number of sheep in the village is 77, with 43 being male and 34 being female. Lastly, the village has a total of 364 poultry birds, with 205 being male and 159 being female. The majority of households in the village depend on animal husbandry for their livelihoods. The animals provide milk, meat, and eggs, which are essential sources of nutrition for the households. Additionally, the animals' by-products, such as manure, are used as fertilizers for crops, thus enhancing agricultural productivity. However, the village faces some challenges in animal husbandry, such as lack of proper

veterinary care and feed shortage during droughts. The village needs to focus on providing adequate veterinary care to prevent animal diseases and increase animal productivity. Moreover, the village needs to take measures to ensure adequate feed and water for the livestock during droughts and other natural calamities. In conclusion, animal husbandry plays a vital role in the livelihoods of many households in Village Chale. The village has a significant number of livestock, including cows, buffaloes, goats, sheep, and poultry. The village needs to focus on providing adequate veterinary care and feed to ensure the animals' health and productivity.

Cropping Pattern of Village Chale: -

Village Chale has a predominantly agricultural economy, with the majority of households engaged in farming. The village has fertile soil and favorable climatic conditions, which make it suitable for agriculture. The cropping pattern in the village is diverse, with different crops being grown in different seasons. The main crops grown in the village are paddy, wheat, jowar, and pulses. Paddy is the dominant crop, with a total of 245 hectares of land being used for its cultivation. The village has a total of 140 hectares of land under wheat cultivation, with jowar and pulses being grown in smaller quantities. The village follows a crop rotation system, with paddy being grown in the kharif season (June to October) and wheat being grown in the rabi season (November to March). Pulses and jowar are grown in both kharif and rabi seasons. The crop rotation system helps in maintaining soil fertility and prevents soil erosion. The village has a total of 20 tube wells and 2 dug wells, which provide irrigation water for the crops. The village also has a small canal that provides irrigation water for a small portion of land. However, the village faces water scarcity during the summer months, which affects crop production. The farmers in the village follow traditional farming practices and use organic manure for crop cultivation. The village has a total of 60 tractors, which are used for land preparation and transportation of crops. The village also has a primary agricultural cooperative society, which provides farmers with agricultural inputs such as seeds, fertilizers, and pesticides. In conclusion, the cropping pattern in Village Chale is diverse, with paddy being the dominant crop. The village follows a crop rotation system, which helps in maintaining soil fertility. The village faces water scarcity during the summer months, which affects crop production. The farmers in the village follow traditional farming practices and use organic manure for crop cultivation. The primary agricultural cooperative society provides farmers with agricultural inputs.

Geology of Village Chale: -

Village Chale is situated in a region with complex geological features. The village is located in the Deccan Plateau, which is a large plateau that covers most of central and southern India. The geology of the Deccan Plateau is characterized by basaltic rocks, which are volcanic in origin. The village is located in an area with extensive lava flows and basaltic formations. The basaltic rocks are part of the Deccan Traps, which are a large igneous province that covers an area of around 500,000 square kilometers. The Deccan Traps were formed around 60 million years ago during the Cretaceous-Paleogene extinction event, which saw the extinction of the dinosaurs. The basaltic rocks in the village are dark in color and have a dense and fine-grained texture. The rocks are hard and durable, which makes them suitable for construction purposes. The villagers use the basaltic rocks for building houses, temples, and other structures. The village has a total of 10 wells, which provide groundwater for domestic and agricultural purposes. The groundwater in the village is derived from the basaltic rocks, which act as an aquifer. The groundwater in the village is of good quality and is suitable for drinking and irrigation purposes. The village is situated in an area with moderate seismic activity. The region is prone to earthquakes, which are caused by the movement of tectonic plates. The villagers are aware of the seismic activity in the region and take necessary precautions to prevent damage to their homes and property. In conclusion, the geology of Village Chale is characterized by basaltic rocks, which are volcanic in origin. The rocks are hard and durable, which makes them suitable for construction purposes. The groundwater in the village is derived from the basaltic rocks, which act as an aquifer. The village is situated in an area with moderate seismic activity, and the villagers take necessary precautions to prevent damage to their homes and property.

Geomorphology of Village Chale: -

Village Chale is located in a region with diverse geomorphological features. The village is situated in the Deccan Plateau, which is a large plateau that covers most of central and southern India. The geomorphology of the Deccan Plateau is characterized by extensive lava flows and basaltic formations. The village is located in an area with undulating terrain, with a maximum elevation of around 600 meters above sea level. The landscape of the village is characterized by small hills, ridges, and valleys. The hills and ridges are mostly composed of basaltic rocks, while the valleys are covered with fertile soil. The village has a total of 315

hectares of agricultural land, which is used for the cultivation of crops such as maize, soybean, and cotton. The agricultural land is situated in the valleys and is irrigated by groundwater from the basaltic formations. The village has a total of four small streams that flow through the agricultural land. The streams originate from the hills and merge into larger streams downstream. The streams are seasonal and flow only during the monsoon season, which is from June to September. The village is situated in an area with moderate soil erosion, which is caused by the heavy rainfall during the monsoon season. The villagers have implemented various soil conservation measures, such as contour farming and construction of bunds, to prevent soil erosion and conserve soil fertility. In conclusion, the geomorphology of Village Chale is characterized by undulating terrain, small hills, ridges, and valleys. The agricultural land is situated in the valleys and is irrigated by groundwater from the basaltic formations. The village has small streams that flow through the agricultural land, and the streams are seasonal and flow only during the monsoon season. The villagers have implemented soil conservation measures to prevent soil erosion and conserve soil fertility.

Soil Report of Village Chale: -

Village Chale is in an area with diverse soil types and soil formations. The village is situated in the Deccan Plateau, which is a large plateau that covers most of central and southern India. The soil formation in the Deccan Plateau is influenced by the underlying basaltic formations, which are a result of extensive lava flows. The soil in the village is mainly formed by weathering of the underlying basaltic rocks. The soil is characterized by a red to brown color, with a clayey texture. The soil in the village is classified as Alfisols, which are moderately weathered soils with high fertility and good moisture retention capacity. The depth of the soil in the village varies from place to place. In the valleys, where the agricultural land is located, the soil depth ranges from 30 cm to 120 cm. The soil in the valleys is deep and fertile, and is suitable for the cultivation of crops such as maize, soybean, and cotton. In the hilly and rocky areas, the soil depth is relatively shallow, ranging from 5 cm to 30 cm. The soil in the hilly and rocky areas is less fertile and has low moisture retention capacity. The vegetation in these areas is dominated by shrubs and grasses. The villagers in the village have adopted various soil conservation measures to prevent soil erosion and conserve soil fertility. These measures include contour farming, construction of bunds, and use of organic fertilizers. In conclusion, the soil in Village Chale is mainly formed by weathering of the underlying basaltic rocks. The soil is classified as Alfisols, which are

moderately weathered soils with high fertility and good moisture retention capacity. The depth of the soil in the village varies from 5 cm to 120 cm, depending on the location. The villagers have implemented soil conservation measures to prevent soil erosion and conserve soil fertility.

Education Development Report of Village Chale: -

Village Chale has made significant progress in the field of education in recent years. The village has one primary school, one secondary school, and one higher secondary school. The primary school has classes up to the fifth standard, while the secondary school has classes up to the tenth standard, and the higher secondary school has classes up to the twelfth standard. The literacy rate in the village has been steadily increasing over the years. As per the latest census data, the literacy rate in the village is 56.6%, with male literacy at 68.2% and female literacy at 44.1%. The village has a total of 479 literate persons, of which 317 are males and 162 are females. To further improve the quality of education, the village has taken several initiatives. The primary school has introduced digital classrooms to make learning more interactive and engaging for the students. The secondary school has started offering computer education to its students to equip them with necessary skills for the future. The higher secondary school has introduced vocational training programs to provide students with practical skills that they can use to gain employment. The village has also formed a committee to oversee the education development in the village. The committee consists of members from the village council, the school management committees, and the local community. The committee works to identify the educational needs of the village and to implement measures to address them. In conclusion, Village Chale has made significant progress in the field of education in recent years. The village has one primary school, one secondary school, and one higher secondary school. The literacy rate in the village is steadily increasing, and the village has taken several initiatives to improve the quality of education. The formation of an education committee further highlights the village's commitment to education development.

Slope, Slope Direction, and Elevation of Village Chale: -

Village Chale is located in a hilly terrain with a varying slope, slope direction, and elevation. The village is situated at an altitude of 732 meters above sea level and is surrounded by hills on all sides. The highest peak in the vicinity of the village is located at an

elevation of 972 meters above sea level. The slope of the village is moderate to steep in some areas. The slope ranges from 5% to 40%, with the steepest slopes found on the hills surrounding the village. The slope direction of the village is towards the east and south-east. The village is located on the western side of the hills, and the slope gradually increases towards the east and south-east. The varying slope and slope direction have an impact on the land use pattern and agriculture in the village. The areas with steeper slopes are generally not suitable for agriculture and are instead used for forestry or other non-agricultural purposes. The areas with moderate slopes are used for horticulture and mixed cropping. The areas with gentler slopes are used for growing crops such as wheat, maize, and rice. The elevation of the village also has an impact on the temperature and climate of the village. The village has a pleasant climate throughout the year due to its higher elevation. The average temperature in the village ranges from 18°C to 28°C. The village receives an average rainfall of 1200 mm per year, which is mostly concentrated during the monsoon season. In conclusion, Village Chale is situated in a hilly terrain with varying slopes, slope directions, and elevation. The steeper slopes are not suitable for agriculture, while the moderate slopes are used for horticulture and mixed cropping. The elevation of the village has an impact on the temperature and climate, making the village pleasant throughout the year.

Rainfall in Village Chale: -

Village Chale is located in a region with a tropical climate, characterized by high temperatures and a distinct wet and dry season. The village receives most of its rainfall during the monsoon season, which typically starts in June and lasts until September. The average annual rainfall in the village is around 1200 mm, with the heaviest precipitation occurring in July and August. The rainfall distribution in the village is not uniform, with some areas receiving more rainfall than others. The variations in rainfall can be attributed to the local topography, including slope and elevation, as well as other factors such as wind direction, temperature, and humidity. The heavy rainfall in the village during the monsoon season plays a crucial role in the agricultural activities in the region. The rainfall is used to irrigate crops, replenish the groundwater table, and maintain the soil moisture content. The farmers in the village generally grow crops such as wheat, rice, maize, and vegetables, which require a significant amount of water for their growth and development. However, the heavy rainfall during the monsoon season also poses a risk of flooding and landslides in the hilly terrain of the village. The steep slopes and high precipitation can cause soil erosion, leading

to landslides and soil degradation. The village has implemented various measures such as terracing, contouring, and afforestation to mitigate the impact of heavy rainfall on the environment and agriculture. In conclusion, the Village Chale receives a significant amount of rainfall during the monsoon season, which plays a crucial role in the agriculture activities in the region. However, the heavy rainfall also poses a risk of flooding and landslides, requiring proper measures to be taken to mitigate its impact.

Temperature in Village Chale: -

Village Chale is located in a tropical region and experiences a hot and humid climate throughout the year. The village has a typical monsoon-influenced climate, with distinct wet and dry seasons. The average annual temperature in the village is around 27°C, with the maximum temperature reaching up to 40°C during the summer months of April and May. The minimum temperature in the winter months of December and January can drop to around 10°C. The diurnal temperature variation in the village is relatively low, with a range of around 8-10°C between day and night temperatures. The temperature in the village is influenced by various factors such as elevation, topography, wind direction, and proximity to the sea. The temperature is relatively higher in the low-lying areas of the village, while the temperature decreases as one moves to higher elevations. The temperature is also affected by the surrounding hills and valleys, which can cause temperature inversions and localized variations in temperature. The high temperature in the village during the summer months can have adverse effects on human health and agriculture. The village has implemented various measures to mitigate the impact of high temperature, such as the use of shade nets and cooling mechanisms in agriculture and the provision of drinking water and cooling centers for human beings. In conclusion, Village Chale experiences a hot and humid climate throughout the year, with high temperatures during the summer months. The temperature in the village is influenced by various factors, including elevation and topography. The village has implemented various measures to mitigate the impact of high temperature on agriculture and human health.

Humidity in Village Chale: -

Village Chale experiences a hot and humid climate throughout the year, with high levels of humidity in the monsoon season. Humidity is the amount of moisture present in the air, and it plays a critical role in determining the comfort level and health of the people living

in the area. The village has an average annual relative humidity of around 70%, with the highest levels observed during the monsoon season. The humidity levels during the monsoon season can reach up to 90%, which can cause discomfort and health issues for the people living in the area. High humidity levels can also affect agriculture by promoting the growth of fungal diseases and pests. The humidity in the village is influenced by various factors such as temperature, wind direction, and proximity to the sea. The high temperature in the village during the summer months causes the moisture to evaporate from the land surface, leading to a decrease in humidity levels. On the other hand, the presence of a water body such as a river or lake can increase the humidity levels in the area. To mitigate the impact of high humidity levels, the village has implemented various measures such as the use of dehumidifiers and air conditioning systems in buildings, the provision of adequate ventilation, and the promotion of personal hygiene practices such as bathing and wearing light and breathable clothing. In conclusion, Village Chale experiences high levels of humidity, particularly during the monsoon season. The humidity levels in the village are influenced by various factors such as temperature and proximity to water bodies. The village has implemented various measures to mitigate the impact of high humidity levels on human health and agriculture.

Sunlight in Village Chale: -

Sunlight is an essential factor that influences various aspects of life, including agriculture, health, and tourism. Village Chale is located in a tropical region, which means that it receives abundant sunlight throughout the year. The village has an average of around 8 hours of sunlight per day, with the duration varying throughout the year. During the summer months, the village receives more than 9 hours of sunlight per day, while in winter, the

duration decreases to around 7 hours per day. The sunlight in the village is influenced by various factors such as cloud cover, the position of the sun, and the altitude of the area. Sunlight plays a critical role in agriculture as it is necessary for the photosynthesis process, which is the basis of plant growth. In Village Chale, the abundant sunlight supports the growth of various crops such as rice, wheat, and vegetables. The village is also known for its production of cash crops such as sugarcane, cotton, and tobacco, which require high levels of sunlight for their growth. Sunlight also has an impact on human health, as it is necessary for the synthesis of vitamin D, which is essential for bone health. The sunlight in Village Chale can also promote tourism, as it is known for its beautiful beaches and natural landscapes that are best enjoyed in the sunlight. In conclusion, Village Chale receives abundant sunlight throughout the year, which plays a critical role in agriculture, human health, and tourism. The sunlight in the village is influenced by various factors such as cloud cover, the position of the sun, and the altitude of the area. The village's abundant sunlight supports the growth of various crops and contributes to the local economy.

Vegetation and Species in Village Chale: -

Village Chale is situated in a tropical region, which is characterized by lush green vegetation. The village is home to a diverse range of plant species, which are well-adapted to the local climate and soil conditions. The vegetation in the village is dominated by trees, shrubs, and grasses, which provide habitat and food for a variety of animals and birds. The primary vegetation type in Village Chale is tropical evergreen forest, which is characterized by tall trees with broad leaves that remain green throughout the year. Some of the prominent tree species found in the village include teak, rosewood, sandalwood, and mango. These trees provide valuable timber and fruits, which are a significant source of income for the local population. Apart from the evergreen forest, Village Chale also has deciduous forest, which sheds its leaves during the dry season. This forest type is dominated by trees such as sal, mahua, and semal. The deciduous forest provides valuable fuelwood, timber, and fodder for livestock. In addition to the forests, Village Chale has extensive grasslands, which are characterized by short grasses and occasional shrubs. The grasslands provide grazing grounds for livestock and are also an essential habitat for small animals such as rodents and hares. The vegetation in Village Chale supports a diverse range of animal species, including elephants, tigers, leopards, and deer. The forest also supports a wide range of bird species, including woodpeckers, hornbills, and parrots. In conclusion, Village Chale is home to a diverse range of vegetation types and species, which are well-adapted to the local climate and soil conditions. The evergreen forest and deciduous forest are the dominant vegetation types in the village, and they provide valuable timber, fruits, and fuelwood. The grasslands provide grazing grounds for livestock and support small animal species. The vegetation in the village supports a diverse range of animal and bird species, making it a unique and important ecosystem.

Land use and Land Cover report of village Chale 2021:

The land is necessary for human survival because it’s available for the human with living space (Bhagawat, 2011). The scientist Stamp in the Britain is given a contribution regarding land use mapping study. Stamp 1962 defined the concept of land use. The land provided the all necessary and legitimate needs of the country (Stamp, 1930). According to Nanavati conservation of land is also connected with land use (Nanavati, 1951). This needs strong scientific, rational and economic preparation to use available resource of land, on

another side we have to maintain ecological and socio-economic balance (Mohammad, 1980).

Remote sensing data has been used for land use/land cover mapping as well as change dictation in different parts of the India (Gautam and Narayanan, 1983; Sharma et al., 1984; Jain, 1992; Brahabhatt et al., 2000). The present-day remote sensing data provide the change detection (LULCC) and monitoring of earth surface resources (Aher and Dalvi, 2012). The land use is the result of a combination of both natural genesis and human influences which have been brought to bear on it in the past and of those which are still active in the present (Vink, 1975). Satellite remote sensing imagery and it's coupled in GIS environment for land use/land cover analysis is a key to many diverse applications such as environment, forestry, hydrology and agriculture (Parlhad and Deore, 2010). Watershed management tools useful for any areas of natural resource management (Deshmukh et al., 2012) planning and monitoring depend on accurate information about the land cover in a region. The accurate representation of terrestrial vegetation is a key requirement for global change research (Jung et al. 2006; Lambin et al. 2001). The vegetation map is an essential base map for managing natural resources as vegetation provides a base for all living beings and plays an essential role in affecting global climate change, such as influencing terrestrial CO2 (Xiao et al. 2004). In the vegetation protection and restoration programs, it is necessary to obtain the current status of vegetation cover and change (Egbert et al. 2002; He et al. 2005). The traditional methods such as field surveys, literature reviews, map interpretation and collateral and ancillary data analysis, are not effective to acquire vegetation covers because they are time-consuming, date lagged and often too expensive. The present years remote sensing (RS) techniques are being widely used for vegetation mapping as well as monitoring and change dictation (Boyd et al., 1999; Ingram, 2005; Lu et al., 2004; Maynard et al., 2007; Dadhwal et al., 2009) identification of the vegetation types using spectrometer (spectral reflectance of the vegetation) (Zianis et al., 2005).

Chale is a very important village in Western Maharashtra. In the present study, describes the physical, social and economic aspects of village Chale The geographical location, physiography, geomorphology, drainage, geology, climate, soil, natural vegetation, irrigation, cropping pattern, animal husbandry, markets, transportation, industrial and economic development of village Chale have been discussed in this study. Built-up area: The village has a built-up area covering approximately 15.41 hectares. This includes residential, commercial, and other constructed areas.

Materials and Methods:

Landsat TM FCC (bands 4, 3 and 2, scale 1: 50,000, December 2016) were used for this study. The Landsat TM image was obtained in four separate images hence it was first mosaicked in Erdas Imagine software 14 before projecting it to UTM WGS 84 coordinate system. The study area was extracted by subsetting from the whole image. The flowchart of the research methodology can be divided into five stages: (i) preparation of reference maps for gathering the existing and relevant information in the spatial form, (ii) pre-field classification of the satellite data, (iii) ground trothing, (iv) post-field correction and (v) field verification of the final map. The spectral variation of each vegetation type were extracted from digital data by interpreting satellite images based on the interpretation elements such as the image colour, texture, tone, pattern and association information etc. The standard "false color" composite. Vegetation looks in shades of red. Coniferous trees will seem darker red than hardwoods. This is a very popular band combination and is useful for vegetation studies. Usually, deep red hues indicate broad leaf and/or healthier vegetation while lighter reds signify grasslands or sparsely vegetated areas. Diverse methods have been developed to do this. Those methods can be broadly grouped into unsupervised classification or supervised classification depending on whether or not true ground data are inputted as references. The flow chart of the research methodology is shown in Figure 2.

Crop land:

The village has a significant amount of land dedicated to agricultural purposes, with approximately 283.12 hectares being utilized for crop cultivation. This land is likely used for growing various crops, such as grains, vegetables, fruits,

Forest area:

Village Chale has a considerable forest area, covering approximately 159.61 hectares. This indicates the presence of natural forests and vegetation, which provide habitat for various wildlife species and contribute to the ecological balance of the region.

Scrub land:

The village has a small portion of land categorized as scrub land, covering approximately 7.37 hectares. Scrub lands typically consist of low-growing vegetation, including shrubs and small trees.

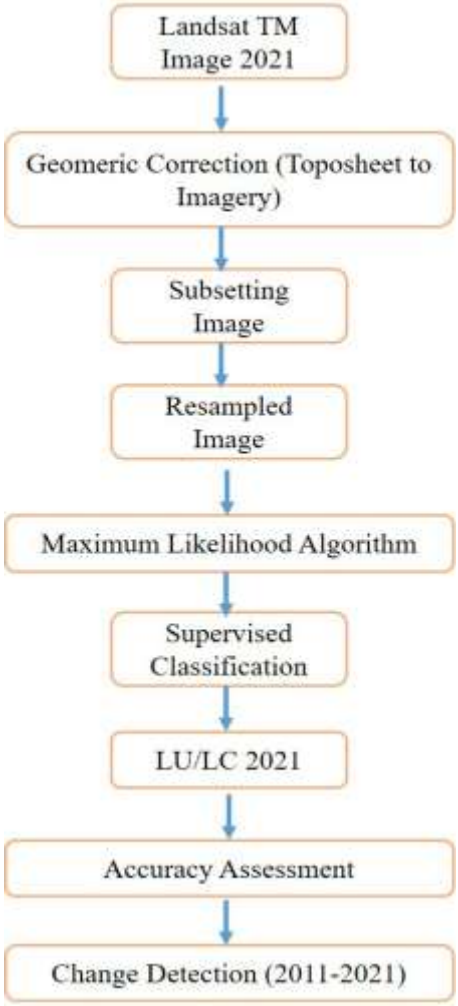

Fig. 2. Flow Chart of Research Methodology etc.

Table 2 Land use and Land Cover Statics of Village Chale

Class	Area in Hectar
Built Up (Rural)	16.41
Crop land	283.12
Forest	159.61
Scrub land	7.37
Waterbody	8.87
Grand Total	**475.39**

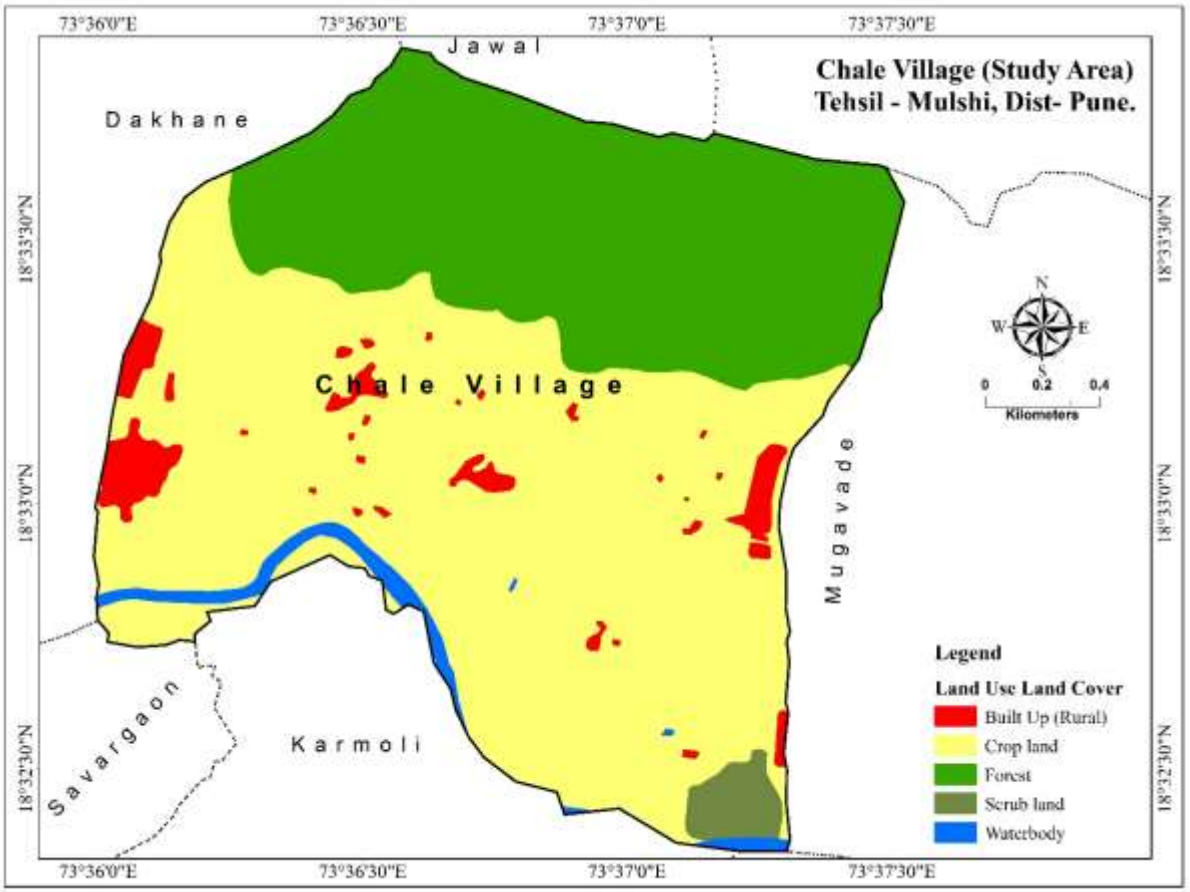

Fig.3 Land use and Land Cover of Village Chale

Waterbody: Village Chale has an area dedicated to water bodies, encompassing approximately 8.87 hectares. This could include lakes, ponds, rivers, or other water resources that play a vital role in supporting aquatic ecosystems and providing water for various purposes.

Overall, the total area of Village Chale is reported to be 475.39 hectares, with a diverse range of land uses and land covers. The distribution of land among built-up areas, crop lands, forests, scrub lands, and water bodies indicates a mix of human settlements, agricultural activities, natural vegetation, and water resources within the village's boundaries.

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CHAPTER-8

A plant diversity survey of Chale Village

D.M. Mahajan
Department of Botany

The college has selected the village Chale in Mulshi Tehsil of Pune District (Maharashtra). Department of Botany have carried out a survey for plant diversity and its significance on 29th December 2022. The students are involved in this field survey. The students learnt lot many things while working with the local people. The teachers have guided the students for the field survey. We did documentation of flowering plants of this village. This area is a mix of village, agriculture, small ghats, hilly region, thickets, and dry deciduous forest.

Introduction:

The Western Ghats are exceptionally rich in plant and animal species. Unfortunately, due to heavy human pressures this tremendous biodiversity is getting destroyed fast. Water resources are drying up and getting less in quantity for the growing population. This region is rich not only for wild biodiversity but also for the crop species and varieties. We had many local varieties of crops and fruit plants of which we had very high diversity. Our natural areas are rich treasure of medicinal plants. The local people were aware of its use. The forests are overexploited due to high developmental pressures, encroachments for agriculture, dams etc. The forests are an important source of many ecological services. Now a days, we are facing the consequences (floods, landslides, threats to wildlife, loss of endemic species, etc.) of forest degradation. We have fragmented our forests, as a result the plant diversity is declining. Decline in forest resources is linked to poor quality life in villages. This further results in large scale migration to urban areas. The unplanned development in this region is harmful to the ecosystem and biodiversity; and therefore, any kind of development being proposed in Western Ghats should be responsive to the fragility and rich biodiversity. Our villages are exceptionally good in natural resources such as plants, crops, animals, medicinal plants, soils, water, etc. Unfortunately, due to heavy anthropogenic pressures these enormous resources are getting destroyed fast. Biological resources are vanishing fast due to uncontrolled encroachments and exploitation. Water resources are drying up and getting less in quantity for the growing population. So, to understand the status of these resources, our college has decided to survey these resources through the participation of students and teachers.

Aim: Documentation of plant diversity of village Chale, Tal Mulshi (Part of Northern Western Ghats)

Objectives:

To prepare the plant species checklist.

To enlist endemic and RET species
Documentation of ethno-botanically important and wild vegetable plants
Documentation of agricultural crops.

Materials and Methods:

Study area: Chale: The surveys for plant biodiversity assessment were conducted in and around the Chale village (Mulshi) of Pune District. The village lies in the Western Ghats; Mulshi valley and located at 18º 33' 88" N latitude and 73º 36' 7.2" E longitude; and situated approximately 40 Km from Pune. It is situated 4.2 km away from sub-district headquarter Paud (tehsildar office). Chale is a small Village/ hamlet. It comes under Chale Panchayath. The general topography of the area is undulating with gentle slopes. It slopes towards south-east direction. It is marked with isolated agricultural farms and a river. The main land use pattern is agriculture, settlements, and reserved forest. The average elevation of land surface is observed to be 604 m above the MSL. As per 2009 stats, Chale is the gram panchayat of Chale village. Local Language is Marathi. Chale village is in Mulshi tehsil of Pune district in Maharashtra, India. It is situated 4.2 km away from sub-district headquarter Paud (tehsildar office) and 35km away from district headquarter Pune. As per 2009 stats, Chale village is also a gram panchayat.

Education: Government Pre-Primary and Primary Schools are available in this Village. Nearest Govt ITI College is in Aundh. Nearest Govt Pre Primary School is in Chale. Nearest Govt Secondary School and Govt Senior Secondary School are in Paud. Nearest Govt Disabled School, Govt Engineering College, Govt Medical College, Govt MBA college and Govt Polytechnic College are in Pune. Nearest Govt Arts and Science Degree College is in Pirangut.

Land and Natural Resources in Chale: Total area of Chale is 475.39 Hectares as per the data available for the year 2009. Total sown/agricultural area is 283.12 ha. About 7.37 ha is used permanent scrub land /pastures and grazing lands. About 160 ha is lying as forest land.

Plant surveys: A reconnaissance survey was carried out to have an overview of the species composition of the area. We prepared a simple plan for plant diversity studies at village level with the help of our students. The surrounding area exhibits a land use pattern that mainly consists of reserved forests and agricultural land with sparse trees on the bunds. The reserved forests and agriculture fields were interspersed with settlements. The sampling locations were determined by considering the land use pattern. The geology, topography, climate, and the soil have a close bearing on the nature of vegetation. These features were considered while selecting the sampling sites.

The biodiversity surveys were conducted to document the terrestrial and aquatic flora of the area. The area is having vegetation with diverse species composition. Intensive field surveys were made for documenting the various floral species. We used random walk method for listing the floral species. More emphasis was given to document and quantify the maximum possible number of species.

Identification: The methods followed in the field were based on the procedure outlined in 'The Flora of Maharashtra State' and 'Flora of Khandala'. The floristic studies were based on extensive exploration of the village area. The field surveys involved the preparation of an inventory of different species of plants including trees, shrubs, climbers, and herbs in the area. All plant species were identified with the help of expert taxonomist and literature published by Botanical Survey of India. Observations were also made on the agricultural patterns, agricultural weeds and cultivated and introduced plant species.

Observations and Results: The topography of Chale village is almost hilly with undulating to steep slopes. The natural vegetation/ forest type in this area is moist deciduous. Large to medium-sized trees along with shrubs constitute majority of the vegetation. Diversity of herbaceous species is always more in monsoon months and declines as the rainy season recedes. The summers are hot and dry.

The hillsides are covered with dense mixed forest. Epiphytes are occasional in appearance. Climbers are frequent. The main composition of these forest is – *Syzygium cumini, Bridelia retusa, Mangifera indica, Terminalia elliptica, Ficus racemosa, Ficus religiosa, Bombax ceiba,* and the undergrowth of shrubs like *Carrisa, Leea asiatica,* and *Pogostemon benghalensis* along with few other species. The only bamboo species was *Dendrocalamus strictus*. Here and there it forms virtually pure patches in the hills. The epiphytic orchids reported include *Aerides crispum,* and *Dendrobium.*

Total number of subspecies, species, genera, families: Flora refers to the plant species occurring in area. The extensive field surveys (supported by literature surveys) resulted in documentation of 485 plant species. The taxonomic distribution of documented plant species is illustrated in **Table 1**, and **Appendix-I** (Check list of flowering plants). The list includes the botanical name of species, habit, family, and status.

Table 1: Taxonomic attributes

Plant Type	No. of Species	No. of Genera	No. of Families
Angiosperms	445	298	81
Pteridophytes	07	07	07
Bryophytes	09	08	08
TOTAL	**461**	**313**	**96**

The documented species belonged to 313 genera and 461 species of 96 families (including Angiosperms, Pteridophytes, and Bryophytes) indicating the floristic richness of Chale village. The most dominant group was Angiosperms having 445 species that are distributed in 298 genera and 81 families. Other groups also represented very well forming a unique amalgamation of flora and vegetation. Among angiosperms the most represented family (**Table 2**) was Fabaceae (52 species), Asteraceae (43 species), Poaceae (35 species), Acanthaceae and Convolvulaceae (20 species each) and Euphorbiaceae (17 species). Similarly, the most abundant genera (**Table-3**) were *Ipomoea* (09 species), *Ficus* (07

species), *Euphorbia* (07 species), *Acacia* and *Cassia* (06 species each), *Alysicarpus* and *Indigofera* (5 species each), *Argyrea, Crotalaria* and *Cyperus* (04 species).

Table 2: Abundant families

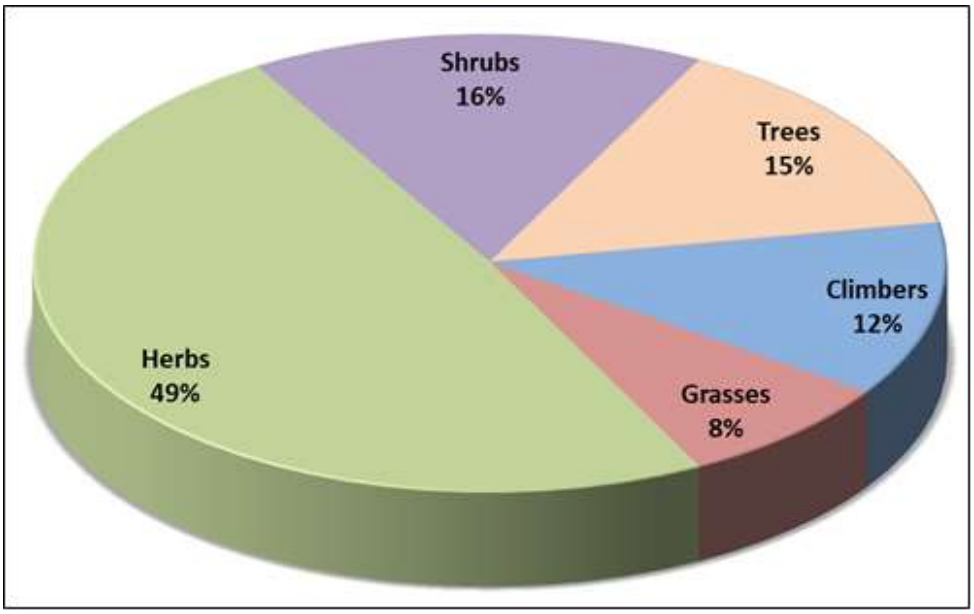
Family	No. of Species
Fabaceae	52
Asteraceae	43
Poaceae	35
Acanthaceae	20
Convolvulaceae	20
Euphorbiaceae	17
Malvaceae	12
Caesalpiniaceae	11
Lamiaceae	11
Mimosaceae	10

Table 3: Abundant genera

Genus Name	No. of Species
Ipomoea	9
Ficus	7
Euphorbia	7
Acacia	6
Cassia	6
Alysicarpus	5
Indigofera	5
Argyreia	4
Crotalaria	4
Cyperus	4

The habit-form wise analysis (**Figure-1**) presented a predominance of herbs (49%) and shrubs (16%) followed by trees (15%), and climbers (12%) and grasses (8%). The Pteridophytes and Bryophytes are represented by 07 and 09 species respectively.

Figure-1: Distribution of habit-forms of plant species



Lower group flora:

Cryptogams have a fundamental role in ecosystem function. They play central roles in the formation and stabilizations of soils, the decomposition of dead organic material and

nutrient cycling. They form symbiotic relationships with most vascular plants and are an important food source for many other organisms.

The lower group of plants needs very specific habitats and environmental conditions. Ecologically, these are probably most important as primary colonizers and stabilizers. They are very sensitive to their habitats. The Chale village provides a good habitat for lower flora.

Pteridophytes: The pteridophytes have an important and subtle ecological role, both in water-retention and stabilizing mobile surfaces like landslips, and scree slopes. They provide shelter and humidity for a remarkable diversity of invertebrates. Pteridophytes are an integral part of the food web in many of our important habitats. The Pteridophytes documented in this area are listed in **Table 4**.

Table 4: List of Pteridophytes

Botanical Name	**Habit**	**Family**
Adiantum lunulatum	Herbs	Adiantaceae
Cheilanthus albomarginata	Herbs	Cheilanthaceae
Pleopeltis linearis	Epiphytic herbs	Polypodiaceae
Pteris biaurita	Large herbs	Pteridoideae
Azolla pinnata	Aquatic herbs	Salviniaceae
Selaginella ciliaris	Small Herb	Selaginellaceae
Nephrolepis sp.	Herbs	Thelypterideae

Bryophytes: Bryophyte is a collective term for mosses, liverworts, and hornworts. Bryophytes have fragmented distributions. Bryophytes are typically associated with more moist habitats where they grow on soil, tree trunks and branches, fallen timber, debris, and rocks. Many of them are found only in small scattered and isolated populations of very small numbers of plants with little ecological resilience and apparently not capable of spreading to other un-colonised but seemingly suitable areas. This presents conservation problems. The bryophyte flora of the village is moderately rich. This region provides good micro-habitats for the growth and survival of bryophytic flora. The bryophyte species that are documented during field work are listed in **Table 5**.

Table 5: List of bryophytes

Botanical Name	**Family**	**Habitat and Distribution**
Antheceros erectus	Anthocerotaceae	Damp soils
Plagiochasma sp	Aytoniaceae	On wet rocky or soil surface
Bryum sp.	Bryaceae	On calcareous soils and walls
Cyathodium sp.	Cyathodiaceae	Wet and damp cutting of hill and rock
Notothylas sp.	Notothyladaceae	Damp plaines
Pogonatum sp.	Polytrichaceae	Laterite soils
Riccia discolor	Ricciaceae	Moist soils, shady and exposed places
Riccia glauca	Ricciaceae	Moist soils and stream banks
Targionia sp.	Targionaceae	Damp soils

Threatened and Endemic Species: As the village area falls in Western Ghats, it represents fairly good number of endemic and threatened plant species. The list of endemic and threatened plant species is provided in **table-6**. In all 14 species fall in a category of 'endemic to India', out of which one is in endangered category of Botanical Survey of India and IUCN, and 03 are at lower risk. Remaining 3 species are under lower risk.

Table 6: Threatened and endemic plant species.

Botanical Name	Local Name	Habit	Family	Status
Cajanus lineatus	Rantur	Herb	Fabaceae	EI
Canscora decurrens		Herb	Gentianaceae	EI
Carvia callosa	Karvi	Shrub	Acanthaceae	EI/LR
Cyanotis tuberosa	Abhali	Herb	Commelinaceae	LR
Ensete superbum	RanKeli	Shrub	Musaceae	EI/LR
Eranthemum roseum	Dasmuli	Herb	Acanthaceae	EI
Exacum pumilum	Jambhli-chirayat	Herb	Gentianaceae	EI
Haplanthodes verticillatus	Jakara	Herb	Acanthaceae	EI/LR
Impatiens latifolia	Terda	Herb	Balsaminaceae	EI
Iphigenia magnifica		Herb	Liliaceae	EI/EN
Jasminum malabaricum	Kasur	Climber	Oleaceae	EI
Neanotis lancifolia	Tanoti	Herb	Rubiaceae	EI
Rhamphicarpa longifolia	Tutari	Herb	Scrophulariaceae	LR
Rungia crenata	Rungia	Herb	Acanthaceae	LR
Senecio edgeworthii	Hiwali-sonki	Herb	Asteraceae	EI
Tabernaemontana heyneana	Chandani	Tree	Bignoniaceae	EI
Vernonia indica	Sahdevi	Herb	Asteraceae	EI

EI: - Endemic to India; EN: Endangered; LR:- Lower Risk.

Ecosystem Service: Most of the ecosystem services on which we and much of the agricultural system rely are being degraded or overexploited. Unpredictable weather, floods, overuse of chemical fertilizers and declines in soil fertility are severely impacting our agricultural system. The degradation of ecosystem services such as freshwater provision, climate regulation and soil fertility clearly have implications for the long-term viability of the business's dependent on them. Ecosystem services – also called 'ecological services' are the benefits that people obtain from ecosystems. Examples include freshwater, timber, climate regulation, and protection from natural hazards, erosion control and recreation.

Provisioning services:

Food: Crops, Livestock, poultry, Wild foods

Timber: *Terminalia, Lagerstroemia, Tectona, Mitragyna*, etc.

Biomass fuel: Fuel wood and charcoal, grain for ethanol production, dung

Fresh Water: Freshwater for drinking, cleaning, cooling, and household purpose.

Genetic Resources: Genes used to increase crop resistance.
Biochemicals: Medicines, biocides, food additives
Natural Medicines: crude drugs obtained from plants.
Pharmaceuticals: *Gloriosa, Chlorophytum*, extracts used for pest control.

Regulating services:
Air quality regulation: Water body and vegetation as carbon sink.
Water quality regulation: Permeable soils facilitate aquifer recharge. River floodplains and wetlands retain water.
Climate regulation at global and regional scale: Forests capture and store carbon dioxide.
Water purification and waste treatment: Wetlands remove harmful pollutants from water by trapping metals and organic materials. Soil microbes degrade organic waste, rendering it less harmful.
Disease and pest regulation: Predators from nearby forests – such as bats, toads, and snakes – consume crop pests.
Pollination: Bees from nearby forests pollinate crops.

Cultural services:
Recreation and ecotourism: Camping and bird watching.
Ethical values: Spiritual fulfilment derived from sacred lands and rivers.

Supporting Services:
Nutrient recycling: Decomposition of organic matter contributes to soil fertility.
Primary production: Plants transforms sunlight and nutrients into biomass, thereby forming the base of the food chain in ecosystems.
Water cycling: Transfer of water from soil to plants, plants to air, and air to rain.

Agriculture:

The cropping pattern in the village is diverse, with different crops being grown in different seasons. The main crops grown in the village are paddy, wheat, jowar, and pulses. Paddy is the dominant crop, with a total of 245 hectares of land being used for its cultivation. The village has a total of 140 hectares of land under wheat cultivation, with jowar and pulses being grown in smaller quantities. The village follows a crop rotation system, with paddy being grown in the kharif season (June to October) and wheat being grown in the rabi season (November to March). Pulses and jowar are grown in both kharif and rabi seasons. The crop rotation system helps in maintaining soil fertility and prevents soil erosion. The village has a total of 20 tube wells and 2 dug wells, which provide irrigation water for the crops. The village also has a small canal that provides irrigation water for a small portion of land.

The traditional agriculture is still under practice at some places, where the crops like *Eleusine coracana* are produced. The land-use around the village is farming, mainly cultivated with crops like Rice (*Oryza sativa*), and Chana (*Cicer arieatinum*). Recently the farmers shifted towards Suercane cultivation. The other crops taken are *Eleusine coracana* and *Amaranthus hybridus*. **Table 7** lists the various crops cultivated in the village. The leafy

vegetable crops are *Spinacia oleracea*, *Raphanus sativus*, *Coriandrum sativum*, and *Amaranthus sp.* Several local varieties/ landraces of rice, and ragi are cultivated occasionally.

The important fruit plants are *Mangifera indica* (Mango), *Psidium guajava*, and *Syzigium cumini* (Jamun). The wild fruit species are *Ziziphus mauritiana*, *Emblica officinalis*, and *Cordia dichotoma*. The farms are interspersed with human habitation, villages, and townships. The open areas around the agricultural fields and open foothills are infested with highly invasive weeds like *Eupatorium odoratum*, and *Hyptis suaveolens*. Other common herbs include *Cassia tora*, *Alysicarpus*, *Sida*, *Celosia*, *Desmodium*, *Acanthospermum*, *Phyllanthus*, *Ageratum*, *Tephrosia*, *Vigna*, *Alternanthera*, *Vernonia*, *Achyranthes*, *Euphorbia*, *Crotolaria*, *etc.*

Table 7: Agricultural crops under cultivation/ wild

Crop Type	**Crops species**
Cereals	Rice (*Oryza sativa*)
Millets and minor millets	Finger millet (*Eleusine coracana*), foxtail millet (*Setaria italica*), and common millet (*Panicum miliaceum*)
Oilseeds	Sesame (*Sesamum indicum*), Niger (*Guizotia abyssinica*), and Linseed (*Linum usitatissimum*)
Fruits	Mango (*Mangifera indica*), Jackfruit (*Artocarpus heterophyllus*), Lemon (*Citrus limon*), Custard apple (*Annona squamosa*), and Guava (*Psidium guajava*)
Medicinal and Aromatic Plants	*Embelia tsjeriam-cottam*, *Garcinia indica*, *Gloriosa superba*, *Pueraria tuberosa*, and *Rubia cordifolia*
Leguminous vegetables	Cowpea (*Vigna unguiculata*), and lablab bean (*Lablab purpureus*) are important leguminous vegetables.
Shoots and leafy vegetables	*Alocasia*, *Amaranthus viridis*, *A. spinosus*, and *Celosia argentea*
Vegetables	*Canavalia ensiformis* and *Solanum torvum.*
Fruits	*Carissa spinarum*, *Cordia myxa*, *Phoenix sylvestris*, *Syzygium cumini* and *Ziziphus mauritiana.*
Beverages	*Phoenix sylvestris*
Dye yielding plants	*Butea monosperma* and *Indigofera cassioides*
Cash Crops	Suercane

Summary and Conclusion: In all 461 plant species were documented. The documented species belonged to 313 genera and 96 families (including Angiosperms, Pteridophytes, and Bryophytes) indicating the floristic richness of Chale village. The most dominant group was Angiosperms having 445 species that are distributed in 298 genera and 81 families. Other groups also represented very well forming a unique amalgamation of flora and vegetation. Among angiosperms Fabaceae, Asteraceae, Poaceae, Acanthaceae and Convolvulaceae families represents majority of the vegetation. Similarly, the most abundant genera were *Ipomoea*, *Ficus*, *Euphorbia*, *Acacia*, *Cassia* and *Alysicarpus*. Crop and cultivated fruit

species documented were 34. In all 14 species fall in a category of 'endemic to India', out of which one is in endangered category of Botanical Survey of India and IUCN, and 03 are at lower risk. Remaining 3 species are under lower risk.

Suggestions /Recommendations:

Realizing the situation of plant diversity following suggestions are made.

- The rich plant diversity should be conserved through people's participation.
- The importance of sustainable use of biodiversity should be highlighted.
- There should be fair and equitable share of benefits from use of bio-resources.
- The valuable knowledge about biodiversity that our people is having should be documented and protected.

Significance of this Exercise:

- Students and teachers gaining first-hand knowledge of plant diversity.
- Students become efficient communicators.
- Student get exposed to environmental problems faced by villagers.
- Environmental education is compulsory for the colleges.
- Science students of colleges are required to submit student research projects for their examination. The students can utilise their work on village level biodiversity for preparing these reports.
- The teachers will be able to familiarise with much of plant diversity and environment in their surroundings and can use such experiences for better teaching.
- Young teachers can identify and choose research programmes of their choice related to biodiversity/ecology.
- The work under this activity can be considered as extension education and help in making environmental awareness among the society.
- The students will be moulded into better, eco-conscious citizens in the future.

CHAPTER-09

Natural Resources: Soil and Water

Dr. Latesh Nikam and Dr. Sujata Hande
Department of Chemistry

Under the guidance of Principal Dr. Balbrishna Zaware sir we have carried water and soil analysis project at **Chale** on 29th Dec 2022. It was a great pleasure and enjoyed working with the peoples of **Chale.** They helped us to collect the sample and carry out further analysis by our 06 students. The observations and result of water and soil sample is as given below:

Students Involved:

PG [M Sc –II (Organic and Analytical)]

1. Yash Wani
2. Omkar Bhujgurav
3. Nikhil Ghadge
4. Madhuri Sahane
5. Pallavi Gaikwad
6. Harshad Udhnde

Public Water supply

Sr.No.	Property	Value
1	Conductivity	645mu
2	pH	4.13
3	Hardness	180
4	Turbidity	3.2
5	Sulphate	BDL
6	TDS	125 ppm
7	Chloride	7 ppm
8	Alkalinity	120
9	Sodium	5.00 ppm
10	Potassium	7.12 ppm
11	Calcium	1.50 ppm

(BDL: Below Detection Limit)

Name of User: (Bore Water)

Sr.No.	Property	Value
1	Conductivity	525mu
2	pH	5.5
3	Hardness	60
4	Turbidity	46 NTU
5	Sulphate	BDL
6	TDS	270 ppm
7	Chloride	6 ppm
8	Alkalinity	7.5
9	Sodium	1.22 ppm
10	Potassium	3.22 ppm
11	Calcium	4.33 ppm

BDL: Below Detection Limit

Name of User: River Side

Sr.No.	Property	Value
1	Conductivity	600mu
2	pH	4.2
3	Hardness	90
4	Turbidity	10.6
5	Sulphate	BDL
6	TDS	156 ppm
7	Chloride	BDL
8	Alkalinity	150
9	Sodium	4.78 ppm
10	Potassium	3.92 ppm
11	Calcium	1.13 ppm

BDL: Below Detection Limit

Name of User: Common Drinking Water (Source well)

Sr. No.	Property	Value
1	Conductivity	389mu
2	pH	4.3
3	Hardness	450
4	Turbidity	2.7

5	Sulphate	BDL
6	TDS	170ppm
7	Chloride	18 ppm
8	Alkalinity	155
9	Sodium	2.58ppm
10	Potassium	3.93ppm
11	Calcium	2.24ppm

BDL: Below Detection Limit

Conclusion:

1. Public **Drinking Water** Standards require **chloride** levels not to exceed 250 mg/L. Criteria for protection of aquatic life require levels of less than 600 mg/L for chronic (long-term) exposure and 1200 mg/L for short-term exposure.

2. **Hardness** is most commonly expressed as milligrams of calcium carbonate equivalent per liter. **Water** containing calcium carbonate at concentrations below 60 mg/l is generally considered as soft; 60–120 mg/l, moderately hard; 120–180 mg/l, hard; and more than 180 mg/l, very hard.

3. The **pH** of pure **water** is 7. In general, **water** with a **pH** lower than 7 is considered acidic, and with a **pH** greater than 7 is considered basic. The normal range for **pH** in surface **water** systems is 6.5 to 8.5, and the **pH** range for groundwater systems is between 6 to 8.5.

4. Na- **drinking-water sodium** does not exceed 20 mg/L. In order to avoid adverse effects on taste.

II. Analysis of Soil:

Sample 1:

Sr. No.	Property	Value
1	Organic Carbon	0.324%
2	Moisture Content	0.36g
3	pH	In KCL+= 5.43 In H_2O = 6.24
4	Sodium	1.03ppm
5	Potassium	1.41ppm
6	Calcium	2324ppm
7	Phosphate	1.78%

Sample 2:

Sr. No.	Property	Value
1	Organic Carbon	0.426%
2	Moisture Content	1.2g
3	pH	In KCL+= 4.45 In H_2O = 5.50
4	Sodium	2.66
5	Potassium	2.46
6	Calcium	2.97
7	Phosphate	2.8%

Sample 3:

Sr. No.	Property	Value
1	Organic Carbon	0.264%
2	Moisture Content	1.0g
3	pH	In KCL+= 3.86 In H_2O =6.10
4	Sodium	2.53
5	Potassium	4.57
6	Calcium	4.50
7	Phosphate	2.34%

Sample 3:

Sr. No.	Property	Value
1	Organic Carbon	0.462%
2	Moisture Content	1.21g
3	pH	In KCL+= 4.91 In H_2O = 5.74
4	Sodium	2.50
5	Potassium	2.26
6	Calcium	1.40
7	Phosphate	2.4%

Sample 3:

Sr. No.	Property	Value
1	Organic Carbon	0.448%
2	Moisture Content	4.20g

3	pH	In KCL+= 2.90 In H_2O = 5.92
4	Sodium	3.43
5	Potassium	1.66
6	Calcium	1.57
7	Phosphate	2.2%

Sample 3:

Sr. No.	Property	Value
1	Organic Carbon	0.269%
2	Moisture Content	1.50g
3	pH	In KCL+=2.65 In H_2O = 4.98
4	Sodium	2.44
5	Potassium	1.46
6	Calcium	3.50
7	Phosphate	3%

Sample 3:

Sr. No.	Property	Value
1	Organic Carbon	0.142%
2	Moisture Content	3.22g
3	pH	In KCL+= 1.34 In H_2O = 5.82
4	Sodium	2.65
5	Potassium	2.47
6	Calcium	2.42
7	Phosphate	2.86%

Conclusion:

1. Organic Carbon-Soil organic carbon is the basis of soil fertility. It releases nutrients for plant growth, promotes the structure, biological and physical health of soil, and is a buffer against harmful substances. Organic material is manufactured by plants using carbon dioxide from the air and water.

2. Soil moisture is a key environmental control of plant growth and microbial activity, affecting both organic carbon (C) inputs and CO_2 outputs of soil. Soil moisture, temperature, pH, inorganic nutrients, texture, and porosity of soil also impact organic matter decomposition or heterotrophic (microbial) respiration.

Photos: Soil and Water Sampling




CHAPTER-10

Energy Survey of Village Chale, Taluka Mulshi, District Pune.

Dr. Satish Ekar
Department of Physics

Introduction:

The Department of Physics of Baburaoji Gholap College conducted an energy survey of the Chale village in the Mulshi tehsil. Sixteen students of the department of physics conducted this survey in coordination with the help of national service scheme (NSS) department of the college on 29th December 2022. Careful and optimistic use of the conventional and non-conventional energy helps in the development of the economy of the nation.

Objectives:

Following three major parameters were used for the present study.

1. Energy sources available and equipment being used in the village.
2. Energy availability and its efficient use at public places
3. Energy conservation and extent of use of non-conventional energy sources.

Methodology:

The survey and questionnaire method were used to obtain the data of energy use pattern and villagers energy needs at Chale. Following four prominent steps were taken in survey and questionnaire method.

1. Observations and interviews of family.
2. In questionnaire, the questions related to the equipment used in household and in agriculture were introduced.
3. Survey of 45 houses were completed.
4. The recommendations and suggestions are based upon the observations and inputs in the survey.

Using the above-mentioned methodology, survey for energy consumption and energy needs of the villagers was carried out.

Sr. No.	Total houses in the village	Families participated in survey	Families denied participation in the survey	Total number of families surveyed
1.	250	45	06	51

Observations:

In the survey it has been observed that out of 45 families 10 were agricultural laborers, 03 were having small scale businesses like poultry and ship goat farm business and remaining 32 family's livelihoods depending upon agriculture (Farmers).

Energy equipment used in Chale village:

Sr. No.	Electrical equipment	Number of families using
1	LED lamps	45
2	Television	32
3	Electric water heater	00
4	Solar water heater	01
5	Electric motor	05
6	Electric iron	10
7	Solar lantern	05
8	Agricultural waste for heating water	41
9	LPG for preparing food	32
10	Cow dung	21

It has been observed that in almost all families LED lamps were being used. The most advanced electrical equipments were not found in the majority of the family. In the cases of emergency of power cuts, people use candles, charging battery and traditional oil lamps. The electrical energy is being used only for domestic purpose. No commercial use is observed. All families have their monthly electric consumption bill is around Rs. 700/-. Government (Public Distribution System department) has stopped the supply of kerosene to households, and it compels the villagers to use conventional lamps and candles for the lightning purposes. The agriculture produced west is being used in majority of the houses for water heating. Looking at their economic income status, it has been found that the prices of electric supply and equipment is out of their reach. That is why the conventional energy sources are being used on the large scale. At the public places the use of electricity is much less and the lightning arrangement is inadequate. For many days the power cut/load shedding is almost for more than 4 hours. The villagers have to face a great hardship. The government LPG scheme for poor is known to the villagers but still today 30% families are not being benefited. Like other villages in the state the basic energy needs of these people are at primary level and it is needed to be improved. Villagers are needed to be trained about the equipment using non-conventional energy sources such as solar energy and wind energy.

Instructions:

It is found that villagers are not aware about the use of non-conventional energy sources such as solar energy and it is recommended that people should be we made aware about the benefits of using non-conventional energy appliances such as solar cooker, solar dryer, solar concentrator, solar water heater and solar panels. Energy saving and energy conservation should be the two basic programs that the villagers should be made aware about. They should be provided some financial help from the government and NGOs.

Recommendations:

According to the results of survey, it is recommended that the authorities should implement the programs, to make aware the villagers about the non-conventional energy sources such as solar Energy equipment. The agricultural west should not be used as a fuel for domestic purposes. Use of CFL lamp, go bar gas etc. and associated schemes are needed to be implemented on war footing. The government authorities and Gram Panchayat should lead in this awareness program.

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Dr. Balkrishna Zaware
Principal

CHAPTER-11

SUMMARY

The village Chale lies in the Western Ghats; Mulshi valley and located at 18^{o} 33' 04.42" N latitude and 73^{o} 36' 03.77" E longitude and at an altitude of 604m; and situated approximately 35 Km from Pune. It is situated 4 km away from sub-district headquarter Paud (tehsildar office). Chale is a small Village/ hamlet. It comes under Chale Panchayath. The general topography of the area is undulating with gentle slopes. It slopes towards south-east direction. It is marked with isolated agricultural farms and a river. The main land use pattern is agriculture, settlements, and reserved forest. The average elevation of land surface is observed to be 603 m above the MSL. As per 2009 stats, Chale is the gram panchayat of Chale village. Local Language is Marathi.

The total geographical area of village is 475 hectares. Chale has a total population of 845 peoples, out of which male population is 452 while female population is 393. There are about 187 houses in Chale village. Pincode of Chale village locality is 412108. Pune is nearest town to Chale for all major economic activities. Female Population is 47.2%. Village literacy rate is 64.0% and the Female Literacy rate is 26.1%.

The village have adequate primary educational facilities and higher education facilities within 20 km. The village, especially the women and youth of the village are earning through agriculture, agriculture labour, business, and 50% have jobs. The main occupation of this village is agriculture. Dairy business and animal husbandry are complementary to agriculture. Rice, Wheat, and Sugarcane are chief crops. The bore well and River are important source of irrigation. The irrigation method used was drip and flooding. The only grocery store was found in the village. The youth of the village is attracted to urban life due to more employment opportunities.

The social structure is well integrated through unique traditions. Hindu community is large in this village, while the Buddhist and Muslim communities are relatively small; yet its noteworthy that both the minority communities are included in the decision-making process in the village. Due to overall development in communication and other technological progress, there seems to change in livelihood. Many words and sayings of local language and some traditions are disappearing slowly.

Chale comes under Bhor-Mulshi Assembly and Lok Sabha constituencies. The MLA of this village is Sangram Thopte and as this village comes under Baramati Lok Sabha constituency. Supriyatai Sule is currently a Lok Sabha MP from this Lok Sabha constituency.

Development is done through government schemes. Primary education is available. There is no consistency in availability of electricity in the village. Toilets are constructed by villagers at their own expense. Under 'Digital India' mission Gram Panchayat has computer with internet facility; however, load-shading, and untrained staff are the limitations.

As the village of Chale has been blessed with a rich cultural heritage and natural richness. Under the guidance of Prof. Saddamhussein Ghatwale (Head, Department of Travel and Tourism Management), the students interacted with villagers as well as professionals who depend on the tourism business. Our college team has identified the tourism potential of this village. The team has suggested agrotourism, adventure tourism, and rural tourism to the villagers.

The floral and crop diversity surveys were also made which resulted in documentation of 461 plant species indicating rich diversity. Out of these 14 were under threat categories. Crop and cultivated fruit species documented were 34. The habit-form wise analysis represented a predominance of herbs (49%) and shrubs (16%) followed by trees (15%), and

climbers (12%) and grasses (8%). The Pteridophytes and Bryophytes are represented by 7 and 8 species respectively.

The pH of pure water is between 7 and 6.5. The normal range for pH in surface water systems is 6.5 to 8.5, and the pH range for groundwater systems is between 6 and 8.5. Hardness is most expressed as milligrams of calcium carbonate equivalent per liter. Water containing calcium carbonate at concentrations below 60 mg/l is generally considered as soft; 60–120 mg/l, moderately hard; 120–180 mg/l, hard; and more than 180 mg/l, very hard. Public Drinking Water Standards require chloride levels not to exceed 250 mg/L. Criteria for protection of aquatic life require levels of less than 600 mg/L for chronic (long-term) exposure and 1200 mg/L for short-term exposure.

Soil organic carbon is the basis of soil fertility. It releases nutrients for plant growth, promotes the structure, biological and physical health of soil, and is a buffer against harmful substances. Organic material is manufactured by plants using carbon dioxide from the air and water.

Soil moisture is a key environmental control of plant growth and microbial activity, affecting both organic carbon (C) inputs and CO_2 outputs of soil. Soil moisture, temperature, pH, inorganic nutrients, texture and porosity of soil also impact organic matter decomposition or heterotrophic (microbial) respiration.

The energy surveys were made. Villagers were not aware about the use of solar energy, and it is recommended that people should be made aware about the benefits of using non-conventional energy appliances. According to the results of survey, it is recommended that the authorities should implement the programs, to make aware the villagers about the non-conventional energy sources such as solar Energy equipment. The agricultural west should not be used as a fuel for domestic purposes. Use of CFL lamp, go bar gas etc. and associated schemes are needed to be implemented on war footing. The government authorities and Gram Panchayat should lead in this awareness program. One of the purposes of this field visit was to study and analyze the awareness of digital literacy among villagers. The digital literacy of Chale village was average. During the survey we noticed that the age group above 55 have little to no awareness about any digital technologies. In younger age group the awareness of digitization was above average.

CHAPTER-12

SUGGESTIONS

- बोली भाषेतील काही शब्द लुप्त होत आहेत. असे शब्द जतन करणे गरजेचे आहे.
- लोककथा, लोकगीते, लोककला आणि म्हणी हे लोकवाङ्मय यामध्ये परिवर्तन झालेले दिसले.आहे. मुळ वाङ्मय लिखित अथवा ध्वनिमुद्रित स्वरुपात जतन करणे आवश्यक आहे.
- शेतीसाठी जोड व्यवसाय सुरू करणे
- शासकीय योजनेचा लाभ घेण्यासाठी सर्व पत्रकांची पूर्तता करणे/जोपासणे
- शेतीमध्ये यांत्रिक तंत्राचा वापर करून उत्तम बाजारपेठ मिळविण्यासाठी प्रयत्न करणे.
- पारंपरिक पीक पद्धतीऐवजी व्यापारी पिकांचा आपल्या व्यवसायात अंतर्भाव करणे.
- शेतजमिनीचा पोत सुरक्षित ठेवण्यासाठी रासायनिक खताचा वापर टाळून नैसर्गिक खतांचा जास्तीत जास्त वापर करणे.
- ग्रामीण व कृषी पर्यटनाद्वारे समाज, संस्कृती, साहित्य, लोककला समजून घेण्यासाठी कृषि व ग्रामीण पर्यटनास चालना देणे. कृषी पर्यटनाबरोबरच नैसर्गिक संपन्नता लाभलेल्या ग्रामीण भागामध्ये साहसी पर्यटनाचा विचार करणे.
- The village needs modern facilities.
- The social status of women needs to be improved.
- The youth of the village are attracted to the city in large numbers.
- The road to the village needs to be improved.
- The village needs a weekly market.
- The water and soil quality are to be maintained.
- The rich plant diversity should be conserved through people's participation.
- The importance of sustainable use of biodiversity should be highlighted.
- There should be fair and equitable share of benefits from use of bio-resources.
- The valuable knowledge about biodiversity that our people is having should be documented and protected.
- Realizing the situation of plant, crop, and animal diversity, it should be conserved through people's participation.
- A nursery can be established to grow saplings of rare, endangered, and threatened plant species. These RET species can be re-established in their natural habitats.
- According to the results of survey, it is recommended that the authorities should implement the programs, to make aware the villagers about the non-conventional energy sources such as solar Energy equipment. The agricultural waste should not be used as a fuel for domestic purposes. Use of CFL lamp, gobar gas etc. and associated schemes are needed to be implemented on war footing. The government authorities and Gram Panchayat should lead in this awareness program.
- The village Chale has been blessed with a rich cultural heritage and natural richness. So, it's suggested to promote tourism activities.

ANNEXURE-I

List of plant species observed within Chale village.

Botanical Name	Local Name	Habit	Family	Status
Abelmoschus esculentus	Bhendi	Herb	Malvaceae	Cultivated
Abelmoschus manihot	Ran-bhendi	Shrub	Malvaceae	Frequent
Abrus precatorius	Gunj	Climber	Fabaceae	Frequent
Abutilon indicum	Mudra	Shrub	Malvaceae	Frequent
Abutilon pannosum	Kasili	Shrub	Malvaceae	Occasional
Acacia auriculiformis	Austrelian Babhul	Tree	Mimosaceae	Frequent
Acacia catechu	Khair	Tree	Mimosaceae	Frequent
Acacia chundra	Lal-khair	Tree	Mimosaceae	Frequent
Acacia leucophloea	Hivar	Tree	Mimosaceae	Frequent
Acacia nilotica	Babhul	Tree	Mimosaceae	Frequent
Acacia pennata	Shembi	Shrub	Mimosaceae	Frequent
Acacia torta	Chilar	Climber	Mimosaceae	Frequent
Acalypha ciliata		Herb	Euphorbiaceae	Abundant
Acalypha hispida	Khokli	Herb	Euphorbiaceae	Abundant
Acalypha indica	Khokli	Herb	Euphorbiaceae	Abundant
Acanthospermum hispidum	Shingada-kata	Herb	Asteraceae	Abundant
Achyranthes aspera	Aghada	Herb	Amaranthaceae	Abundant
Acorus calamus	Vekhand	Herb	Araceae	Occasional
Aegle marmelos	Bel	Tree	Rutaceae	Occasional
Aeschynomene indica L.	Kinomin	Shrub	Fabaceae	Abundant
Ageratum conyzoides	Osadi	Herb	Asteraceae	Abundant
Ageratum houstonianum		Herb	Asteraceae	Frequent
Albizia lebbeck var. *lebbeck*	Shireesh	Tree	Mimosaceae	Frequent
Albizia procera	Kinai	Tree	Mimosaceae	Frequent
Allamanda cathartica	Allamanda	Shrub	Apocynaceae	Cultivated
Alloteropsis cimicina		Grass	Poaceae	Abundant
Aloe vera	Korphad	Shrub	Liliaceae	Scarce
Alstonia scholaris	Satvin	Tree	Apocynaceae	Frequent
Alternanthera bettzichiana		Herb	Amaranthaceae	Abundant
Alternanthera sessilis	Chubukata	Herb	Amaranthaceae	Abundant
Alysicarpus bupleurifolius		Herb	Fabaceae	Frequent
Alysicarpus longifolius	Shevra	Herb	Fabaceae	Abundant
Alysicarpus monilifer	Shevra	Herb	Fabaceae	Abundant
Alysicarpus pubescens	Durangi-shevra	Herb	Fabaceae	Abundant
Alysicarpus tetragonolobus	Lal-shevra	Herb	Fabaceae	Abundant
Alysicarpus vaginalis (L.) DC.	Shevra	Herb	Fabaceae	Abundant
Amaranthus spinosus	Katemath	Herb	Amaranthaceae	Abundant
Amaranthus tricolor	Chaulai	Herb	Amaranthaceae	Frequent
Amaranthus viridis	Math	Herb	Amaranthaceae	Abundant

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Ammannia baccifera	Bhar-jambhal	Herb	Lythraceae	Abundant
Ammannia multiflora		Herb	Lythraceae	Abundant
Amorphophallus commutatus	Suran	Herb	Araceae	EI/LR
Ampelocissus latifolia	Ran-draksha	Climber	Vitaceae	Abundant
Anagallis arvensis	Indraneel	Herb	Primulaceae	Abundant
Andrographis paniculata	Kalmegh	Herb	Acanthaceae	Frequent
Andropogon pertussis	Kusal	Grass	Poaceae	Abundant
Andropogon triticeus	Kusal	Grass	Poaceae	Abundant
Anisomeles indica	Gopali	Herb	Lamiaceae	Frequent
Annona reticulata	Ramphal	Tree	Annonaceae	Cultivated
Annona squamosa	Sitaphal	Shrub	Annonaceae	Cultivated
Anogeissus latifolia	Dhavda	Tree	Combretaceae	Occasional
Argyreia elliptica	Bondvel	Climber	Convolvulaceae	Frequent
Argyreia involucrata	Kondani	Climber	Convolvulaceae	Frequent
Argyreia nervosa	Samudrashok	Climber	Convolvulaceae	Frequent
Argyreia sericea	Gavel	Climber	Convolvulaceae	EI
Argyreia strigosa	Dudh-vel	Climber	Convolvulaceae	Frequent
Arisaema tortuosum	Sapkanda	Herb	Araceae	Frequent
Aristida setacea		Grass	Poaceae	Abundant
Artemisia japonica	Davna	Herb	Asteraceae	Frequent
Artemisia nilagirica	Dhor-dawna	Shrub	Asteraceae	Frequent
Artocarpus heterophyllus	Phanas	Tree	Moraceae	Frequent
Asparagus racemosus	Shatavari	Climber	Liliaceae	Scarce
Asystasia dalzelliana		Herb	Acanthaceae	Frequent
Azadirachta indica	Neem	Tree	Meliaceae	Scarce
Bacopa monnieri	Nirbrahmi	Herb	Scrophulariaceae	Occasional
Bambusa arundinacea	Bambu	Shrub	Poaceae	Frequent
Barleria cristata	Koranti	Herb	Acanthaceae	Scarce
Barleria prionitis	Katekoranti	Shrub	Acanthaceae	Occasional
Bauhinia purpurea	Rakta-Kanchan	Tree	Caesalpiniaceae	Occasional
Bauhinia racemosa	Aapta	Tree	Caesalpiniaceae	Frequent
Bidens biternata		Herb	Asteraceae	Abundant
Biophytum sensitivum	Lajwanti	Herb	Oxalidaceae	Abundant
Blainvillea acmella		Herb	Asteraceae	Abundant
Blepharis asperrima	Dikana	Herb	Acanthaceae	Abundant
Blepharis maderaspatensis	Kate-maka	Herb	Acanthaceae	Abundant
Blepharis repens		Herb	Asteraceae	Abundant
Blumea lacera	Burando	Herb	Asteraceae	Abundant
Blumea obliqua		Herb	Asteraceae	Abundant
Boerhavia erecta	Punarnava	Herb	Nyctaginaceae	Abundant
Boerhavia repens	Punarnava	Herb	Nyctaginaceae	Abundant
Bombax ceiba	Katesavar	Tree	Bombacaceae	Abundant
Bougainvillea spectabilis	Boganvel	Climber	Nyctaginaceae	Cultivated
Brachiaria mutica		Grass	Poaceae	Abundant

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Bridelia retusa	Asana	Tree	Euphorbiaceae	Abundant
Butea monosperma var. monosperma	Palas	Tree	Fabaceae	Frequent
Caesalpinia decapetala	Chilhar	Climber	Caesalpiniaceae	Frequent
Caesulia axillaris	Maka	Herb	Asteraceae	Abundant
Cajanus lineatus	Rantur	Herb	Fabaceae	EI
Cajanus scarabaeoides	Rantur	Herb	Fabaceae	Abundant
Canavalia ensiformis	Abai	Climber	Fabaceae	Frequent
Canna indica	Kardal	Herb	Cannaceae	Cultivated
Canscora decurrens		Herb	Gentianaceae	EI
Canscora diffusa	Kilwar	Herb	Gentianaceae	Abundant
Cardiospermum helicacabum	Kapalphodi	Climber	Sapindaceae	Abundant
Carica papaya	Papai	Shrub	Caricaceae	Scarce
Carissa congesta	Karvand	Shrub	Apocynaceae	Abundant
Carthamus tinctorius	Ambadi	Herb	Asteraceae	Frequent
Carvia callosa	Karvi	Shrub	Acanthaceae	EI/LR
Caryota urens	Bherli-mad	Tree	Arecaceae	Frequent
Cassia absus	Chimar	Herb	Caesalpiniaceae	Abundant
Cassia alata		Shrub	Caesalpiniaceae	Frequent
Cassia fistula	Bahava	Tree	Caesalpiniaceae	Frequent
Cassia occidentalis		Shrub	Caesalpiniaceae	Frequent
Cassia siamea	Kasod	Tree	Caesalpiniaceae	Cultivated
Cassia tora	Takla	Herb	Caesalpiniaceae	Abundant
Cassia uniflora	Ran-takla	Herb	Caesalpiniaceae	Frequent
Casuarina equisetifolia	Suru	Tree	Casuarinaceae	Cultivated
Catharanthus roseus	Sadaphuli	Herb	Apocynaceae	Cultivated
Cayratia trifolia	Ambat-vel	Climber	Vitaceae	Frequent
Celastrus paniculatus	Mal-kangni	Shrub	Celastraceae	Abundant
Celosia argentea	Kurdu	Herb	Amaranthaceae	Abundant
Cenchrus ciliaris		Grass	Poaceae	Abundant
Cestrum nocturnum	Ratrani	Shrub	Solanaceae	Cultivated
Chloris barbata		Grass	Poaceae	Abundant
Chlorophytum tuberosum	Kuli	Herb	Liliaceae	Abundant
Chrysopogon fulvus	Kusal	Grass	Poaceae	Abundant
Chrysopogon schoenanthus	Kusal	Grass	Poaceae	Abundant
Clematis gauriana	Mor-vel	Climber	Ranunculaceae	Occasional
Clematis smilacifolia	Jambhali-jai	Climber	Ranunculaceae	LR
Cleome gynandra	Pandhri-tilwan	Herb	Cleomaceae	Abundant
Cleome rutidisperma		Herb	Cleomaceae	Scarce
Cleome viscosa	Pivli-tilvan	Herb	Cleomaceae	Abundant
Clerodendrum inerme	Koynel	Shrub	Verbenaceae	Frequent
Clerodendrum serratum	Bharang	Shrub	Verbenaceae	Frequent
Clitoria ternatea var. pilosula	Pandhra-Gokarn	Climber	Fabaceae	EI
Clitoria ternatea var. ternatea	Nila-Gokarn	Climber	Fabaceae	Frequent
Cocculus vilosus	Vasan-vel	Climber	Menispermaceae	Abundant

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Cocos nucufera	Naral	Tree	Arecaceae	Cultivated
Coldenia procumbens		Herb	Molluginaceae	Abundant
Colocasia esculenta	Alu	Herb	Araceae	Abundant
Combretum albidum	Madvel, Piluki	Climber	Combretaceae	Frequent
Commelina benghalensis	Kena	Herb	Commelinaceae	Frequent
Commelina forsskalaei	Kenpat	Herb	Commelinaceae	Frequent
Commelina hasskarlii	Kamalini	Herb	Commelinaceae	Frequent
Convolvulus arvensis	Chan-vel	Climber	Convolvulaceae	Abundant
Conyza stricta		Herb	Asteraceae	Abundant
Corchorus aestuans		Herb	Tiliaceae	Abundant
Corchorus trilocularis	Kaduchinch	Herb	Tiliaceae	Frequent
Cosmos bipinnatus	Sonkusum	Herb	Asteraceae	Frequent
Cosmos diversifolium	Sonkusum	Herb	Asteraceae	Occasional
Costus speciosus	Pev	Herb	Costaceae	Frequent
Crinum asiaticum	Lily	Herb	Amaryllidaceae	Scarce
Crinum viviparum		Herb	Amaryllidaceae	Frequent
Crossandra infundibuliformis	Aboli	Shrub	Acanthaceae	Scarce
Crotalaria hebecarpa	Godhadi	Herb	Fabaceae	Abundant
Crotalaria juncea	Tag	Herb	Fabaceae	Abundant
Crotalaria pallida	Jangli-tag	Herb	Fabaceae	Frequent
Crotalaria retusa	Dingala	Shrub	Fabaceae	Frequent
Crotalaria spectabilis	Khulkhula	Shrub	Fabaceae	Frequent
Cryptolepis buchanani	Kavli	Climber	Periplocaceae	Frequent
Curculigo orchioides	Kali-Musli	Herb	Hypoxidaceae	Frequent
Cuscuta hyalina	Amarvel	Climber	Cuscutaceae	Occasional
Cyanotis cristata	Nabhali	Herb	Commelinaceae	Frequent
Cyanotis fasciculata	Nilwanti	Herb	Commelinaceae	Frequent
Cyanotis tuberosa	Abhali	Herb	Commelinaceae	LR
Cyathocline purpurea	Gangotra	Herb	Asteraceae	Occasional
Cynadon dactylon	Durva	Grass	Poaceae	Frequent
Cynanchum callialata	Chumchum	Climber	Asclepiadaceae	Occasional
Cynanchum tunicatum	Panchali	Climber	Asclepiadaceae	Occasional
Cynoglossum zeylanicum		Herb	Boraginaceae	Frequent
Cyperus castaneus		Grass	Cyperaceae	Frequent
Cyperus compressus	Lavhala	Grass	Cyperaceae	Abundant
Cyperus iria		Grass	Cyperaceae	Abundant
Cyperus nutans	Lavhala	Grass	Cyperaceae	Abundant
Dactyloctenium aegypticum		Grass	Poaceae	Abundant
Dalbergia lanceolaria	Phanshi	Tree	Fabaceae	Abundant
Dalbergia latifolia	Shisvi	Tree	Fabaceae	Frequent
Dalbergia paniculata	Sisvi	Tree	Fabaceae	Frequent
Dalbergia sissoo	Sisu	Tree	Fabaceae	Frequent
Datura innoxia		Shrub	Solanaceae	Abundant
Datura metal	Dhotra	Herb	Solanaceae	Abundant

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Delonix regia	Gulmohor	Tree	Caesalpiniaceae	Cultivated
Dendrobium ovatum	Dande-Amri	Herb	Orchidaceae	Occasional
Dendrocalamus strictus	Bambu	Shrub	Poaceae	Frequent
Dendrophthoe falcata var. falcata	Bandgul	Shrub	Loranthaceae	Frequent
Desmodium dicotomum	Chikta	Herb	Fabaceae	Abundant
Desmodium heterocarpon	Jambhli-dashmi	Herb	Fabaceae	Abundant
Desmodium triflorum	Ran-methi	Herb	Fabaceae	Abundant
Desmodium triquetrum	Kak-ganja	Herb	Fabaceae	Frequent
Dichanthium annulatus	Kusal	Grass	Poaceae	Abundant
Digera muricata	Gitan	Herb	Amaranthaceae	Abundant
Digitaria ciliaris		Grass	Poaceae	Abundant
Dioscorea bulbifera	Kadu-karanda	Climber	Dioscoriaceae	Frequent
Dioscorea pentaphylla		Climber	Dioscoriaceae	Occasional
Diplocyclos palmatus	Shivlingi	Climber	Cucurbitaceae	Occasional
Dolichandrone falcata	Medshingi	Tree	Bignoniaceae	Occasional
Duranta erecta	Duranta	Shrub	Verbenaceae	Cultivated
Eclipta prostrata	Maka	Herb	Asteraceae	Frequent
Eleusine indica	Ran-nachani	Grass	Poaceae	Abundant
Emblica officinalis	Aavla	Tree	Euphorbiaceae	Occasional
Emilia sonchifolia	Sadamandi	Herb	Asteraceae	Abundant
Ensete superbum	RanKeli	Shrub	Musaceae	EI/LR
Eragrostis ciliaris		Grass	Poaceae	Abundant
Eragrostis unioloides	Siteche Pohe	Grass	Poaceae	Frequent
Eragrostris tenella		Grass	Poaceae	Abundant
Eranthemum roseum	Dasmuli	Herb	Acanthaceae	EI
Eriocaulon heterolepis		Herb	Eriocaulaceae	Abundant
Eriocaulon sedgewickii		Herb	Eriocaulaceae	Abundant
Eriocaulon stellulatum	Chandni-gonda	Herb	Eriocaulaceae	Abundant
Eriochloa procera		Grass	Poaceae	Abundant
Erythrina suberosa	Pangari	Tree	Fabaceae	Occasional
Erythrina variegata	Pangara	Tree	Fabaceae	Frequent
Eucalyptus globulus	Nilgiri	Tree	Myrtaceae	Cultivated
Eucalyptus maculata	Nilgiri	Tree	Myrtaceae	Cultivated
Eupatorium odoratum	Ranmuli	Shrub	Asteraceae	Frequent
Euphorbia dracunculoides		Herb	Euphorbiaceae	Frequent
Euphorbia geniculata	Dudhi	Herb	Euphorbiaceae	Abundant
Euphorbia heyneana		Herb	Euphorbiaceae	Abundant
Euphorbia hirta	Gondhan	Herb	Euphorbiaceae	Abundant
Euphorbia laciniata	Lal-dudhi	Herb	Euphorbiaceae	Abundant
Euphorbia lathyrus	Sabar	Shrub	Euphorbiaceae	Frequent
Euphorbia parviflora	Gulabi-dudhi	Herb	Euphorbiaceae	Abundant
Euphorbia thymifolia	Dudhi	Herb	Euphorbiaceae	Abundant
Evolvulus alsinoides	Vishnukrant	Herb	Convolvulaceae	Abundant
Exacum petiolare	Nili-chirayat	Herb	Gentianaceae	Occasional

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Exacum pumilum	Jambhli-chirayat	Herb	Gentianaceae	EI
Ficus amplissima	Pimpri	Tree	Moraceae	Occasional
Ficus benghalensis	Wad	Tree	Moraceae	Occasional
Ficus benjamina	Nandruk	Tree	Moraceae	Occasional
Ficus exasperata	Bhui-umbar	Shrub	Moraceae	Occasional
Ficus heterophylla	Datir	Tree	Moraceae	Occasional
Ficus hispida	Kala-umbar	Tree	Moraceae	Occasional
Ficus microcarpa	Nandruk	Tree	Moraceae	Occasional
Ficus racemosa	Umbar	Tree	Moraceae	Frequent
Ficus religiosa	Pimpal	Tree	Moraceae	Frequent
Fimbristylis dichotoma		Grass	Cyperaceae	Abundant
Flacourtia indica	Tambat	Tree	Flacoutiaceae	Frequent
Flemingia strobilifera (L.) R.Br.	Kanphuti	Shrub	Fabaceae	Frequent
Glinus latoides	Kotrak	Herb	Molluginaceae	Abundant
Gliricidia sepium	Undirmari	Tree	Fabaceae	Cultivated
Gloriosa superba	Kal-lavi	Climber	Liliaceae	Frequent
Glossocardia bosvallea	Pattharsuva	Herb	Asteraceae	Abundant
Gnaphalium luteo-album		Herb	Asteraceae	Frequent
Gomphrena serrata		Herb	Amaranthaceae	Abundant
Grangea maderaspatana	Mashpatri	Herb	Asteraceae	Frequent
Grevillea robusta	Silver oak	Tree	Proteaceae	Cultivated
Grewia abutifolia	Kirmith	Tree	Tiliaceae	Occasional
Grewia asiatica	Phalsi	Tree	Tiliaceae	Frequent
Grewia tiliiaefolia	Dhaman	Tree	Tiliaceae	Frequent
Hamelia patens	Hamelia	Shrub	Rubiaceae	Cultivated
Haplanthodes verticillatus	Jakara	Herb	Acanthaceae	EI/LR
Hedychium coronarium Koen.	Sontakka	Herb	Zingiberaceae	Cultivated
Helicteres isora	Murudsheng	Shrub	Sterculiaceae	Occasional
Heliotropium indicum	Bhurundi	Herb	Boraginaceae	Frequent
Heliotropium marifolium		Herb	Boraginaceae	Frequent
Hemidesmus indicus	Anantmul	Climber	Asclepiadaceae	Frequent
Heterophragma quadriloculare	Waras	Tree	Bignoniaceae	Abundant
Heteropogon contortus	Kusal	Grass	Poaceae	Abundant
Heteropogon polystachyos	Kusal	Grass	Poaceae	Abundant
Hibiscus hirtus	Dupari	Herb	Malvaceae	Frequent
Hibiscus lobatus	Lahan-jaswand	Herb	Malvaceae	Frequent
Hibiscus rosa-sinensis	Jaswand	Shrub	Malvaceae	Cultivated
Holarrhena pubescence	Pandhra-Kuda	Shrub	Apocynaceae	Abundant
Holoptelia integrifolia	Waval	Tree	Ulmaceae	Frequent
Homonoia riparia	Sherni	Shrub	Euphorbiaceae	Frequent
Hoya wightii	Ambri, Dudhvel	Climber	Asclepiadaceae	Occasional
Hygrophila schulli	Talimkhana	Herb	Acanthaceae	Abundant
Hygrophila serpyllum	Ran-tewan	Herb	Acanthaceae	Abundant
Hyptis suaveolens	Darp-tulas	Herb	Lamiaceae	Frequent

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Impatiens balsamina var. balsamina	Terda	Herb	Balsaminaceae	Frequent
Impatiens latifolia	Terda	Herb	Balsaminaceae	EI
Impatiens minor	Lesser balsam	Herb	Balsaminaceae	Frequent
Indigofera astragalina DC.		Herb	Fabaceae	Frequent
Indigofera cordifolia	Bechka	Herb	Fabaceae	Abundant
Indigofera glandulosa	Borpudi	Herb	Fabaceae	Abundant
Indigofera linifolia	Lal-godhadi	Herb	Fabaceae	Abundant
Indigofera linnaei		Herb	Fabaceae	Abundant
Indigofera oenophylla		Herb	Fabaceae	Abundant
Indoneesiella echioides	Lahan-kalpa	Herb	Acanthaceae	Occasional
Iphigenia magnifica		Herb	Liliaceae	EI/EN
Ipomoea aquatica	Panvel	Climber	Convolvulaceae	Occasional
Ipomoea cairica	Garvel	Climber	Convolvulaceae	Frequent
Ipomoea campanulata	Tambarvel	Climber	Convolvulaceae	Frequent
Ipomoea carnea	Besharam	Climber	Convolvulaceae	Frequent
Ipomoea diversifolia		Climber	Convolvulaceae	Frequent
Ipomoea hederifolia	Ganeshvel	Climber	Convolvulaceae	Frequent
Ipomoea marginata	Amti-vel	Climber	Convolvulaceae	Frequent
Ipomoea nil	Nili-pungli	Climber	Convolvulaceae	Frequent
Ipomoea obscurva	Pivli-pungli	Climber	Convolvulaceae	Occasional
Ipomoea staphylina	Sitaphuli	Climber	Convolvulaceae	Occasional
Ischeamum indicum		Grass	Poaceae	Abundant
Ischeamum pilosum		Grass	Poaceae	Abundant
Ixora coccinea	Pitkuli	Shrub	Rubiaceae	Occasional
Ixora nigricans	Kat-kuda	Tree	Rubiaceae	Occasional
Ixora parviflora	Lokhandi	Shrub	Rubiaceae	Occasional
Ixora pavetta		Shrub	Rubiaceae	Occasional
Jasminum malabaricum	Kasur	Climber	Oleaceae	EI
Jasminum multiflorum	Ran-mogra	Climber	Oleaceae	Occasional
Justicia adhatoda	Adulsa	Shrub	Acanthaceae	Frequent
Justicia glauca		Herb	Acanthaceae	Frequent
Justicia procumbens		Herb	Acanthaceae	Abundant
Kyllinga brevifolia Rottb.		Herb	Cyperaceae	Abundant
Lagascea mollis	Bondal	Herb	Asteraceae	Abundant
Lamprachaenium microcephalum		Herb	Asteraceae	Abundant
Lannea coromandelica	Shimti	Tree	Anacardiaceae	Abundant
Lantana camara	Ghaneri	Shrub	Verbenaceae	Frequent
Launaea procumbens	Pathari	Herb	Asteraceae	Frequent
Lavandula bipinnata	Ghodegui	Herb	Lamiaceae	Frequent
Lawsonia inermis	Mehandi	Shrub	Lythraceae	Occasional
Leanotis nepetiifolia	Deepmal	Herb	Lamiaceae	Frequent
Leea indica	Dinda	Shrub	Leeaceae	Occasional
Lepidagathis cuspidata	Kate-adulsa	Shrub	Acanthaceae	Frequent
Leucas ciliata	Burumbi	Herb	Lamiaceae	Frequent

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Leucas lanata		Herb	Lamiaceae	Occasional
Leucas longifolia	Dudhani	Herb	Lamiaceae	Occasional
Leucena latisiliqua	Subabhul	Tree	Mimosaceae	Cultivated
Limnophila indica		Herb	Scrophulariaceae	Frequent
Limnophila repens		Herb	Scrophulariaceae	Frequent
Linum mysorense	Undri	Herb	Linaceae	Abundant
Ludwigia octovalvis	Pan-lavang	Herb	Onagraceae	Occasional
Luffa acutangula	Dodka	Climber	Cucurbitaceae	Cultivated
Luffa cylindrica	Ghosale	Climber	Cucurbitaceae	Cultivated
Lycopersicom esculentum	Tomato	Herb	Solanaceae	Cultivated
Malachra capitata	Ran-Ambadi	Herb	Malvaceae	Abundant
Mangifera indica	Aamba	Tree	Anacardiaceae	Abundant
Martynia annua	Nakti	Herb	Martyniaceae	Abundant
Maytenus rothiana	Henkal	Shrub	Celastraceae	Frequent
Melia azadirach	Limbara	Tree	Meliaceae	Occasional
Melia dubia	Nimbara	Tree	Meliaceae	Occasional
Melilotus indica	Van-methi	Herb	Fabaceae	Abundant
Mentha arvensis	Pudina	Herb	Lamiaceae	Abundant
Merremia aegyptia		Climber	Convolvulaceae	Frequent
Merremia vitifolia	Navli	Climber	Convolvulaceae	Frequent
Modecca bracteata		Climber	Passifloraceae	Occasional
Mollugo pentaphylla	Jharasi	Herb	Molluginaceae	Abundant
Momordica dioica	Kartoli	Climber	Cucurbitaceae	Frequent
Morus alba	Tuti	Shrub	Moraceae	Cultivated
Mucuna pruriens	Khajkuily	Climber	Fabaceae	Occasional
Muntingia calabura		Tree	Elaeocarpaceae	Cultivated
Murraya koenigii	Kadhipatta	Shrub	Rutaceae	Occasional
Murraya paniculata	Kamini	Tree	Rutaceae	Scarce
Neanotis lancifolia	Tanoti	Herb	Rubiaceae	EI
Nerium indicum	Kanher	Shrub	Apocynaceae	Occasional
Nichandra physaloides	Popti	Herb	Solanaceae	Frequent
Nyctanthus arbor-tristis	Prajakta	Shrub	Oleaceae	Cultivated
Ocimum americanum	Ram-tulsi	Shrub	Lamiaceae	Frequent
Ocimum tenuiflorum		Shrub	Lamiaceae	Cultivated
Olismenus compositus		Grass	Poaceae	Frequent
Operculina turpethum	Nisottar	Climber	Convolvulaceae	Frequent
Oryza sativa	Bhat	Grass	Poaceae	Cultivated
Osyris quadripartita		Shrub	Santalaceae	Occasional
Oxalis corniculata	Ambushi	Herb	Oxalidaceae	Frequent
Panicum montanum		Grass	Poaceae	Abundant
Panicum notatum		Grass	Poaceae	Abundant
Paracalyx scariosus	Ran-ghevda	Climber	Fabaceae	Frequent
Paspalidium flavidum		Grass	Poaceae	Abundant
Passiflora foetida	Vel-ghani	Climber	Passifloraceae	Occasional

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Pavetta indica	Papat	Shrub	Rubiaceae	Occasional
Pedilanthus tithymaloides		Shrub	Euphorbiaceae	Cultivated
Peltophorum pterocarpum	Sonmohar	Tree	Caesalpiniaceae	Cultivated
Pennisetum polystachion		Grass	Poaceae	Abundant
Pennisetum setosum		Grass	Poaceae	Abundant
Pentanema indicum	Sonkadi	Herb	Asteraceae	Frequent
Pergularia daemea	Utaran	Climber	Asclepiadaceae	Frequent
Peristrophe paniculata		Herb	Acanthaceae	Abundant
Persicaria dichotoma		Herb	Polygonaceae	Frequent
Persicaria glabra		Herb	Polygonaceae	Frequent
Phoenix sylvestris	Shindi	Tree	Arecaceae	Frequent
Phragmites vallatoria		Grass	Poaceae	Occasional
Phylla nodiflora	Gour mundi	Herb	Verbenaceae	Frequent
Phyllanthus fraternus	Bhuiavali	Herb	Euphorbiaceae	Abundant
Phyllanthus reticulatus		Shrub	Euphorbiaceae	Frequent
Physalis minima	Ran-Popti	Herb	Solanaceae	Abundant
Pilea microphylla		Herb	Urticaceae	Frequent
Plectranthus mollis		Shrub	Lamiaceae	Frequent
Plumbago zeylanica	Chitrak	Shrub	Plumbaginaceae	Occasional
Plumeria alba	Pandhara-chapha	Tree	Apocynaceae	Cultivated
Pogostemon benghalensis	Pangli	Shrub	Lamiaceae	Frequent
Polyalthia longifolia	Ashok	Tree	Annonaceae	Cultivated
Polygala erioptera	Gulpankhi	Herb	Polygalaceae	Abundant
Polygala persicariifolia		Herb	Polygalaceae	Abundant
Polygonum plebeium	Godhadi	Herb	Polygonaceae	Abundant
Pongamia pinnata	Karanj	Tree	Fabaceae	Abundant
Porana malabarica	Bhawari	Climber	Convolvulaceae	Frequent
Portulaca oleracea	Ghol	Herb	Portulacaceae	Frequent
Psidium guajava	Peru	Shrub	Myrtaceae	Cultivated
Pulicaria angustifolia	Sontikli	Herb	Asteraceae	Frequent
Pupalia lappacea	Chikta	Herb	Amaranthaceae	Abundant
Quisqualis indica	Lalchemeli	Shrub	Combretaceae	Cultivated
Rhamphicarpa longifolia	Tutari	Herb	Scrophulariaceae	LR
Ricinus communis	Erand	Shrub	Euphorbiaceae	Abundant
Rivea hypocrateriformis	Phang	Climber	Convolvulaceae	Abundant
Rotala densiflora	Jalmukhi	Herb	Lythraceae	Frequent
Rotala rosea		Herb	Lythraceae	Frequent
Rubia cordifolia	Manjishtha	Herb	Rubiaceae	Occasional
Ruellia tuberosa	Ruvel	Herb	Acanthaceae	Abundant
Rungia crenata	Rungia	Herb	Acanthaceae	LR
Rungia pectinata		Herb	Acanthaceae	Abundant
Saccharum officinarum	Oos	Herb	Poaceae	Cultivated
Saccharum spontaneum	Us-gavat	Grass	Poaceae	Abundant
Samanea saman (Jacq.) Merr.	Rain-tree	Tree	Mimosaceae	Cultivated

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Santalum album	Chandan	Tree	Santalaceae	Occasional
Scirpus affinis		Grass	Cyperaceae	Frequent
Scoparia dulcis	Dulas	Herb	Scrophulariaceae	Abundant
Scurrula stocksii		Shrub	Loranthaceae	EM/LR
Scutia myrtina	Chimat	Shrub	Rhamnaceae	Occasional
Securinega leucopyrus	Pandharphali	Shrub	Celastraceae	Frequent
Semecarpus anacardium	Bibba	Tree	Anacardiaceae	Occasional
Senecio bombayensis	Sonki	Herb	Asteraceae	Abundant
Senecio edgeworthii	Hiwali-sonki	Herb	Asteraceae	EI
Sesamum orientale	Ran-til	Herb	Pedaliaceae	Frequent
Sesbania sesban	Shevri	Shrub	Fabaceae	Frequent
Setaria glauca	Chikta	Grass	Poaceae	Abundant
Setaria intermedia		Grass	Poaceae	Frequent
Sida acuta	Bala	Herb	Malvaceae	Abundant
Sida rhombifolia	Atibala	Herb	Malvaceae	Abundant
Smilax ovalifolia	Ghotvel	Climber	Smilacaceae	Frequent
Smilax zeylanica	Ghotvel	Climber	Smilacaceae	Frequent
Smithia conferta		Herb	Fabaceae	Abundant
Smithia hirsuta	Kawla	Herb	Fabaceae	Abundant
Smithia racemosa		Herb	Fabaceae	Abundant
Smithia sensitiva	Lajalu-kawla	Herb	Fabaceae	Abundant
Solanum anguivi		Herb	Solanaceae	Frequent
Solanum nigrum	Laghukavali	Herb	Solanaceae	Occasional
Solanum virginianum	Bhuiringni	Herb	Solanaceae	Occasional
Solena amplexicaulis	Gometi	Climber	Cucurbitaceae	Frequent
Sonchus asper	Mhatara	Herb	Asteraceae	Abundant
Sopubia delphinifolia	Dudhali	Herb	Scrophulariaceae	Abundant
Sorghum halepens	Boru	Grass	Poaceae	Frequent
Spermacoce articularis	Madanghanti	Herb	Rubiaceae	Abundant
Spermacoce stricta		Herb	Rubiaceae	Abundant
Sphaeranthus africanus	Mundi	Herb	Asteraceae	Abundant
Sphaeranthus indicus	Gorakhmundi	Herb	Asteraceae	Abundant
Spilanthus paniculata	Akkalkadha	Herb	Asteraceae	Frequent
Stemodia viscosa	Satmodi	Herb	Scrophulariaceae	Frequent
Striga asiatica	Pivla-agya	Herb	Scrophulariaceae	Abundant
Striga densiflora	Agya	Herb	Scrophulariaceae	Abundant
Striga gesnerioides	Bambaku	Herb	Scrophulariaceae	Frequent
Synedrella nodiflora		Herb	Asteraceae	Abundant
Synedrella vialis		Herb	Asteraceae	Abundant
Syzygium cumini	Jambhul	Tree	Myrtaceae	Abundant
Syzygium heyneanum	Par-jambhal	Tree	Myrtaceae	Frequent
Tabernaemontana heyneana	Chandani	Tree	Bignoniaceae	EI
Tagetus erecta	Zendu	Herb	Asteraceae	Cultivated
Tamarix ericoides	Sherni	Shrub	Tamaricaceae	Frequent

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Tectona grandis	Sag	Tree	Verbenaceae	Occasional
Tephrosia coccinea	Lal-unhali	Herb	Fabaceae	EI
Tephrosia purpurea	Unhali	Herb	Fabaceae	Abundant
Teramnus labialis	Ran-udid	Herb	Fabaceae	Abundant
Terminalia bellirica	Behda	Tree	Combretaceae	Abundant
Terminalia chebula	Hirda	Tree	Combretaceae	Frequent
Terminalia cuneata	Arjun-sadada	Tree	Combretaceae	Occasional
Terminalia elliptica	Ain	Tree	Combretaceae	Abundant
Thelepaepale ixiocephala	Patri	Shrub	Acanthaceae	EI
Themeda ciliata	Kusalgavat	Grass	Poaceae	Abundant
Thespesia lampas	Ran-bhendi	Shrub	Malvaceae	Frequent
Thespesia populnea	Bhendi	Tree	Malvaceae	Frequent
Thevetia nerifolia	Bitti	Shrub	Apocynaceae	Cultivated
Thunbergia alata		Climber	Thunbergiaceae	Frequent
Tinospora cordifolia	Gulvel	Climber	Menispermaceae	Abundant
Tonningia axillaris	Bechka	Herb	Commelinaceae	Abundant
Trachyspermum roxburghianum	Pinela	Herb	Apiaceae	Occasional
Tragia involucrata	Agya	Climber	Euphorbiaceae	Occasional
Trema orientalis	Gol	Tree	Ulmaceae	Frequent
Trichodesma indicum	Chhota-kalpa	Herb	Boraginaceae	Abundant
Tricholepis amplexicaulis	Dahan	Herb	Asteraceae	Abundant
Tricholepis radicans	Lahan	Herb	Asteraceae	Abundant
Tridax procumbens	Ekdandi	Herb	Asteraceae	Abundant
Trigonella occulta	Ran-methi	Herb	Fabaceae	Abundant
Triplopogon ramosissimus		Grass	Poaceae	Abundant
Triumfetta pentandra	Nichardi	Herb	Tiliaceae	Abundant
Triumfetta pilosa	Nichardi	Herb	Tiliaceae	Abundant
Triumfetta rhomboidea	Thinjhira	Shrub	Sterculiaceae	Abundant
Tylophora dalzellii	Lahan-Pitmari	Climber	Asclepiadaceae	Frequent
Tylophora indica	Bedki	Climber	Asclepiadaceae	Frequent
Urena lobata	Van-bhendi	Herb	Malvaceae	Frequent
Verbascum chinense	Kutki	Herb	Scrophulariaceae	Frequent
Vernonia cinera	Sahdevi	Herb	Asteraceae	Abundant
Vernonia divergens	Bundar	Shrub	Asteraceae	Abundant
Vernonia indica	Sahdevi	Herb	Asteraceae	EI
Vigna sublobata		Climber	Fabaceae	Frequent
Vigna trilobata	Mukni	Climber	Fabaceae	Frequent
Vigna vexillata	Halunda	Climber	Fabaceae	Frequent
Vitex negundo	Nirgudi	Shrub	Verbenaceae	Abundant
Wattakaka volubilis	Hirandodi	Climber	Asclepiadaceae	Frequent
Wedelia biflora	Solanki	Herb	Asteraceae	Frequent
Withania somnifera	Ashwagandha	Herb	Solanaceae	Occasional
Woodfordia fruticosa	Dhayati	Shrub	Lythraceae	Abundant
Wrightia tinctoria	Kala-Kuda	Tree	Apocynaceae	Abundant

Botanical Name	**Local Name**	**Habit**	**Family**	**Status**
Xanthium indicum	Landga	Herb	Asteraceae	Abundant
Zinnia linearis	Zinia	Herb	Asteraceae	Frequent
Ziziphus caracutta	Ghot-bor	Tree	Rhamnaceae	Frequent
Ziziphus mauritiana	Bor	Tree	Rhamnaceae	Abundant
Ziziphus oenoplea	Burgi	Shrub	Rhamnaceae	Frequent
Zornia gibbosa	Landgu	Herb	Fabaceae	Abundant


GPS Map Camera
Mulshi, Maharashtra, India
HJ22+GG5, Chale, Maharashtra 412108, India
Lat 18.551127°
Long 73.601359°
30/12/22 11:43 AM GMT +05:30
Google


Shot on Y93
Vivo AI camera


GPS Map Camera
Pune, Maharashtra, India
HJ22+236, Pune, Maharashtra 412108, India
Lat 18.550188°
Long 73.600355°
30/12/22 03:27 PM GMT +05:30
Google


GPS Map Camera
Chale, Maharashtra, India
HJ22+C59, Chale, Maharashtra 412108, India
Lat 18.551007°
Long 73.600425°
30/12/22 06:56 PM GMT +05:30
Google


GPS Map Camera
Mulshi, Maharashtra, India
HJ22+GG5, Chale, Maharashtra 412108, India
Lat 18.551127°
Long 73.601359°
30/12/22 11:43 AM GMT +05:30
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