



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

Edited By

Dr. Nitin L. Ghorpade (Principal)

Dr. Latesh K. Nikam (Vice-Principal)

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PDEA's

**Baburaoji Gholap College, Sangvi, Pune - 411027**

*Affiliated To*

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE 411 007,  
MAHARASHTRA (INDIA)**

**2019-20**



# **A Village Baseline Study of Village Dongargaon (Tal. Mulshi, Dist. Pune).**

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**Prin. Dr. Nitin L. Ghorpade**

**Dr. Latesh K. Nikam**

**&**

**Dr. D.M. Mahajan**

Departments Involved

**HISTORY**

**POLITICS**

**BOTANY**

**CHEMISTRY**

**MARATHI**

**GEOGRAPHY**

**ZOOLOGY**

**PHYSICS**



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BABURAOJI GHOLAP COLLEGE, SANGVI, PUNE-411027**

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## **CERTIFICATE**

This is to certify that the work incorporated in this report entitled “**A Village Baseline Study of Village Kusgaon (Tal. Maval, 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 February 2021.

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Date: July, 2021

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Prin. Dr. Nitin L. Ghorpade

Baburaoji Gholap College,  
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Pune – 411027  
Date:- July, 2021



## **CHAPTER-1**

# **INTRODUCTION**

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. Nitin Ghorpade. Under his able guidance, the college has selected the village Dongargaon in Mulshi Tehsil of Pune District (Maharashtra).

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 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 also 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.

## CHAPTER-2

# HISTORICAL REVIEWS

**Jitendra Wadshingkar and Savitri Jadhav**  
**Department of History**

**Aim:** To study the historical importance of the village.

**Objectives:** To study the local history of the village as well as the social, economic, cultural, and religious life and traditions of the people.

**Assumptions:** Following assumptions have been made in relation to the study of the selected village.

- 1) In spite of being close to Pune the village has not made much progress.
- 2) The village lacks modern amenities.
- 3) Due to social change, people appear to be living in harmony.
- 4) Even though the youth of the village has migrated to city areas for employment, there has not been a very big change considering economic progress.

### **Introduction:**

Every individual possesses the desire to understand his/her past. It is necessary to know the past of our respective village, otherwise how does one expect to understand the history of one's own country? This paper focuses on the study of the history of the village of Dongargaon. The study of history through the pyramid method involves the study of the world, continent, country, state, district, taluka and finally the village. Through this study, one forms the history of the nation. This is why the study of the village of Dongargaon has been taken up.

The history of kings, their lives and kingdoms are a thing of the past and can now only be found in books. Also, the subject matter of history has expanded. The scope of history is widening.

Local history is a subtype of history. The objective here is to study the local history of Dongargaon, its social, political, economic life and the customs and traditions of its people.

### **Historical background of Dongargaon**

Dongargaon is a village in Mulshi surrounded by hill ranges. Dongargaon was a part of these hill ranges and hence the name- 'Dongargaon'. Following information came to light after meeting with the residents of the village. The village had a Bhairavnath temple due to which the residents faced obstacles. The village was then moved to the foot of the hills and the new village was given the name- Chikhalgaon. Primarily, there are three villages in this area- Chikhalgaon, Lolwan, Dongargaon. These villages have changed and increased in expanse between the periods of 1960-2019. Maharashtra rural life is closely related to village life. The village being a self-sufficient unit, and its changes over the ages help us understand its social, economic and political life.

**Social life in the village:**

The village has seen progress since ancient times. We find the existence of the joint family system which is patriarchal in nature. Members in the family are found to be living in harmony. Social life is intimately connected with economic life. Each and every caste is treated equally, thus allowing for a peaceful environment in the village. We do not find any caste divisions.

**Housing structure:**

Chikhalgaon, on account of being surrounded by hill ranges experiences a lot of heavy rain. This is why the houses have a sloping roof. We do find some modern structures here and there to some extent. Some houses are built with cement and concrete.

**Economic life:**

The main occupation here is rice cultivation (paddy). Supplementary occupations include dairy and animal husbandry. The village has only one grocer (kirana). Since the village is small, weekly markets are not held. A weekly market is held at a place called Kolwan which the residents visit. The youth of the village seem to be attracted to the city life in matters of employment. The village might benefit from this economically. The village has an elementary school comprising of classes from first to fourth standard. The schools are computerized. The present school was set up in 1972. Children have to go to Kolwan and Paud to complete their high school education.

**Religious life:**

The village holds importance from religious point of view as it has three temples of the following deities- Bhairoba, Datta and Vitthal-Rukmini. The main local deity is Bhairoba. The religious fair in devotion to Bhairoba takes place in March. One week is kept aside every year for worship at the temple of Vitthal and Rukmini. Religious songs such as bhajan and kirtan are sung. The event of 'Mahaprasad' is organized. Other festivals are celebrated in the village with enthusiasm. People of all castes come together. The village has established a Ganpati Mandal.

**Political life:**

Considering the period between 1960 and 2019, the village has only 57 houses. Population is 1030. Three villages are brought together to form a gat gram panchayat. Keeping in mind the small population and expanse of the villages, "Bhagwanchandra Gaikwad" was elected as the member of the Gram Panchayat. Other civil boards are active in the village as well. Gaikwad, who has been elected to the position of the Sarpanch belongs to a Scheduled Caste.

**Conclusion:**

The village under study has not seen a lot of development due to its geographical location on a hilly terrain.

Its technological backwardness has hindered the progress of the village.

Educational facilities need to be developed.

The village, especially the women of the village are in need of social progress.

The youth of the village is attracted to urban life due to its employment opportunities. Their migration can reduce if the village is developed well.

The people of the village face many obstacles due to the fact that they live in a hilly terrain.

They have overcome all these obstacles- a credit to their hardworking and stubborn nature.

**Solution:**

The village is in need of implementing 'pani adva pani jirva' as the village experiences frequent heavy rains.

The village is in need of environmental awareness.

Economic progress of the village is of the need.

## CHAPTER-3 LIVELIHOOD AND ETHNICITY

M.M. Bagul  
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### प्रास्ताविक:

डोंगरगाव महाराष्ट्रातील पुणे जिल्ह्यातील मुळशी तालुक्यातील छोटेसे गाव आहे. या गावाच्या चहुबाजूने सह्याद्रीच्या पर्वतरांगा आहेत. निसर्गाच्या कुशीत डोंगरगाव वसलेले आहे. या गावाची कुटुंब संख्या १८० इतकी वास्तव्यास असून या गावाची लोकसंख्या ८६० इतकी आहे. या पैकी अनुसूचित जाती. ८७ आणि अनुसूचित जमाती ११ इतकी लोकसंख्या आहे. गावात चौथी पर्यंत जिल्हा परिषद प्राथमिक शाळा आहे. त्यामुळे पुढील शिक्षणासाठी मुलांना दुसऱ्या गावी किंवा पुणे शहरात जावे लागते.

गावात समान 'कुळी' म्हणजे 'जोरी' या आडनावाची कुटुंबे प्रामुख्याने आढळून आली. गावामध्ये एकत्र कुटुंब पद्धती कमी प्रमाणात दिसून येते. गावातील तरुण मंडळी रोजगाराच्या निमित्ताने शहराकडे स्थलांतर झाली आहे आणि वृद्ध मंडळी गावात राहण्याचा प्रमाण जास्त आहे. घराची रचना हि एका राषेत नाही तर अस्थेस्थ स्वरूपात आहे. या गावातील महिलांच्या व पुरुषांच्या पोषाखामध्ये नागरी संस्कृतीचा प्रभाव दिसतो. डोंगरगावच्या परिसरात पावसाचे प्रमाण जास्त असल्यामुळे गावातील प्रमुख पिक भात आहे. या गावाची लोकसंस्कृती लोकगीते, लोककथा, सणउत्सवाची गाणी हळू हळू लुप्त होत चालली आहेत.

### उद्दिष्ट

- १) गावातील लोकसंस्कृती आभ्यास करणे.
- २) लोकजीवनातील होणारे परिवर्तन तापुसून पाहणे.
- ३) प्रसार्माध्यामांमुळे बोली भाषेवर पडलेला प्रभाव.

### आभ्यास पद्धती:

सदर लोकवाङ्मयाचा आभ्यास करताना मुलाखती, चर्चा आणि निरीक्षण या पद्धतीचा वापर केला.

### लोकगीते:

मौखिक परंपरेने ओवीगीत त्या निर्मितीमागे असलेल्या संस्कारित मनाचे प्रतिबिंब ओवीगीतामध्ये दिसून येतात. जात्यावर दालन दळीत असताना अनेक ग्रामदैवत देवांविषयी, यांचे चित्रण हि ओवी गीतात दिसून येते. ह्या गीतातून जीवनातील सुखदुखाच्या चानांचा अविष्कार ओवीगीतातून आली आहेत. 'जात्यावरील' ओवी गीत गात असताना भक्तीचा आनंद मिळावा म्हणून अनेक ओव्यातून पंढरपूरचा विठ्ठल, अजंजी मत, हनुमान, भीमाशंकर, त्रिंबक राज्याल, महादेव पवर्ती, या देवतांचे वर्णन ओवीगीतातून दिसून येते.

सरीला दळण माझ्या सुपात केवढा ग  
पंढरीचा देव माझ्या भाबडा ग  
सरली दळण खाली राहिली पायली ग  
सोन्याची पांच फुला अंजनी मातेला वाहिली ग  
सरली दळण खाली राहिली आठवा ग  
सोन्याची पांच फुला भीमाशंकरलामातेला वाहिली ग  
सरली दळण खाली राहिली शेर ग  
सोन्याची छत्री त्रिंबक राजाला वाहिले ग  
सरला दालन खाली राहिला पाच मुठी ग  
मारुती देवाला वाहीन शेंदराची उटी ग  
डोंगराच्या कळसुबाई जातेच्या माने मंधी फिरते ग  
जातेच्या फेऱ्यामंधी फिरते महादेव ग  
जात्याच्या शेंड्या मध्ये फिरते पार्वती ग  
सरील दळण ग माझ्या सुपात केवढा ग  
सरील दळण हात भरील चुद्यान ग

वरील गीतातून दळण दळत असताना महादेव, पार्वती, मारुती, इ. देवतांचे नावे घेऊन जाते वाढण्याचे कष्ट कमी व्हावे म्हणून देवाचे नाव घेऊन ओवी गीते म्हटली जातात. परंतु आज जात्यावरील ओव्या अहिसे झाल्या आहेत. कारण जात्या एवजी पिठाची गिरण आली आहे. उखळ एवजी मिक्सर आले. चूल एवजी गॅस असे कितीतरी शब्द आज अजीबाईच्या व्यवहारात बोलत आहे.

### डोंगरगाव परिसरातील बोलीवर प्रभाव:

आज शिक्षण, प्रसारमाध्यम, जागतिकीकरण वैज्ञानिक शोध व वाढता विकास यामुळे अनेक नागरी आणि पाश्चात्य संस्कृतीचा प्रभाव डोंगरगावाच्या बोलीवर पडलेला दिसतो आणि तो सहज लोकांनी स्वीकारले. न्याहारी एवजी नस्ता, संडासला गेले एवजी टॉलेटला गेले, पंजाबी, सूट, पेस्ट,

परकर, गाऊन, कंडक्टर, ब्लाउज, बिस्किट, कार, बस, तिकीट, चेक, पेमेंट, सिलेंडर, कुलर, टेबल असे कितीतरी शब्दांचा ग्रामीण बोलीमधून पहावयास मिळते.

मुळशी तालुक्यातील बोलीभाषेवर प्रसार माध्यमाचा फार मोठा प्रभाव दिसतो इंग्रजी, हिंदी मराठी या भाषांचा प्रभाव पुढील प्रमाणे दिसतो. उदा. **star** प्रवाह, माझा, IBM लोकमत, ETV वाहिनी, व्हील, स्मार्ट सुनबाई, डॉक्टर, क्लोजप, नॉनमॉटरीक सुपर डान्सर, BREAKING NEWS OK YES रेडिओ, मोबाईल, कॉम्प्यूटर, सीरिअल, sms, message, delete, contacts, image, menu, inbox, sent, erecharge, sound, clops या सारखी कितीतरी शब्द डोंगरगावग्रामीण बोलीतून येऊ लागली आहे. आज खेड्यापाड्यात सुधा 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 डोंगरगाव परिसरातील बोलीभाषेवर पडलेला दिसतो.

### निष्कर्ष:

- बोली भाषेतील काही शब्द लुप्त होत आहेत.
- लोककथा, लोकगीते, लोककला आणि म्हणी हे लोकवाङ्मय यामध्ये परिवर्तन झालेले दिसले.
- रोजगार नसल्यामुळे तरुणांचा शहराकडे ओढ असल्यामुळे ग्रामसंस्कृती व कृषीसंस्कृती नाहीशी होत आहे.
- या गावात सरकारी योजना नसल्यामुळे अस्वच्छता, रस्ता, आरोग्य केंद्र, शाळा यांची समस्या जाणवली.

## CHAPTER-4

# POLITICAL VIEWS

**Nanda A. Rashinkar and Prajakta Kumbhar**  
**Department of Politics**

**Aim:** To Study the Social Political States of Dongargaon

**Objectives:**

- 1) To study the politically active participation of the people of Dongargaon village.
- 2) To check the government schemes role in the social development of Dongargaon village.
- 3) To study the Project implemented by Grampanchayat for the development of the village.

**Hypothesis:**

- 1) The People of Dongargaon are aware of politics
- 2) The development of has been done by the implementation of government scheme
- 3) The participation of the political leader in the development of Dongargaon.

**Research Methodology:**

Dongargaon's political and social a case study conducted by conducting interviews with villagers. The political situation has been studied. Observation and government report are studied by primary and secondary studied by means.

**Introduction:**

Dongargaon is a village in Mulshi taluka of Pune district. The structure of the village is the lower place and upper place in the way. Mountain On the three sides of the village and the river is Sone side. There is a one meter narrow bridge over the river to get to the village.

**Social status:**

The population of Dongargaon as per census of 2011 is 860. Only huge pass rainfall in this area. This village has all the caste population. The Hindus and the Buddhist.

**Table 4.1: The caste wise classification of the citizens of Dongargaon**

Sr. No.	Caste Group	Population	Percentage
1.	Unreserved	762	88.66%
2.	Scheduled Caste	87	10.11%
3.	Schedule Tribe	11	1.27%

**Table 4.2: Female and Male gender classification**

	Male	Female	Total	Percentage
<b>Total</b>	<b>444 (51.62)</b>	<b>416 (48.37)</b>	<b>860</b>	<b>100%</b>
<b>Unreserved</b>	<b>394 (51.70)</b>	<b>368 (48.29)</b>	<b>762</b>	<b>88.66%</b>
<b>Scheduled Caste</b>	<b>46 (52.84)</b>	<b>41 (47.12)</b>	<b>87</b>	<b>10.11%</b>
<b>Schedule Tribe</b>	<b>4 (36.36)</b>	<b>7 (63.63)</b>	<b>11</b>	<b>1.27%</b>



There is no mention of the number of OBCs in the census of 2011. In unreserved category the proportion of Marathas among the citizens is 88.66%. The proportion of Scheduled Castes citizens is 10:11. It Includes Buddhist religious citizens. The population of Buddhists is very close to the main population. Among Buddhist population the person name Bhagwan Gaikwad is building a temple from his own money for the sake of the people. Dalit and Maratha community the opinion of the villagers (reference interview Namdev Maruti Pasalkar) was also suggested that the communities are live separately. There are three temples for the people of unreserved category (Gramdaivat Bhairoba, Vitthal Rukmini, Datta Mandir).

### **Participation of Women in Business:**

There are two women's Self Help groups in the village. Most women do housework, farm work, and so on. Quick Poultry farming and dairy are practiced in two to three houses. For women, the literacy rate is 63.49%.References Bhagwan Gaikwad has been appointed Sarpanch in the Scheduled Castes group.

### **Political Studies – Constituency:**

#### **Preface:**

Dongargaon village belongs to the Legislative Assembly of Bhor Constituency. Sangram Anantrao Thopate is a member of the Bhor Constituent Assembly. Dongargaon comes under Baramati Lok Sabha constituency. Right now Supriya Sule is a member of the Baramati Lok Sabha constituency.

### **Gram Panchayat - Group Gram Panchayat Kolvan:**

Kolvan, Hotale, Dongargaon, together with three villages, are located in the Group Gram Panchayat at Kolvan. This Gram Panchayat was established in 1965. Presently, Mrs. Kavita Sudam Dunde is the Sarpanch. Sarpanch post an open group woman is given the opportunity, even for the male open group (Reference Interview Bharat Satpute). Mrs. Shobha Narayan Jori is the Deputy Sarpanch. The choice of Sarpanch and Deputy Sarpanch is always elected without conflict (Reference Interview Bharat Satpute Dt. 7/10/2019). Both positions are currently women of unreserved category. According to the Gram Panchayat Act all persons belonging to the caste group are in the Gram Panchayat. The member's tribal community of the present Gram Panchayat is not included.

### **Political participation of women:**

The political participation of women in Dongargaon is voting in the Gram Panchayat elections, running the office of Gram Panchayat through Contesting the election of Gram Panchayat, work as a member and office holder of gram Panchayat. Currently, there are women in both the posts of Sarpanch and Deputy Sarpanch.

### **Dongargaon Development:**

Gram Panchayat was established in 1965 with three villages of Dongargaon, Kolvanand Hotale. The Gram Panchayat has done many development works through the Development Fund. Priority given to the roads, electricity, water, education.

1. Wells are created from Swajaldhara Yojana. Drinking water is made available through tapes.
2. The standard of education in the village is from 1st to 4th. The Knowledge Design Debate Program was organized.
३. The program "Advanced Education Maharashtra" is implemented.
४. A nutritious diet plan is implemented.
५. During the period of Ashok Mohol Member of Parliament the bridge was constructed on the river about 20 years ago, earlier, a river walk or a boat was used to enter the village.

**Conclusion:**

१. The highest proportion of open-group citizens. (Maratha Samaj)
२. Hindu religious ratio is high. - Muslims religious are not present.
३. Women are involved in the political process.
४. Women are led by the Gram Panchayat.
५. Many development works have been done in the village through various schemes.

**Observation:**

4. There are various parties in the village, but the NCP is the influence of this party.
5. Gram Panchayat made improvements in water, electricity, bridges.
6. The Gram Panchayat elections were unopposed.
7. Development is done through various schemes of Government.
8. Muslims are not present just Hindus and Buddhists.
9. Education is available only up to 4<sup>th</sup> standard.
10. There is no electricity in the village for 2 days a week. Toilets are constructed by villagers at their own expense.
11. There is no employment except rice cultivation.
12. There is no business with saving groups.
13. According to this concept of Digital India, Gram Panchayat has computer, internet facilities. But Lack of electricity and lack of trained staff, due to this work is not

**Suggestions:**

१. The village should have access to education.
२. To go to the village, the bridge needs to be repaired.

**List of interviewers:**

- 1 Eknath Jori
- 2) Gajanan Jadhav – Member
- 3) Namdev Maruti Pasalkar
- 4) Rupali Shejwal – (Gram Panchayat Staff) ,
- 5) Ankush Kanojeere
- 6) Bharat Satpute
- 7) Bhagwan Gaikwad - (Former Sarpanch)

## CHAPTER-5

# SOCIO-ECONOMIC SURVEYS

Arjun Doke

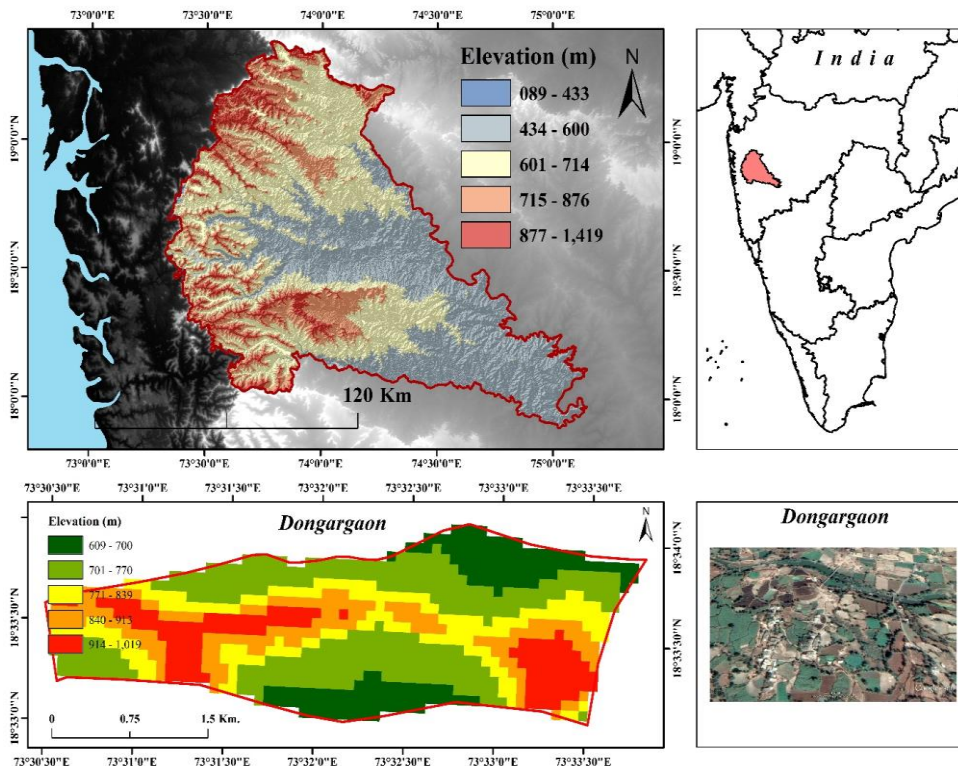
Department of Geography

**Location:**

Dongargaon is located in Mulshi tehsil of Pune district in Maharashtra state, India. It is situated 14 km away from sub-district headquarter Paud and 45 km from district headquarter Pune. Kolwan is the gram panchayat of Dongargaon village. Dongargaon is  $73^{\circ} 30'30''$  E to  $73^{\circ} 34'00''$  E longitude and  $18^{\circ} 33'00''$  N to  $18^{\circ} 34'00''$  N latitude (**Figure 5.1**). Total geographical area is 634 hectare as around the more than  $6\text{km}^2$ .

**Population characteristic:**

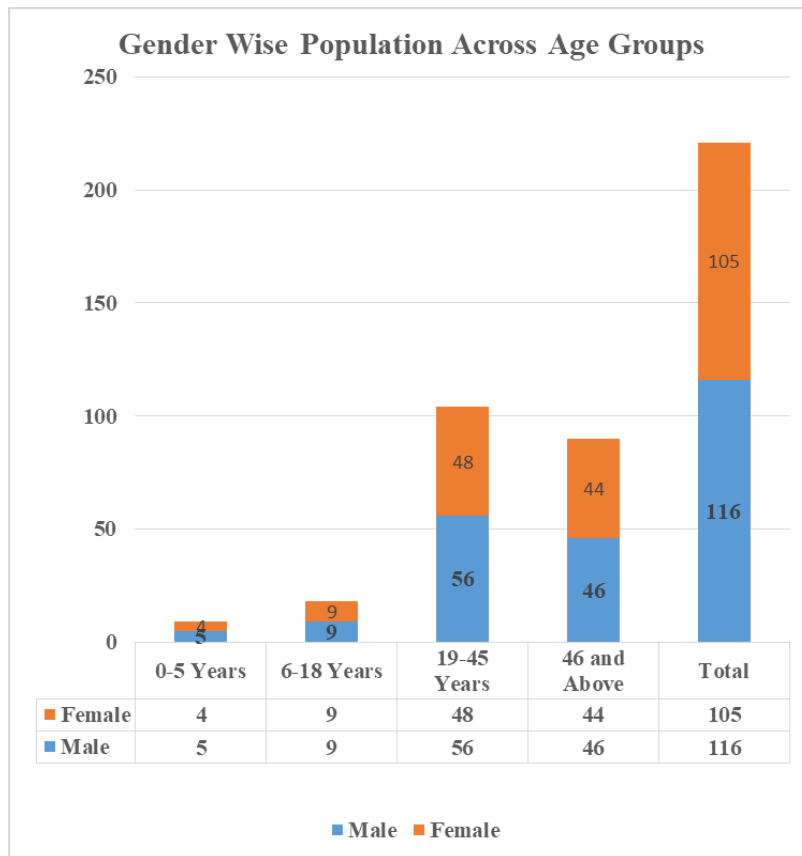
Dongargaon local language is Marathi. As per the 2011 census the total population is 860 and total household are 180. Female population is 416 (48.40%) and male population is 444 (51.60%). Schedule Caste population is 87 in which 46 male and 41 female. Schedule Tribe population is 11 in which 4 male and 7 female. The literacy rate 74.15% in which male literacy rate is 84.05% and female literacy rate is 63.49. In village Dongargaon, total workers population is 599 wherein that 327 male and 272 female. 589 is main worker and 10 is marginal workers.



**Figure 5.1: Location map of village Dongargaon**

**Table 5.1: Gender wise population across age groups**

Gender Wise Population Across Age Groups					
Age	0-5 Years	6-18 Years	19-45 Years	46 and Above	Total
Male	5	9	56	46	116
Female	4	9	48	44	105
Total					221
Based on 53 House hold Survey					



**Figure 5.2: Gender wise population across age groups**

**Table 5.2: Caste wise total population**

Caste wise Total Population	
Caste	Total Population
SC	37
ST	0
OBC	7
General	177
Total	221
Based on 53 Household Survey	

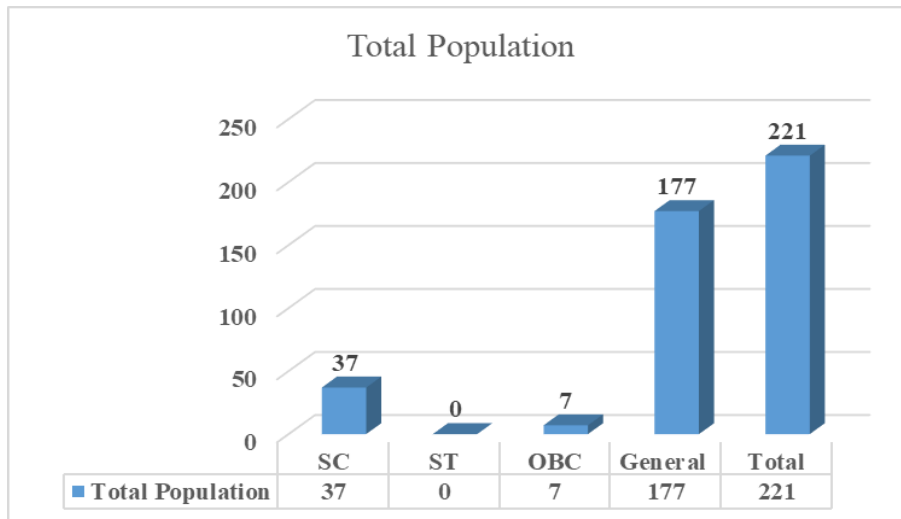


Figure 5.3: Caste wise total population

Table 5.3: Aadhaar coverage across prevailing caste section.

Aadhaar Coverage Across Prevailing Caste Section			
Caste Section	With Aadhaar	Without Aadhaar	Total
SC	34	3	37
ST	0	0	0
OBC	5	2	7
General	169	8	177
Total			221
Based on 53 Household Survey			

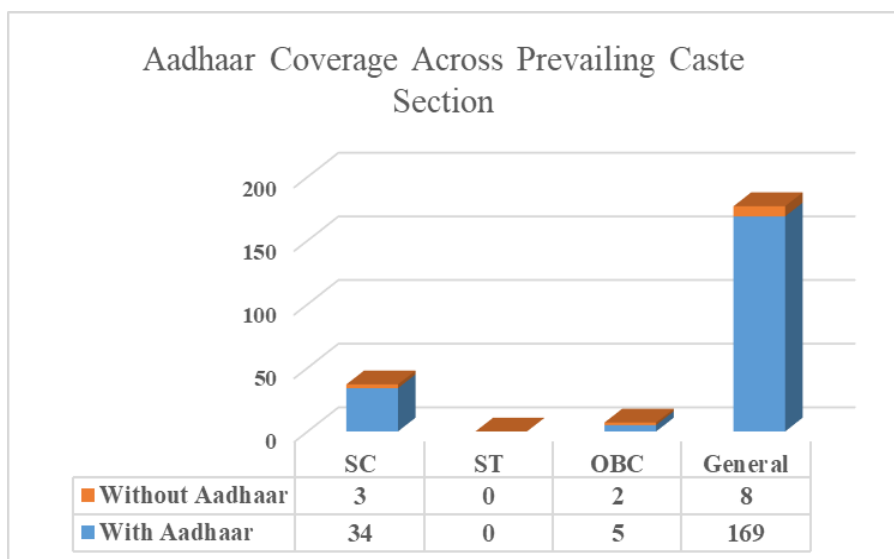
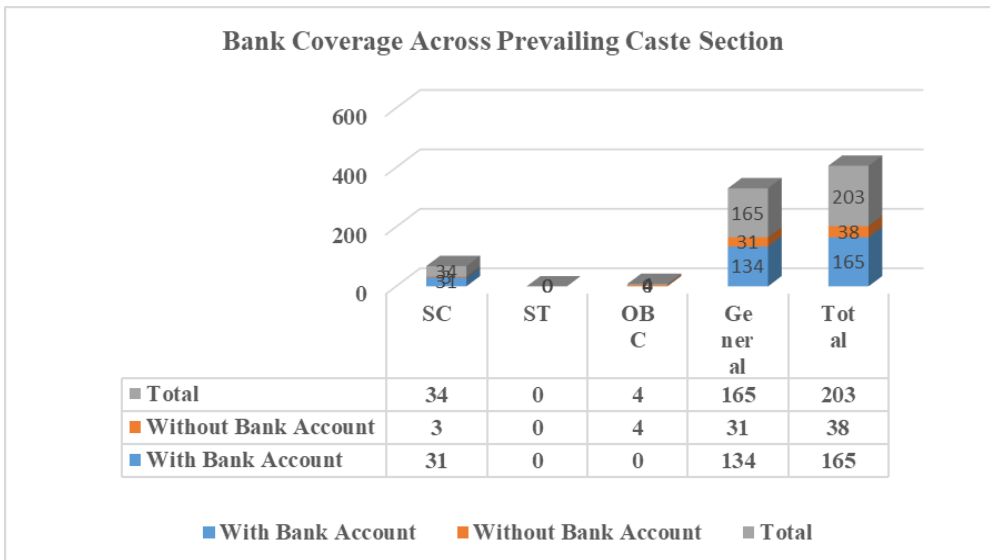


Figure 5.4: Aadhaar coverage across prevailing caste section

The socio-economic status of village depends on the bank account holders. In the present village survey village 165(81.28) villagers are represent the bank account holder's only the 18.71 % (38) villagers are without bank account.

**Table 5.4: Bank coverage across prevailing caste section.**

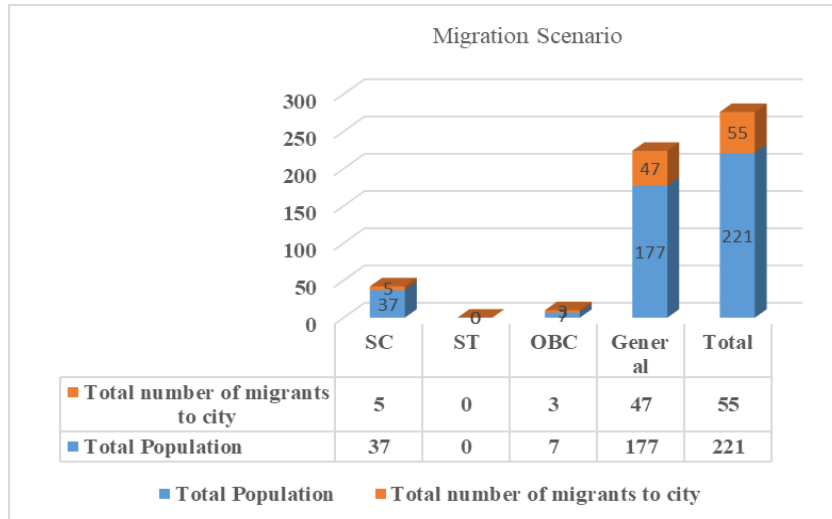
Bank Coverage Across Prevailing Caste Section			
Caste Section	With Bank Account	Without Bank Account	Total
SC	31	3	34
ST	0	0	0
OBC	0	4	4
General	134	31	165
Total	165	38	203
Based on 53 Household Survey			



**Figure 5.5: Bank coverage across prevailing caste section.**

**Table 5.5: Migration Scenario**

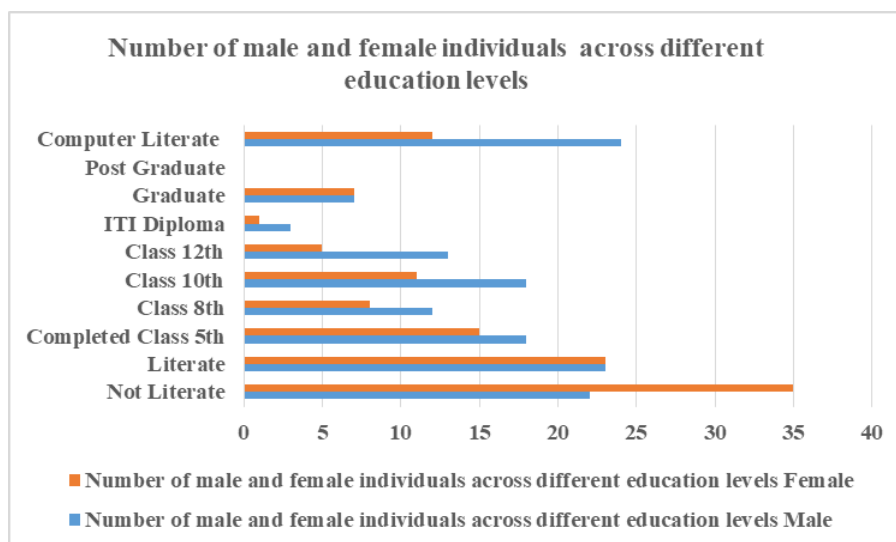
Migration Scenario		
Category	Total Population	Total number of migrants to city
SC	37	5
ST	0	0
OBC	7	3
General	177	47
Total	221	55
Based on 53 Household Survey		



**Figure 5.6: Migration Scenario**

**Table 5.6: Number of male and female individuals across different education levels**

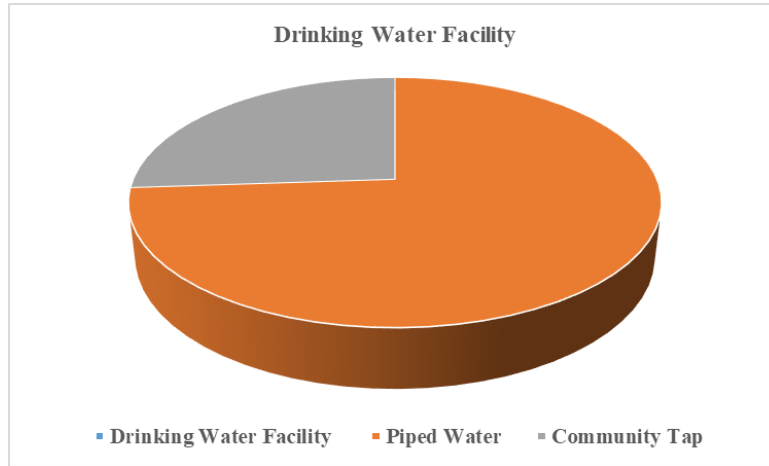
Number of male and female individuals across different education levels		
Education Level	Male	Female
Not Literate	22	35
Literate	23	23
Completed Class 5th	18	15
Class 8th	12	8
Class 10th	18	11
Class 12th	13	5
ITI Diploma	3	1
Graduate	7	7
Postgraduate	0	0
Computer Literate	24	12



**Figure 5.7: Number of male and female individuals across different education levels**

**Table: 5.7: Drinking water facility**

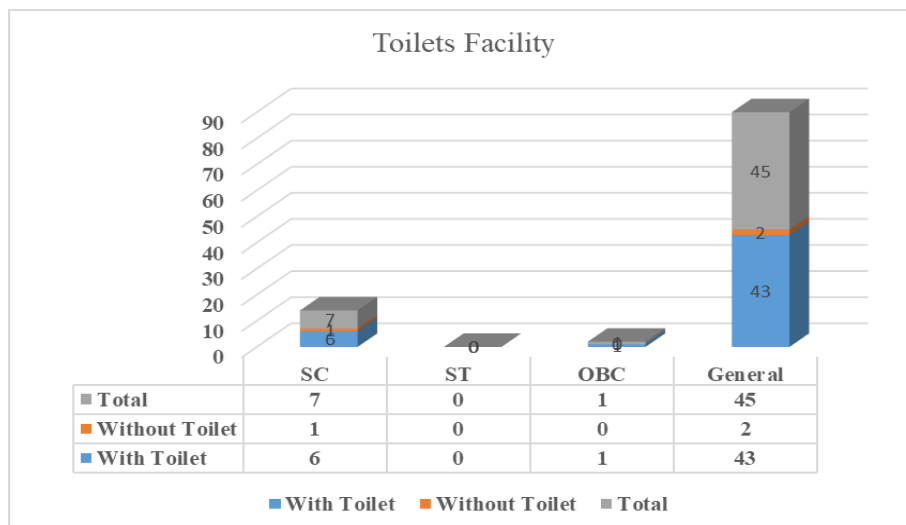
Drinking Water Facility	
Piped Water	51
Community Tap	18



**Figure: 5.8: Drinking water facility**

**Table 4.8: Toilets Facility**

Toilets Facility			
Caste Section	With Toilet	Without Toilet	Total
SC	6	1	7
ST	0	0	0
OBC	1	0	1
General	43	2	45
Based on 53 Household Survey			



**Figure 5.9: Toilets Facility**



**Village Facility:** Village have one ATM. One Post office, three fare price shop, one Milk Cooperative/Collection Centre, one Bus Stop, five Common Sanitation complexes.

**Land use:** Forest cover 1400 acre area of village Dongargaon. The agriculture covers 240 acre area. Area under water bodies is 10 acre. Common lands cover 10 acre area of village Dongargaon.

**Cropping Pattern:** Rice, Wheat and Sugarcane is main crop in the village Dongargaon. The Bore well and River is main source of irrigation. The irrigation method is Drip and Flooding.

**Livestock Assets:** Total number of livestock is 103. Average daily production of milk 90 litres and total animal waste is 56 kg per day.

**Occupation Pattern:** The 62 male and 44 female working with your own land. Skilled Wage Workers 4 within 3 male and 1 female. Unskilled wage workers 29 within 24 male and 5 female. Salaried Employment in private sector is 6 within 4 male and 2 female.

**Average annual income:** The average annual income of SC category is Rs. 27857. OBC category is Rs. 40000 and General category is Rs. 29711.

**Energy Source:** The village Dongargaon have 100 percent registered electricity connection.

## CHAPTER-6

# NATURAL RESOURCES: PLANTS

**D.M. Mahajan and R.B. Bhagat**

**Department of Botany**

The idea of village survey was conceived by Hon. Prin. Dr. Nitin Ghorpade. Under his able guidance, the college has selected the village Dongargaon in Mulshi Tehsil of Pune District (Maharashtra). Department of botany have carried out a survey for plant diversity and its significance on 7<sup>th</sup> October 2019. It was a great experience for students who learnt lot many things while working with the local people. In all three teachers and three students were involved in the survey.

### **Students Involved:**

1. Kamble Pradnya Rahul SYBSc
2. Nikam Sapana Sadashiv SYBSc
3. Shinde Manasi Tanaji SYBSc

### **Introduction:**

India is one of the 12 mega-biodiversity countries of the world. Majority of the rural population in India is directly dependent on biodiversity and ecosystems for almost their entire basic needs: water, food, medicine, clothing, housing etc. Western Ghats is one of the 34 biodiversity hotspots of the world. 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.

### **Hypothesis:**

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 current 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 Dongargaon, Tal Mulshi (Part of Northern Western Ghats)

**Objectives:**

To prepare the plant species checklist of village Dongargaon

To enlist endemic and RET species

Documentation of ethno-botanically important and wild vegetable plants

Documentation of agricultural crops.

**Materials and Methods**

**Study area: Dongargaon**

The surveys for plant biodiversity assessment were conducted in and around the Dongargaon village (Mulshi) of Pune District. The village lies in the Western Ghats; Mulshi valley and located at 18° 34' 14" N latitude and 73° 32' 28" E longitude; and situated approximately 62 Km from Pune. The general topography of the area is hilly with steep slopes to undulating land. It slopes towards north-east direction. It is marked with isolated agricultural farms and a river. The main land use pattern is single crop agriculture, settlements and reserved forest. The average elevation of land surface is observed to be 600 m above the MSL.

**Plant surveys**

We prepared a simple plan for plant diversity studies at village level with the help of our students. The plan was carried out experimentally with the participation of students and teachers. A reconnaissance survey was carried out to have an overview of the species composition of the area. 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 taken into account while selecting the sampling sites.

The biodiversity surveys were conducted to document the terrestrial and aquatic flora of the area. The area is dominated more or less dense 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 Dongargaon 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.

As per Champion and Seth (1968) the forest type is Subgroup 3B/C2. Forest canopy is almost fragmented. Trees attain height of 20 to 25 m or more. The dominant species are moist deciduous in nature. Relatively small number of species together form the greater part of forest canopy and relatively pure association are frequent. Some evergreen species are dominant, but they are few. These species provide more or less evergreen appearance throughout the year.

The hillsides are covered with dense mixed forest. Epiphytes are infrequent in appearance. Climbers are frequent. The undisturbed soil supports more or less evergreen shrubs. Especially the *Carvia callosa* forms large thickets on slopes, and *Carrisa congesta* on gentle slopes. The main composition of these forest is – *Syzygium cumini*, *Bridelia retusa*, *Mangifera indica*, *Terminalia elliptica*, *Terminalia chebula*, *Terminalia bellirica*, *Ficus racemosa*, *Ficus nervosa*, *Bombax ceiba*, *Lagerstroemia lanceolaria*, *Mallotus philippense*, and the undergrowth of shrubs like *Ixora*, *Flacourtia*, *Catunaregum*, *Carrisa*, *Gnedia glauca*, *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*, *Rhynchostylis*, 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 560 plant species. The taxonomic distribution of documented plant species is illustrated in **Table 6.1**, and **Annexure-I** (Check list of flowering plants). The list includes the botanical name of species, habit, family, and status.

**Table 6.1: Taxonomic attributes**

Plant Type	No. of Species	No. of Genera	No. of Families
Angiosperms	560	358	90
Pteridophytes	11	09	09
Bryophytes	10	09	08
<b>TOTAL</b>	<b>581</b>	<b>376</b>	<b>107</b>

The documented species belonged to 376 genera and 581 species of 107 families (including Angiosperms, Pteridophytes, and Bryophytes) indicating the floristic richness of Dongargaon. The most dominant group is Angiosperms having 560 species that are distributed in 358 genera and 107 families. Other groups also represented very well forming a unique amalgamation of flora and vegetation. Among angiosperms the most represented family (**Table 6.2**) was Fabaceae (59 species), Asteraceae (45 species), Poaceae (40 species), Acanthaceae (25 species) and Euphorbiaceae (24 species). Similarly, the most abundant genera (**Table 6.3**) were *Ficus* (12 species), *Ipomoea* (10 species), *Acacia* and *Euphorbia* (9 species each), *Cassia*, *Impatiens* and *Indigofera* (7 species each), *Alysicarpus*, *Crotalaria* and *Grewia* (6 species each).

**Table 6.2: Abundant families**

Family	No. of Species
Fabaceae	59
Asteraceae	45
Poaceae	40
Acanthaceae	25
Euphorbiaceae	24
Convolvulaceae	23
Lamiaceae	16
Mimosaceae	16
Moraceae	14
Malvaceae	13

**Table 6.3: Abundant genera**

Genus Name	No. of Species
<i>Ficus</i>	12
<i>Ipomoea</i>	10
<i>Acacia</i>	9
<i>Euphorbia</i>	9
<i>Cassia</i>	7
<i>Impatiens</i>	7
<i>Indigofera</i>	7
<i>Alysicarpus</i>	6
<i>Crotalaria</i>	6
<i>Grewia</i>	6

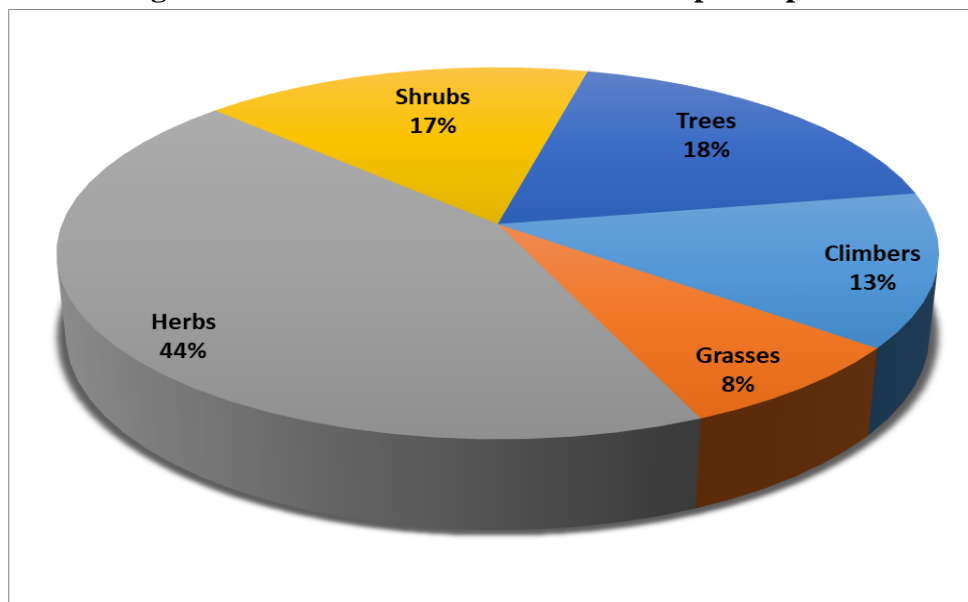
The habit-form wise analysis (**Figure 6.1**) presented a predominance of herbs (44%) and trees (18%) followed by shrubs (17%), and climbers (13%) and grasses (8%). The Pteridophytes and Bryophytes are represented by 11 and 10 species respectively.

#### 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 Dongargaon village provides a good habitat for lower flora.

**Figure 6.1: Distribution of habit-forms of plant species**



#### **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 6.4**.

**Table 6.4: List of Pteridophytes**

<b>Botanical Name</b>	<b>Habit</b>	<b>Family</b>
<i>Adiantum incisum</i>	Herbs	Adiantaceae
<i>Adiantum lunulatum</i>	Herbs	Adiantaceae
<i>Cheilanthus albomarginata</i>	Herbs	Cheilanthaceae
<i>Lycopodium sp.</i>	Climber	Lycopodiaceae
<i>Pleopeltis sp.</i>	Epiphytic herbs	Polypodiaceae
<i>Pteris biaurita</i>	Large herbs	Pteridoideae
<i>Azolla pinnata</i>	Aquatic herbs	Salviniaceae
<i>Selaginella ciliaris</i>	Small Herb	Selaginellaceae
<i>Selaginella delicatula</i>	Suberect herb	Selaginellaceae
<i>Tectaria sp.</i>	Herbs	Tectariaceae
<i>Nephrolepis sp.</i>	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 particular 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 6.5**.

**Table 6.5: List of bryophytes**

Botanical Name	Family	Habitat and Distribution
<i>Antheceiros erectus</i>	Anthocerotaceae	Damp soils
<i>Asterella sp.</i>	Aytoniaceae	On calcareous walls
<i>Plagiochasma sp</i>	Aytoniaceae	On wet rocky or soil surface
<i>Bryum sp.</i>	Bryaceae	On calcareous soils and walls
<i>Cyathodium sp.</i>	Cyathodiaceae	Wet and damp cutting of hill and rock
<i>Notothylas sp.</i>	Notothyladaceae	Damp plains
<i>Pogonatum sp.</i>	Polytrichaceae	Laterite soils
<i>Riccia discolor</i>	Ricciaceae	Moist soils, shady and exposed places
<i>Riccia glauca</i>	Ricciaceae	Moist soils and stream banks
<i>Targionia sp.</i>	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 6.6**. In all 35 species fall in a category of 'endemic to India', out of which 7 are in vulnerable category of Botanical Survey of India and IUCN, 04 are at lower risk, and only one is endangered. Six species are endemic to Maharashtra, out of which one is under vulnerable category and two are under lower risk. Out of remaining 6 species that are not endemic, one in vulnerable status, 4 are under lower risk and 01 least concerned.

**Table 6.6: Threatened and endemic plant species.**

Botanical Name	Local Name	Habit	Family	Status
<i>Achyranthus coynei</i>	Lal-aghada	Herb	Amaranthaceae	EM/LR
<i>Aerides maculosum</i>	Thipke-Ambri	Herb	Orchidaceae	EI/VU
<i>Amorphophallus commutatus</i>	Suran	Herb	Araceae	EI/LR
<i>Argyreia boseana</i>	Gayri	Climber	Convolvulaceae	EM
<i>Argyreia sericea</i>	Gavel	Climber	Convolvulaceae	EI
<i>Arisaema murrayi</i>	Sapkanda	Herb	Araceae	EI/VU
<i>Barleria prattensis</i>	Gulabi-koranti	Herb	Acanthaceae	EI/VU

Botanical Name	Local Name	Habit	Family	Status
<i>Begonia crenata</i>	Kapru	Herb	Begoniaceae	EI
<i>Boswellia serrate</i>	Salai	Tree	Burseraceae	EI
<i>Cajanus lineatus</i>	Rantur	Herb	Fabaceae	EI
<i>Canscora decurrens</i>	Kilwar	Herb	Gentianaceae	EI
<i>Canscora khandalensis</i>	Kilwar	Herb	Gentianaceae	EI
<i>Carvia callosa</i>	Karvi	Shrub	Acanthaceae	EI/LR
<i>Centella asiatica</i>	Brahmi	Herb	Apiaceae	LC
<i>Clematis heynei</i>	Ran-jai	Climber	Ranunculaceae	EI
<i>Clematis smilacifolia</i>	Jambhali-jai	Climber	Ranunculaceae	LR
<i>Crotalaria filipes</i>	Phatphati	Herb	Fabaceae	EI/EN
<i>Crotalaria leptostachya</i>	Jangli-tag	Shrub	Fabaceae	EI
<i>Curcuma pseudomontana</i>	Ran-halad	Herb	Zingiberaceae	EI/VU
<i>Cyanotis tuberosa</i>	Abhali	Herb	Commelinaceae	LR
<i>Cyathocline purpurea</i> var. <i>bicolor</i>	Gangotra	Herb	Asteraceae	EM
<i>Dendrobium barbatulum</i>	Gulabi Amri	Herb	Orchidaceae	EI/VU
<i>Ensete superbum</i>	RanKeli	Shrub	Musaceae	EI/LR
<i>Eranthemum roseum</i>	Dasmuli	Herb	Acanthaceae	EI
<i>Exacum pumilum</i>	Jambhli-chirayat	Herb	Gentianaceae	EI
<i>Flacourtia latifolia</i>	Tambat	Shrub	Flacoutiaceae	EI
<i>Garcinia indica</i>	Kokam	Tree	Clusiaceae	EI
<i>Glochidion ellipticum</i>	Bhoma	Tree	Euphorbiaceae	EI
<i>Haplanthodes verticillatus</i>	Jakara	Herb	Acanthaceae	EI/LR
<i>Hitchenia caulina</i>	Chawar	Herb	Zingiberaceae	EM/VU
<i>Impatiens latifolia</i>	Terda	Herb	Balsaminaceae	EI
<i>Impatiens pulcherrima</i>	Terda	Herb	Balsaminaceae	EI/VU
<i>Ixora brachiata</i>	Ixora	Shrub	Rubiaceae	EI
<i>Jasminum malabaricum</i>	Kasur	Climber	Oleaceae	EI
<i>Lobelia nicotianaefolia</i>	Jangli Tambaku	Herb	Lobeliaceae	VU
<i>Neanotis lancifolia</i>	Tanoti	Herb	Rubiaceae	EI
<i>Pimpinella tomentosa</i>	Ranjire	Herb	Apiaceae	EM
<i>Pinda concanensis</i>	Panda	Herb	Apiaceae	EI
<i>Pogostemon deccanensis</i>	Jambhli-manjiri	Herb	Lamiaceae	EI
<i>Rhamphicarpa longifolia</i>	Tutari	Herb	Scrophulariaceae	LR
<i>Rungia crenata</i>	Rungia	Herb	Acanthaceae	LR
<i>Scurrula stocksii</i>	Bandgul	Shrub	Loranthaceae	EM/LR
<i>Senecio edgeworthii</i>	Hiwali-sonki	Herb	Asteraceae	EI
<i>Tephrosia coccinea</i>	Lal-unhali	Herb	Fabaceae	EI
<i>Terminalia paniculata</i>	Kinjal	Tree	Combretaceae	EI
<i>Vernonia indica</i>	Sahdevi	Herb	Asteraceae	EI
<i>Zingiber neesatum</i>	Nisam	Herb	Zingiberaceae	EI/VU

EI: - Endemic to India; EM:- Endemic to Maharashtra; VU: Vulnerable; EN: Endangered; LR:- Lower Risk; LC: Least Concerned



### **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 has implications for the long-term viability of the businesses 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*, *Haldina*, *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.

Bio chemicals: Medicines, biocides, food additives

Natural Medicines: crude drugs obtained from plants

Pharmaceuticals: Nothapodytes, Gloriosa, Chlorophytum, Camptothecin as basis for cancer drugs, 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: Hiking, 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 transform 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:

Traditional farming and terrace farming, especially paddy fields, were observed in the village area. Agriculture is the traditional occupation of local people in Dongargaon. The traditional agriculture is still under practice at some places, where the crops like *Eleusine coracana* are produced. The main land-use around the village is farming, mainly cultivated with crops like Rice (*Oryza sativa*), and Chana (*Cicer arietinum*). The other crops taken are *Eleusine coracana* and *Amaranthus hybridus*. **Table 6.7** lists the various crops cultivated in the village. The leafy vegetable crops are *Spinacia oleracea*, *Raphanus sativus*, *Coriandrum sativum*, and *Amaranthus sp.* A number of local varieties/ landraces of rice, and ragi are cultivated occasionally.

The important fruit plants are *Mangifera indica* (Mango), *Psidium guajava*, and *Syzygium cumini* (Jamun). The wild fruit species are *Ziziphus mauritiana*, *Embllica 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 6.7: Agricultural crops under cultivation/ wild**

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

### **Summary and Conclusion:**

The students under the guidance of teachers have created an excellent database. Their valuable contribution covers many aspects of village biodiversity, such as: plant diversity of land and water, wild plants used as food, medicinal plants and their uses and crop varieties.

In all 581 plant species were documented. The documented species belonged to 376 genera and 107 families (including Angiosperms, Pteridophytes, and Bryophytes) indicating the floristic richness of Dongargaon. The most dominant group was Angiosperms having 560 species that are distributed in 358 genera and 90 families. Other groups also represented very well forming a unique amalgamation of flora and vegetation. Among angiosperms Fabaceae, Asteraceae, Poaceae, Acanthaceae and Euphorbiaceae families represents majority of the vegetation. Similarly, the most abundant genera were *Ficus*, *Ipomoea*, *Acacia*, *Euphorbia*, *Cassia*, *Impatiens* and *Indigofera*.

Crop and cultivated fruit species documented were 34.

The rare, endangered, and threatened plants were 47, out of which 35 species fall in a category of 'endemic to India'. Out of these 7 are in vulnerable category of Botanical Survey of India and IUCN, 04 are at lower risk, and only one is endangered. Six species are endemic to Maharashtra, out of which one is under vulnerable category and two are under lower risk. Out of remaining 6 species that are not endemic, one in vulnerable status, 4 are under lower risk and 01 least concerned.

### **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-7

# NATURAL RESOURCES: ANIMALS

Vaishali M. Bansod and Sharad V. Giramkar

Department of Zoology

On 07<sup>th</sup> October 2019 Department of Zoology in collaboration with NSS committee conducted survey of Dongargaon village of Pune city. Dr. Vaishali M. Bansod and Dr. Sharad V. Giramkar and 7 students of First year and second year participated in the survey.

It is located in Taluka Mulshi, of Pune city. As the name Dongargaon suggest that it is nestled in the mountains. The day experienced 31°C temperature. The survey was conducted from morning 10 am to 2:30 pm.

The survey was done on

- Biodiversity of animals in Dongargaon village and
- Vitamin A deficiency in school children. (VAD)

### **Biodiversity of animals in Dongargaon village:**

In the biodiversity varied fauna were recorded. The animals belonging to phylum Arthropoda, Nematoda, were found in invertebrates. Varied animals belonging to class Pisces, Aves, Reptilia were also found. The data was prepared, and the animals were classified. Total 45 animal species were found. Some of them are listed

The animals found in phylum Arthropoda:

Black ants, Gundhi bug, Tree hoppers, Leaf hoppers, Dragon fly, white Lace butterfly, Lemon butterfly, water strider, Silver fish- soil, Flea, Green bot fly, White spotted Black butterfly, Green spotted butterfly, Red Dragon fly, Plant lice, Spider, Tarantula, Stick insects, blue bristles dragon fly, paddy grasshoppers, Stem borers, Honey bees, Ticks on Cattles, Mites on Chicken, Bird lice, crabs, scorpion-the species found were *Hetrerometrus xantha*, *Orthochirus bicolor*, *Mesobuthus fullpus*, *Dermestid beetle.*, *Dematophagoides* mite found in feathers of domestic hens.

Very few Molluscs were found, probably because the village mostly carried out rice farming. Such fields provide optimum favourable conditions for the snails, they are considered to be the enemies of paddy field, and it feeds on the roots of the paddy. It remains in the burrows in the paddy field. Common snails, apple snails were found.

The amphibian animals found were Toads, The green line Steemit frog. It was found in the roadside puddle.

The variety of birds found were King fisher, hummingbird, cattle egret, domestic hens, parrots, Black crested birds, Yellow lapwing bird, house sparrows, crows, mynah, peacock, black winged stilt, paddy field pipit, rock pigeon, Asian koel, common hawk, spotted owlet, hoopoe, Baya weaver, common grass yellow, swift, and bee-eater.

Retiles found were House lizard, gecko, common garden calotes, grass skink,

Mammals found were 05 striped squirrel, bandicoot, domestic cows, goat, and buffaloes. Dogs, domestic cats,

### **Vitamin 'A' Deficiency Surveys:**

Similarly, Vitamin A deficiency survey was undertaken for the students of Primary school. It was done by using Bitot test. The test includes examination of Eyeballs, skin, hair. They showed white spot on the eyes. Bitot's spots are the build-up of keratin located superficially in the conjunctiva of human's eyes. They can be oval, triangular, or irregular in shape. The spots are a sign of vitamin A deficiency and associated with drying of the cornea. The data of Height and weight of the school children were also recorded.

From the data it was observed that maximum number of school children was having vitamin A deficiency. The data was given to primary school teacher. The diet to be included in children's food was explained.

The students of First Year zoology actively participated in the survey. Two groups were made for 2 different data collection.

Photographs of the animal found in nature were taken. Note was made of the birds and others which could not be captured in camera.

The data revealed a rich and varied biodiversity in Dongargaon. The unusual butterflies, moths, frogs found. The animals were different from the animals found in the urban areas. The students also got to learn the burrows prepared by the frogs in paddy field.

The department of Zoology is grateful to NSS committee. The department is thankful to Prin. Dr. Nitin Ghorpade Sir for giving us the opportunity to expose our students to the village with regard to rich biodiversity.

## CHAPTER-7

# NATURAL RESOURCES: SOIL AND WATER

Latesh Nikam, Sujata Modhave and Rushant Nandkhile

Department of Chemistry

Under the guidance of Principal Dr. Nitin Ghorpade sir we have carried water and soil analysis project at Dongargaon on 7<sup>th</sup> Oct. 2019. It was a great pleasure and enjoyed working with the peoples of Dongargaon, They helped us to collect the sample and carry out further analysis by our 11 students along with 3 staff members. The observations and result of water sample is as given below:

### Students Involved: UG (T.Y.B.Sc. students)

Archana Deshpande                      Pratik Yede  
Pournima Patil                              Rohan Gaikwad

### PG [M.Sc. –II (Analytical)]

Omkar Kale                                  Sachin Kadam  
Dipali Dumbre                              Amit Thorat  
Pooja Kumkar                              Suraj Singhan  
Shubham Pisal                              Vishal Nawadkar

## I. Water Analysis:

Name of User: Vitthal Jori (DW-1)  
Public Water supply

**Table 8.1: Water Analysis (DW-1)**

Sr. No	Property	Value
1	pH	6.93
2	Hardness	120
3	Turbidity	1.8
4	Sulphate	BDL
5	TDS	125 ppm
6	Chloride	7ppm
7	Alkalinity	140
8	Sodium	4.99 ppm
9	Potassium	1.02 ppm
10	Calcium	2.19 ppm

(BDL: Below Detection Limit)

Name of User: Grampanchayat (C/O, Vitthal Jori) DW-2

**Table 8.2: Water Analysis (DW-2)**

Sr. No	Property	Value
1	pH	6.14
2	Hardness	90
3	Turbidity	2.8
4	Sulphate	BDL
5	TDS	100 ppm
6	Chloride	9 ppm
7	Alkalinity	120
8	Sodium	1.05 ppm
9	Potassium	1.02 ppm
10	Calcium	2.57 ppm

BDL: Below Detection Limit

Name of User: Aanganwadi DW-3

**Table 8.3: Water Analysis (DW-3)**

Sr. No	Property	Value
1	pH	7.2
2	Hardness	100
3	Turbidity	10.6
4	Sulphate	BDL
5	TDS	111 ppm
6	Chloride	BDL
7	Alkalinity	125
8	Sodium	1.11 ppm
9	Potassium	1.02 ppm
10	Calcium	2.13 ppm

BDL: Below Detection Limit

Name of User: Grampachayat DW-4;

Juni Vihir

**Table 8.4: Water Analysis (DW-4)**

Sr. No.	Property	Value
1	pH	6.3
2	Hardness	133
3	Turbidity	2.7
4	Sulphate	BDL
5	TDS	140ppm
6	Chloride	14ppm
7	Alkalinity	145

Sr. No.	Property	Value
8	Sodium	1.08ppm
9	Potassium	4.03ppm
10	Calcium	2.64ppm

BDL: Below Detection Limit

## II. Analysis of Soil:

### Sample 1: Farm:

**Table 8.5: Soil Analysis (Farm)**

Sr. No.	Property	Value
1	Organic Carbon	0.168%
2	Moisture Content	0.1g
3	pH	In KCL+= 5.43; In H <sub>2</sub> O = 6.20
4	Sodium	1.03ppm
5	Potassium	1.31ppm
6	Calcium	3.24ppm
7	Phosphate	3%

### Sample 2: River side:

**Table 8.6: Soil analysis (River side)**

Sr. No.	Property	Value
1	Organic Carbon	0.246%
2	Moisture Content	1.3g
3	pH	In KCL+= 5.85; In H <sub>2</sub> O = 6.52
4	Sodium	1.04
5	Potassium	1.36
6	Calcium	2.97
7	Phosphate	2.7%

### Sample 3: Lake Side:

**Table 8.7: Soil analysis (Lake Side)**

Sr. No.	Property	Value
1	Organic Carbon	0.169%
2	Moisture Content	1.21g
3	pH	In KCL+= 4.71; In H <sub>2</sub> O = 6.90
4	Sodium	1.03
5	Potassium	1.37
6	Calcium	3.37
7	Phosphate	5%



## **Analysis Report**

### **Water Analysis:**

Water quality of various sources of water available in Dongargaon have been tested and found that

- i) Hardness and TDS is not less than 150 ppm
- ii) pH is in the range 6-7
- iii) Chloride, calcium content is low.
- iv).Water is clear.

**Conclusion:** Water available from Grampanchyat Vihir (C/O Jori) is having good quality and suitable for drinking

### **Soil Analysis:**

Soil samples form three different areas were tested in Laboratory and it has been found that soil is not chemically contaminated and enriched with Nitrogen, Phosphorous and Potassium other constituents present are Calcium and carbon to some extent.

## CHAPTER-9

# NATURAL RESOURCES: ENERGY

**Bharat U. Kangude and Satish U. Ekar**

**Department of Physics**

**Aim:** Survey of Energy Consumption Patterns and Energy Needs

### **Introduction:**

Every geographical region has its own patterns of energy consumption and its needs. According to fundamentals of energy science every unit of energy saved is energy generated. It means that careful and optimistic use of electricity helps in the development of the economy of the nation. There is a great divide in the energy consumption pattern of urban and rural areas in Maharashtra, it implies that, in rural areas the use of non-conventional energy sources should be the basic priority for the development. The Department of Physics of Baburaoji Gholap College conducted an energy survey of the Dongargaon village in the Mulshi tehsil. This activity was coordinated by national service scheme (NSS) department of the college on 7<sup>th</sup> October 2019.

### **Objectives:**

The study of energy consumption patterns and the problems faced by village communities was the basic motive of the study. Following three major objectives were set.

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

### **Methodology:**

We have used survey and questionnaire method to obtain the data of energy use pattern and villagers' energy needs at Dongargaon. We have used the following four prominent methods.

1. Observations and interviews of family.
2. In questioner the questions were related to the equipment used in household and in agriculture.
3. Survey of 44 houses was completed.
4. The recommendations and suggestions are based upon the observations and inputs in the survey.

Using the above-mentioned methodology we conducted a survey for energy consumption and energy needs of the villagers.

**Table 9.1: Number of families involved in energy survey**

Sr. No.	Total houses in the village	Families participated in survey	Families denied participation in the survey	Total number of families surveyed
1.	57	43	01	44

**Observations:**

In the survey it has been observed that out of 43 families 10 were agricultural labourers, 02 were having transport business and remaining 31 families livelihood depending upon agriculture (Farmers)

**Table 9.2: Energy equipment used in Dongargaon**

Sr. No.	Electrical equipment	Number of families using
1	LED lamps	43
2	Television	43
3	Electric water heater	00
4	Solar water heater	01
5	Electric motor	02
6	Electric iron	01
7	Solar lantern	02
8	Wood for heating water	43
9	LPG for preparing food	22
10	Cow dung	21

It has been observed that in almost all families four LED lamps were being used. The most advanced electrical equipment were not found in any of the family. In the cases 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. 300/-. The per capita power consumption is much lower than the national per capita consumption. Government (PDS 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 wood from nearby jungle is being used in all 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 50% 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:**

Looking at this scenario, street lamb equipment is very much needed to be installed on the commutation roads. Government offers 40% subsidy for this program. Villagers are not aware about the use of solar energy and it is recommended that people should be we made aware about the benefits of using non-conventional energy appliances. 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 jungle wood should not be used as a fuel for domestic purposes. Use of CFL lamp, gohar 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

## **CHAPTER-10**

### **SUMMARY**

The village under study has not seen a development due to its geographical location on a hilly terrain. Its technological backwardness has hindered the progress of the village. Educational facilities need to be developed. The village, especially the women of the village are in need of social progress. The youth of the village is attracted to urban life due to employment opportunities.

The social structure is well integrated through unique traditions. The people are of Hindus and Buddhist communities. However, 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.

There are various political parties in the village, however, Nationalist Congress Party is the influential. The Gram Panchayat elections were unopposed. Gram Panchayat made improvements in facilities like water, electricity, and bridges. The village have an ATM facility, post-office, three fare price shops, a milk cooperative/ collection center, bus stop, and five common sanitation complexes.

Development is done through government schemes. Primary education is available. There is no electricity in the village for 2 days a week. 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.

There is no employment except 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. Average daily milk production was 90 litres. The important land use was forest and agriculture. The average annual income of SC category was Rs. 27857/-, OBC category Rs. 40000/- and general category Rs. 29711/-.

Vitamin A deficiency survey was undertaken for the students of primary school. It was done by using Bitot test. From the data it was observed that maximum number of school children were having vitamin A deficiency. The data was handed over to primary school teacher. The diet to be included in children's food was explained. The village was also surveyed for faunal diversity. It was rich in faunal diversity. The unusual butterflies, moths, and frogs were observed.

The floral and crop diversity surveys were also made which resulted in documentation of 581 plant species indicating rich diversity. Out of these 47 were under threat categories. Crop and cultivated fruit species documented were 34.

The water and soil analysis was carried out. Water available from Grampanchayat Vihir (C/O Jori) is having good quality and suitable for drinking. Soils are not chemically contaminated and enriched with nitrogen, phosphorous and potassium; other constituents present were calcium and carbon to some extent.

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. Energy saving and energy conservation should be the two basic programs that the villagers can be made aware about. They should be provided some financial help from the government and NGOs.

## **CHAPTER-11**

# **SUGGESTIONS**

- The village is in need of implementing ‘pani adva pani jirva’ as the village experiences frequent heavy rains. Economic progress of the village is need of the hour.
- The village should have access to secondary and higher secondary education.
- A new broad bridge is to be constructed on River for easy access and transportation.
- The water and soil quality is to be maintained.
- Realizing the situation of plant, crop and animal diversity, it should be conserved through people’s participation; the importance and sustainable use of plant, crop and animal diversity should be highlighted; there should be fair and equitable share of benefits from use of plant and animal resources; and the valuable knowledge about biodiversity that our people is having should be documented and protected.
- According to the results of energy 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 jungle wood 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

## Annexure-I

## List of plant species observed within Dongargaon village

Botanical Name	Local Name	Habit	Family	Status
<i>Abelmoschus esculentus</i>	Bhendi	Herb	Malvaceae	Cultivated
<i>Abelmoschus manihot</i>	Ran-bhendi	Shrub	Malvaceae	Frequent
<i>Abrus precatorius</i>	Gunj	Climber	Fabaceae	Frequent
<i>Abutilon indicum</i>	Mudra	Shrub	Malvaceae	Frequent
<i>Abutilon pannosum</i>	Kasili	Shrub	Malvaceae	Occasional
<i>Acacia auriculiformis</i>	Austrelian Babhul	Tree	Mimosaceae	Frequent
<i>Acacia catechu</i>	Khair	Tree	Mimosaceae	Frequent
<i>Acacia chundra</i>	Lal-khair	Tree	Mimosaceae	Frequent
<i>Acacia concinna</i>	Shikekai	Climber	Mimosaceae	Frequent
<i>Acacia leucophloea</i>	Hivar	Tree	Mimosaceae	Frequent
<i>Acacia mangium</i>	Mangium	Tree	Mimosaceae	Frequent
<i>Acacia nilotica</i>	Babhul	Tree	Mimosaceae	Frequent
<i>Acacia pennata</i>	Shembi	Shrub	Mimosaceae	Frequent
<i>Acacia torta</i>	Chilar	Climber	Mimosaceae	Frequent
<i>Acalypha ciliata</i>		Herb	Euphorbiaceae	Abundant
<i>Acalypha hispida</i>	Khokli	Herb	Euphorbiaceae	Abundant
<i>Acalypha indica</i>	Khokli	Herb	Euphorbiaceae	Abundant
<i>Acalypha malabarica</i>	Khalifa	Herb	Euphorbiaceae	Abundant
<i>Acanthospermum hispidum</i>	Shingada-kata	Herb	Asteraceae	Abundant
<i>Achyranthes aspera</i>	Aghada	Herb	Amaranthaceae	Abundant
<i>Achyranthes coynei</i>	Lal-aghada	Herb	Amaranthaceae	EM/LR
<i>Acorus calamus</i>	Vekhand	Herb	Araceae	Occasional
<i>Aegle marmelos</i>	Bel	Tree	Rutaceae	Occasional
<i>Aerides maculosum</i>	Thipke-Ambri	Herb	Orchidaceae	EI/VU
<i>Aeschynomene indica</i> L.	Kinomin	Shrub	Fabaceae	Abundant
<i>Ageratum conyzoides</i>	Osadi	Herb	Asteraceae	Abundant
<i>Ageratum houstonianum</i>		Herb	Asteraceae	Frequent
<i>Albizia amara</i>	Kansar	Tree	Mimosaceae	Frequent
<i>Albizia chinensis</i>	Phalara	Tree	Mimosaceae	Scarce
<i>Albizia lebeck</i> var. <i>lebeck</i>	Shireesh	Tree	Mimosaceae	Frequent
<i>Albizia odoratissima</i>	Chichva	Tree	Mimosaceae	Scarce
<i>Albizia procera</i>	Kinai	Tree	Mimosaceae	Frequent
<i>Allamanda cathartica</i>	Allamanda	Shrub	Apocynaceae	Cultivated

<i>Allophylus cobbe</i>	Tipan	Shrub	Sapindaceae	Occasional
<i>Alloteropsis cimicina</i>		Grass	Poaceae	Abundant
<i>Aloe vera</i>	Korphad	Shrub	Liliaceae	Scarce
<i>Alstonia scholaris</i>	Satvin	Tree	Apocynaceae	Frequent
<i>Alternanthera bettzichiana</i>		Herb	Amaranthaceae	Abundant
<i>Alternanthera sessilis</i>	Chubukata	Herb	Amaranthaceae	Abundant
<i>Alysicarpus bupleurifolius</i>		Herb	Fabaceae	Frequent
<i>Alysicarpus longifolius</i>	Shevra	Herb	Fabaceae	Abundant
<i>Alysicarpus monilifer</i>	Shevra	Herb	Fabaceae	Abundant
<i>Alysicarpus pubescens</i>	Durangi-shevra	Herb	Fabaceae	Abundant
<i>Alysicarpus tetragonolobus</i>	Lal-shevra	Herb	Fabaceae	Abundant
<i>Alysicarpus vaginalis</i> (L.) DC.	Shevra	Herb	Fabaceae	Abundant
<i>Amaranthus spinosus</i>	Katemath	Herb	Amaranthaceae	Abundant
<i>Amaranthus tricolor</i>	Chulai	Herb	Amaranthaceae	Frequent
<i>Amaranthus viridis</i>	Math	Herb	Amaranthaceae	Abundant
<i>Ammannia baccifera</i>	Bhar-jambhal	Herb	Lythraceae	Abundant
<i>Ammannia multiflora</i>		Herb	Lythraceae	Abundant
<i>Amorphophallus commutatus</i>	Suran	Herb	Araceae	EI/LR
<i>Ampelocissus latifolia</i>	Ran-draksha	Climber	Vitaceae	Abundant
<i>Anacardium occidentale</i>	Kaju	Tree	Anacardiaceae	Scarce
<i>Anagallis arvensis</i>	Indraneel	Herb	Primulaceae	Abundant
<i>Andrographis paniculata</i>	Kalmegh	Herb	Acanthaceae	Frequent
<i>Andropogon pertussis</i>	Kusal	Grass	Poaceae	Abundant
<i>Andropogon triticeus</i>	Kusal	Grass	Poaceae	Abundant
<i>Anisomeles indica</i>	Gopali	Herb	Lamiaceae	Frequent
<i>Annona reticulata</i>	Ramphal	Tree	Annonaceae	Cultivated
<i>Annona squamosa</i>	Sitaphal	Shrub	Annonaceae	Cultivated
<i>Anogeissus acuminata</i>	Dhavda	Tree	Combretaceae	Occasional
<i>Anogeissus latifolia</i>	Dhavda	Tree	Combretaceae	Occasional
<i>Anthistria ciliata</i>		Grass	Poaceae	Abundant
<i>Argyreia elliptica</i>	Bondvel	Climber	Convolvulaceae	Frequent
<i>Argyreia involucrata</i>	Kondani	Climber	Convolvulaceae	Frequent
<i>Argyreia nervosa</i>	Samudrashok	Climber	Convolvulaceae	Frequent
<i>Argyreia sericea</i>	Gavel	Climber	Convolvulaceae	EI
<i>Argyreia strigosa</i>	Dudh-vel	Climber	Convolvulaceae	Frequent
<i>Ariopsis peltata</i>	Nagmani	Herb	Araceae	Occasional
<i>Arisaema tortuosum</i>	Sapkanda	Herb	Araceae	Frequent



<i>Aristida setacea</i>		Grass	Poaceae	Abundant
<i>Artemisia japonica</i>	Davna	Herb	Asteraceae	Frequent
<i>Artemisia nilagirica</i>	Dhor-dawna	Shrub	Asteraceae	Frequent
<i>Artocarpus heterophyllus</i>	Phanas	Tree	Moraceae	Frequent
<i>Asclepias curassavica</i>	Haldi-kunku	Shrub	Asclepiadaceae	Scarce
<i>Asparagus racemosus</i>	Shatavari	Climber	Liliaceae	Scarce
<i>Asystasia dalzelliana</i>		Herb	Acanthaceae	Frequent
<i>Azadirachta indica</i>	Neem	Tree	Meliaceae	Scarce
<i>Bacopa monnieri</i>	Nirbrahmi	Herb	Scrophulariaceae	Occasional
<i>Bambusa arundinacea</i>	Bambu	Shrub	Poaceae	Frequent
<i>Barleria cristata</i>	Koranti	Herb	Acanthaceae	Scarce
<i>Barleria cuspidata</i>	Kate-koranti	Shrub	Acanthaceae	EI
<i>Barleria prionitis</i>	Katekoranti	Shrub	Acanthaceae	Occasional
<i>Bauhinia purpurea</i>	Rakta-Kanchan	Tree	Caesalpiniaceae	Occasional
<i>Bauhinia racemosa</i>	Aapta	Tree	Caesalpiniaceae	Frequent
<i>Bidens biternata</i>		Herb	Asteraceae	Abundant
<i>Biophytum sensitivum</i>	Lajwanti	Herb	Oxalidaceae	Abundant
<i>Blainvillea acmella</i>		Herb	Asteraceae	Abundant
<i>Blepharis asperrima</i>	Dikana	Herb	Acanthaceae	Abundant
<i>Blepharis maderaspatensis</i>	Kate-maka	Herb	Acanthaceae	Abundant
<i>Blepharis repens</i>		Herb	Asteraceae	Abundant
<i>Blumea lacera</i>	Burando	Herb	Asteraceae	Abundant
<i>Blumea obliqua</i>		Herb	Asteraceae	Abundant
<i>Boerhavia erecta</i>	Punarnava	Herb	Nyctaginaceae	Abundant
<i>Boerhavia repens</i>	Punarnava	Herb	Nyctaginaceae	Abundant
<i>Bombax ceiba</i>	Katesavar	Tree	Bombacaceae	Abundant
<i>Bougainvillea spectabilis</i>	Boganvel	Climber	Nyctaginaceae	Cultivated
<i>Brachiaria mutica</i>		Grass	Poaceae	Abundant
<i>Breynia retusa</i>	Kangli	Shrub	Euphorbiaceae	Abundant
<i>Bridelia retusa</i>	Asana	Tree	Euphorbiaceae	Abundant
<i>Buchnera hispida</i>	Karanji	Herb	Scrophulariaceae	Frequent
<i>Butea monosperma var. monosperma</i>	Palas	Tree	Fabaceae	Frequent
<i>Caesalpinia decapetala</i>	Chilhar	Climber	Caesalpiniaceae	Frequent
<i>Caesulia axillaris</i>	Maka	Herb	Asteraceae	Abundant
<i>Cajanus lineatus</i>	Rantur	Herb	Fabaceae	EI
<i>Cajanus scarabaeoides</i>	Rantur	Herb	Fabaceae	Abundant
<i>Callicarpa tomentosa</i>		Tree	Verbenaceae	Frequent

<i>Calycopteris floribunda</i>	Ukshi	Shrub	Combretaceae	Abundant
<i>Canavalia ensiformis</i>	Abai	Climber	Fabaceae	Frequent
<i>Canna indica</i>	Kardal	Herb	Cannaceae	Cultivated
<i>Canscora decurrens</i>		Herb	Gentianaceae	EI
<i>Canscora diffusa</i>	Kilwar	Herb	Gentianaceae	Abundant
<i>Cardiospermum helicacabum</i>	Kapalphodi	Climber	Sapindaceae	Abundant
<i>Careya arborea</i>	Kumbhi	Tree	Lecythidaceae	Abundant
<i>Carica papaya</i>	Papai	Shrub	Caricaceae	Scarce
<i>Carissa congesta</i>	Karvand	Shrub	Apocynaceae	Abundant
<i>Carthamus tinctorius</i>	Ambadi	Herb	Asteraceae	Frequent
<i>Carvia callosa</i>	Karvi	Shrub	Acanthaceae	EI/LR
<i>Caryota urens</i>	Bherli-mad	Tree	Arecaceae	Frequent
<i>Casearia tomentosa</i>	Bokhada	Tree	Flacoutiaceae	Scarce
<i>Cassia absus</i>	Chimar	Herb	Caesalpiniaceae	Abundant
<i>Cassia alata</i>		Shrub	Caesalpiniaceae	Frequent
<i>Cassia fistula</i>	Bahava	Tree	Caesalpiniaceae	Frequent
<i>Cassia occidentalis</i>		Shrub	Caesalpiniaceae	Frequent
<i>Cassia siamea</i>	Kasod	Tree	Caesalpiniaceae	Cultivated
<i>Cassia tora</i>	Takla	Herb	Caesalpiniaceae	Abundant
<i>Cassia uniflora</i>	Ran-takla	Herb	Caesalpiniaceae	Frequent
<i>Casuarina equisetifolia</i>	Suru	Tree	Casuarinaceae	Cultivated
<i>Catharanthus roseus</i>	Sadaphuli	Herb	Apocynaceae	Cultivated
<i>Catunaregam spinosa</i>	Gel	Shrub	Rubiaceae	Frequent
<i>Cayratia trifolia</i>	Ambat-vel	Climber	Vitaceae	Frequent
<i>Celastrus paniculatus</i>	Mal-kangni	Shrub	Celastraceae	Abundant
<i>Celosia argentea</i>	Kurdu	Herb	Amaranthaceae	Abundant
<i>Cenchrus ciliaris</i>		Grass	Poaceae	Abundant
<i>Centranthera indica</i>	Undirkani	Herb	Scrophulariaceae	Frequent
<i>Cestrum nocturnum</i>	Ratrani	Shrub	Solanaceae	Cultivated
<i>Chloris barbata</i>		Grass	Poaceae	Abundant
<i>Chlorophytum tuberosum</i>	Kuli	Herb	Liliaceae	Abundant
<i>Chrysopogon fulvus</i>	Kusal	Grass	Poaceae	Abundant
<i>Chrysopogon schoenanthus</i>	Kusal	Grass	Poaceae	Abundant
<i>Clematis gauriana</i>	Mor-vel	Climber	Ranunculaceae	Occasional
<i>Clematis smilacifolia</i>	Jambhali-jai	Climber	Ranunculaceae	LR
<i>Cleome gynandra</i>	Pandhri-tilwan	Herb	Cleomaceae	Abundant
<i>Cleome rutidisperma</i>		Herb	Cleomaceae	Scarce

<i>Cleome viscosa</i>	Pivli-tilvan	Herb	Cleomaceae	Abundant
<i>Clerodendrum inerme</i>	Koynel	Shrub	Verbenaceae	Frequent
<i>Clerodendrum serratum</i>	Bharang	Shrub	Verbenaceae	Frequent
<i>Clitoria ternatea</i> var. <i>pilosula</i>	Pandhra-Gokarn	Climber	Fabaceae	EI
<i>Clitoria ternatea</i> var. <i>ternatea</i>	Nila-Gokarn	Climber	Fabaceae	Frequent
<i>Cocculus vilosus</i>	Vasan-vel	Climber	Menispermaceae	Abundant
<i>Cocos nucifera</i>	Naral	Tree	Arecaceae	Cultivated
<i>Coix lacryma-jobi</i>		Grass	Poaceae	Abundant
<i>Coldenia procumbens</i>		Herb	Molluginaceae	Abundant
<i>Colebrookea oppositifolia</i>	Bhaman	Shrub	Lamiaceae	Scarce
<i>Colocasia esculenta</i>	Alu	Herb	Araceae	Abundant
<i>Combretum albidum</i>	Madvel, Piluki	Climber	Combretaceae	Frequent
<i>Commelina benghalensis</i>	Kena	Herb	Commelinaceae	Frequent
<i>Commelina forsskalaei</i>	Kenpat	Herb	Commelinaceae	Frequent
<i>Commelina hasskarlii</i>	Kamalini	Herb	Commelinaceae	Frequent
<i>Convolvulus arvensis</i>	Chan-vel	Climber	Convolvulaceae	Abundant
<i>Conyza stricta</i>		Herb	Asteraceae	Abundant
<i>Corchorus aestuans</i>		Herb	Tiliaceae	Abundant
<i>Corchorus trilocularis</i>	Kaduchinch	Herb	Tiliaceae	Frequent
<i>Cosmos bipinnatus</i>	Sonkusum	Herb	Asteraceae	Frequent
<i>Cosmos diversifolium</i>	Sonkusum	Herb	Asteraceae	Occasional
<i>Costus speciosus</i>	Pev	Herb	Costaceae	Frequent
<i>Crinum asiaticum</i>	Lily	Herb	Amaryllidaceae	Scarce
<i>Crinum viviparum</i>		Herb	Amaryllidaceae	Frequent
<i>Crossandra infundibuliformis</i>	Aboli	Shrub	Acanthaceae	Scarce
<i>Crotalaria filipes</i>	Phatphati	Herb	Fabaceae	EI/EN
<i>Crotalaria hebecarpa</i>	Godhadi	Herb	Fabaceae	Abundant
<i>Crotalaria juncea</i>	Tag	Herb	Fabaceae	Abundant
<i>Crotalaria pallida</i>	Jangli-tag	Herb	Fabaceae	Frequent
<i>Crotalaria retusa</i>	Dingala	Shrub	Fabaceae	Frequent
<i>Crotalaria spectabilis</i>	Khulkhula	Shrub	Fabaceae	Frequent
<i>Cryptolepis buchanani</i>	Kavli	Climber	Periplocaceae	Frequent
<i>Curculigo orchiioides</i>	Kali-Musli	Herb	Hypoxidaceae	Frequent
<i>Curcuma pseudomontana</i>	Ran-halad	Herb	Zingiberaceae	EI/VU
<i>Cuscuta hyalina</i>	Amarvel	Climber	Cuscutaceae	Occasional
<i>Cyanotis cristata</i>	Nabhali	Herb	Commelinaceae	Frequent
<i>Cyanotis fasciculata</i>	Nilwanti	Herb	Commelinaceae	Frequent

<i>Cyanotis tuberosa</i>	Abhali	Herb	Commelinaceae	LR
<i>Cyathocline purpurea</i> var. <i>bicolor</i>	Gangotra	Herb	Asteraceae	EM
<i>Cynadon dactylon</i>	Durva	Grass	Poaceae	Frequent
<i>Cynanchum callialata</i>	Chumchum	Climber	Asclepiadaceae	Occasional
<i>Cynanchum tunicatum</i>	Panchali	Climber	Asclepiadaceae	Occasional
<i>Cynoglossum zeylanicum</i>		Herb	Boraginaceae	Frequent
<i>Cyperus castaneus</i>		Grass	Cyperaceae	Frequent
<i>Cyperus compressus</i>	Lavhala	Grass	Cyperaceae	Abundant
<i>Cyperus iria</i>		Grass	Cyperaceae	Abundant
<i>Cyperus nutans</i>	Lavhala	Grass	Cyperaceae	Abundant
<i>Dactyloctenium aegypticum</i>		Grass	Poaceae	Abundant
<i>Dalbergia lanceolaria</i>	Phanshi	Tree	Fabaceae	Abundant
<i>Dalbergia latifolia</i>	Shisvi	Tree	Fabaceae	Frequent
<i>Dalbergia paniculata</i>	Sisvi	Tree	Fabaceae	Frequent
<i>Dalbergia sissoo</i>	Sisu	Tree	Fabaceae	Frequent
<i>Datura innoxia</i>		Shrub	Solanaceae	Abundant
<i>Datura metal</i>	Dhotra	Herb	Solanaceae	Abundant
<i>Delonix regia</i>	Gulmohor	Tree	Caesalpiniaceae	Cultivated
<i>Dendrobium ovatum</i>	Dande-Amri	Herb	Orchidaceae	Occasional
<i>Dendrocalamus strictus</i>	Bambu	Shrub	Poaceae	Frequent
<i>Dendrophthoe falcata</i> var. <i>falcata</i>	Bandgul	Shrub	Loranthaceae	Frequent
<i>Derris scandens</i>		Climber	Fabaceae	Scarce
<i>Desmodium dicotomum</i>	Chikta	Herb	Fabaceae	Abundant
<i>Desmodium gangeticum</i>	Salvan	Herb	Fabaceae	Abundant
<i>Desmodium heterocarpon</i>	Jambhli-dashmi	Herb	Fabaceae	Abundant
<i>Desmodium triflorum</i>	Ran-methi	Herb	Fabaceae	Abundant
<i>Desmodium triquetrum</i>	Kak-ganja	Herb	Fabaceae	Frequent
<i>Dichanthium annulatus</i>	Kusal	Grass	Poaceae	Abundant
<i>Digera muricata</i>	Gitan	Herb	Amaranthaceae	Abundant
<i>Digitaria ciliaris</i>		Grass	Poaceae	Abundant
<i>Dillenia indica</i>	Karmal	Tree	Dilleniaceae	Frequent
<i>Dioscorea bulbifera</i>	Kadu-karanda	Climber	Dioscoriaceae	Frequent
<i>Dioscorea hispida</i>		Climber	Dioscoriaceae	Occasional
<i>Diplocyclos palmatus</i>	Shivlingi	Climber	Cucurbitaceae	Occasional
<i>Dolichandrone falcata</i>	Medshingi	Tree	Bignoniaceae	Occasional
<i>Duranta erecta</i>	Duranta	Shrub	Verbenaceae	Cultivated
<i>Eclipta prostrata</i>	Maka	Herb	Asteraceae	Frequent

<i>Eleusine indica</i>	Ran-nachani	Grass	Poaceae	Abundant
<i>Embelia basaal</i>	Ambuti	Shrub	Myrsinaceae	Frequent
<i>Emblica officinalis</i>	Aavla	Tree	Euphorbiaceae	Occasional
<i>Emilia sonchifolia</i>	Sadamandi	Herb	Asteraceae	Abundant
<i>Enicostema axillare</i>		Herb	Gentianaceae	Occasional
<i>Ensete superbum</i>	RanKeli	Shrub	Musaceae	EI/LR
<i>Eragrostis ciliaris</i>		Grass	Poaceae	Abundant
<i>Eragrostis unioloides</i>	Siteche Pohe	Grass	Poaceae	Frequent
<i>Eragrostris tenella</i>		Grass	Poaceae	Abundant
<i>Eranthemum roseum</i>	Dasmuli	Herb	Acanthaceae	EI
<i>Eriocaulon heterolepis</i>		Herb	Eriocaulaceae	Abundant
<i>Eriocaulon sedgewickii</i>		Herb	Eriocaulaceae	Abundant
<i>Eriocaulon stellulatum</i>	Chandni-gonda	Herb	Eriocaulaceae	Abundant
<i>Eriochloa procera</i>		Grass	Poaceae	Abundant
<i>Erythrina suberosa</i>	Pangari	Tree	Fabaceae	Occasional
<i>Erythrina variegata</i>	Pangara	Tree	Fabaceae	Frequent
<i>Eucalyptus globulus</i>	Nilgiri	Tree	Myrtaceae	Cultivated
<i>Eucalyptus maculata</i>	Nilgiri	Tree	Myrtaceae	Cultivated
<i>Eupatorium odoratum</i>	Ranmuli	Shrub	Asteraceae	Frequent
<i>Euphorbia antiquorum</i>	Tindhari nivdung	Shrub	Euphorbiaceae	Scarce
<i>Euphorbia dracunculoides</i>		Herb	Euphorbiaceae	Frequent
<i>Euphorbia geniculata</i>	Dudhi	Herb	Euphorbiaceae	Abundant
<i>Euphorbia heyneana</i>		Herb	Euphorbiaceae	Abundant
<i>Euphorbia hirta</i>	Gondhan	Herb	Euphorbiaceae	Abundant
<i>Euphorbia laciniata</i>	Lal-dudhi	Herb	Euphorbiaceae	Abundant
<i>Euphorbia lathyris</i>	Sabar	Shrub	Euphorbiaceae	Frequent
<i>Euphorbia parviflora</i>	Gulabi-dudhi	Herb	Euphorbiaceae	Abundant
<i>Euphorbia thymifolia</i>	Dudhi	Herb	Euphorbiaceae	Abundant
<i>Evolvulus alsinoides</i>	Vishnukrant	Herb	Convolvulaceae	Abundant
<i>Exacum petiolare</i>	Nili-chirayat	Herb	Gentianaceae	Occasional
<i>Exacum pumilum</i>	Jambhli-chirayat	Herb	Gentianaceae	EI
<i>Ficus amplissima</i>	Pimpri	Tree	Moraceae	Occasional
<i>Ficus arnottiana</i>	Pair	Tree	Moraceae	Occasional
<i>Ficus benghalensis</i>	Wad	Tree	Moraceae	Occasional
<i>Ficus benjamina</i>	Nandruk	Tree	Moraceae	Occasional
<i>Ficus exasperata</i>	Bhui-umbar	Shrub	Moraceae	Occasional
<i>Ficus heterophylla</i>	Datir	Tree	Moraceae	Occasional

<i>Ficus hispida</i>	Kala-umbar	Tree	Moraceae	Occasional
<i>Ficus microcarpa</i>	Nandruk	Tree	Moraceae	Occasional
<i>Ficus mollis</i>	Kallu-goli	Tree	Moraceae	Occasional
<i>Ficus racemosa</i>	Umbar	Tree	Moraceae	Frequent
<i>Ficus religiosa</i>	Pimpal	Tree	Moraceae	Frequent
<i>Ficus virens</i>	Gandha-umbar	Tree	Moraceae	Frequent
<i>Fimbristylis dichotoma</i>		Grass	Cyperaceae	Abundant
<i>Flacourtia indica</i>	Tambat	Tree	Flacoutiaceae	Frequent
<i>Flemingia strobilifera</i> (L.) R.Br.	Kanphuti	Shrub	Fabaceae	Frequent
<i>Glinus latooides</i>	Kotrak	Herb	Molluginaceae	Abundant
<i>Gliricidia sepium</i>	Undirmari	Tree	Fabaceae	Cultivated
<i>Glochidion ellipticum</i>	Bhoma	Tree	Euphorbiaceae	EI
<i>Gloriosa superba</i>	Kal-lavi	Climber	Liliaceae	Frequent
<i>Glossocardia bosvallea</i>	Pattharsuva	Herb	Asteraceae	Abundant
<i>Gnaphalium luteo-album</i>		Herb	Asteraceae	Frequent
<i>Gnidia glauca</i>	Datpadi	Shrub	Thymeliaceae	Occasional
<i>Gomphrena serrata</i>		Herb	Amaranthaceae	Abundant
<i>Grangea maderaspatana</i>	Mashpatri	Herb	Asteraceae	Frequent
<i>Grevillea robusta</i>	Silver oak	Tree	Proteaceae	Cultivated
<i>Grewia abatifolia</i>	Kirmith	Tree	Tiliaceae	Occasional
<i>Grewia asiatica</i>	Phalsi	Tree	Tiliaceae	Frequent
<i>Grewia flavescens</i>	Khatkhati	Shrub	Tiliaceae	Frequent
<i>Grewia hirsuta</i>	Kirmid	Shrub	Tiliaceae	Occasional
<i>Grewia serrulata</i>	Kala-dhaman	Tree	Tiliaceae	Occasional
<i>Grewia tiliiaefolia</i>	Dhaman	Tree	Tiliaceae	Frequent
<i>Gymnema sylvestris</i>	Madhunashini	Climber	Asclepiadaceae	Frequent
<i>Hamelia patens</i>	Hamelia	Shrub	Rubiaceae	Cultivated
<i>Haplanthodes verticillatus</i>	Jakara	Herb	Acanthaceae	EI/LR
<i>Hedychium coronarium</i> Koen.	Sontakka	Herb	Zingiberaceae	Cultivated
<i>Helicteres isora</i>	Murudsheng	Shrub	Sterculiaceae	Occasional
<i>Heliotropium indicum</i>	Bhurundi	Herb	Boraginaceae	Frequent
<i>Heliotropium marifolium</i>		Herb	Boraginaceae	Frequent
<i>Hemidesmus indicus</i>	Anantmul	Climber	Asclepiadaceae	Frequent
<i>Heteropogon quadriloculare</i>	Waras	Tree	Bignoniaceae	Abundant
<i>Heteropogon contortus</i>	Kusal	Grass	Poaceae	Abundant
<i>Heteropogon polystachyos</i>	Kusal	Grass	Poaceae	Abundant
<i>Hibiscus hirtus</i>	Dupari	Herb	Malvaceae	Frequent

<i>Hibiscus lobatus</i>	Lahan-jaswand	Herb	Malvaceae	Frequent
<i>Hibiscus rosa-sinensis</i>	Jaswand	Shrub	Malvaceae	Cultivated
<i>Hitchenia caulina</i>	Chawar	Herb	Zingiberaceae	EM/VU
<i>Holarrhena pubescence</i>	Pandhra-Kuda	Shrub	Apocynaceae	Abundant
<i>Holoptelia integrifolia</i>	Waval	Tree	Ulmaceae	Frequent
<i>Homonoia riparia</i>	Sherni	Shrub	Euphorbiaceae	Frequent
<i>Hoya wightii</i>	Ambri, Dudhvel	Climber	Asclepiadaceae	Occasional
<i>Hygrophila schulli</i>	Talimkhana	Herb	Acanthaceae	Abundant
<i>Hygrophila serpyllum</i>	Ran-tewan	Herb	Acanthaceae	Abundant
<i>Hymenodycteon obovatum</i>	Kadva-sirish	Tree	Rubiaceae	Frequent
<i>Hyptis suaveolens</i>	Darp-tulas	Herb	Lamiaceae	Frequent
<i>Impatiens balsamina var. balsamina</i>	Terda	Herb	Balsaminaceae	Frequent
<i>Impatiens balsamina var. rosea</i>	Terda	Herb	Balsaminaceae	Frequent
<i>Impatiens dalzellii</i>	Pivla-terda	Herb	Balsaminaceae	EI/VU
<i>Impatiens latifolia</i>	Terda	Herb	Balsaminaceae	EI
<i>Impatiens minor</i>	Lesser balsam	Herb	Balsaminaceae	Frequent
<i>Impatiens oppositifolia</i>	Lal-terda	Herb	Balsaminaceae	Occasional
<i>Impatiens pulcherrima</i>	Terda	Herb	Balsaminaceae	EI/VU
<i>Indigofera astragalina</i> DC.		Herb	Fabaceae	Frequent
<i>Indigofera cassioides</i>	Chimnati	Shrub	Fabaceae	Frequent
<i>Indigofera cordifolia</i>	Bechka	Herb	Fabaceae	Abundant
<i>Indigofera glandulosa</i>	Borpudi	Herb	Fabaceae	Abundant
<i>Indigofera linifolia</i>	Lal-godhadi	Herb	Fabaceae	Abundant
<i>Indigofera linnaei</i>		Herb	Fabaceae	Abundant
<i>Indigofera oenophylla</i>		Herb	Fabaceae	Abundant
<i>Indoneesiella echioides</i>	Lahan-kalpa	Herb	Acanthaceae	Occasional
<i>Iphigenia magnifica</i>		Herb	Liliaceae	EI/EN
<i>Iphigenia stellata</i>		Herb	Liliaceae	EM/EN
<i>Ipomoea aquatica</i>	Panvel	Climber	Convolvulaceae	Occasional
<i>Ipomoea cairica</i>	Garvel	Climber	Convolvulaceae	Frequent
<i>Ipomoea campanulata</i>	Tambarvel	Climber	Convolvulaceae	Frequent
<i>Ipomoea carnea</i>	Besharam	Climber	Convolvulaceae	Frequent
<i>Ipomoea diversifolia</i>		Climber	Convolvulaceae	Frequent
<i>Ipomoea hederifolia</i>	Ganeshvel	Climber	Convolvulaceae	Frequent
<i>Ipomoea marginata</i>	Amli-vel	Climber	Convolvulaceae	Frequent
<i>Ipomoea nil</i>	Nili-pungli	Climber	Convolvulaceae	Frequent
<i>Ipomoea obscurva</i>	Pivli-pungli	Climber	Convolvulaceae	Occasional

<i>Ipomoea staphylina</i>	Sitaphuli	Climber	Convolvulaceae	Occasional
<i>Ischeamum indicum</i>		Grass	Poaceae	Abundant
<i>Ischeamum pilosum</i>		Grass	Poaceae	Abundant
<i>Ixora coccinea</i>	Pitkuli	Shrub	Rubiaceae	Occasional
<i>Ixora nigricans</i>	Kat-kuda	Tree	Rubiaceae	Occasional
<i>Ixora parviflora</i>	Lokhandi	Shrub	Rubiaceae	Occasional
<i>Ixora pavetta</i>		Shrub	Rubiaceae	Occasional
<i>Jasminum malabaricum</i>	Kasur	Climber	Oleaceae	EI
<i>Jasminum multiflorum</i>	Ran-mogra	Climber	Oleaceae	Occasional
<i>Justicia adhatoda</i>	Adulsa	Shrub	Acanthaceae	Frequent
<i>Justicia betonica</i>	Gulabi-adulsa	Herb	Acanthaceae	Frequent
<i>Justicia glauca</i>		Herb	Acanthaceae	Frequent
<i>Justicia procumbens</i>		Herb	Acanthaceae	Abundant
<i>Kyllinga brevifolia</i> Rottb.		Herb	Cyperaceae	Abundant
<i>Lagascea mollis</i>	Bondal	Herb	Asteraceae	Abundant
<i>Lagerstroemia parviflora</i>	Bondara	Tree	Lythraceae	Abundant
<i>Lamprachaenium microcephalum</i>		Herb	Asteraceae	Abundant
<i>Lannea coromandelica</i>	Shimti	Tree	Anacardiaceae	Abundant
<i>Lantana camara</i>	Ghaneri	Shrub	Verbenaceae	Frequent
<i>Launaea procumbens</i>	Pathari	Herb	Asteraceae	Frequent
<i>Lavandula bipinnata</i>	Ghodegui	Herb	Lamiaceae	Frequent
<i>Lawsonia inermis</i>	Mehandi	Shrub	Lythraceae	Occasional
<i>Leanotis nepetiifolia</i>	Deepmal	Herb	Lamiaceae	Frequent
<i>Leea asiatica</i>	Dinda	Shrub	Leeaceae	Occasional
<i>Leea indica</i>	Dinda	Shrub	Leeaceae	Occasional
<i>Lepidagathis cuspidata</i>	Kate-adulsa	Shrub	Acanthaceae	Frequent
<i>Lepidagathis trinervia</i>	Bhugend	Herb	Acanthaceae	Frequent
<i>Leucas ciliata</i>	Burumbi	Herb	Lamiaceae	Frequent
<i>Leucas lanata</i>		Herb	Lamiaceae	Occasional
<i>Leucas longifolia</i>	Dudhani	Herb	Lamiaceae	Occasional
<i>Leucas stelligera</i>	Goma	Herb	Lamiaceae	Occasional
<i>Leucena latisiliqua</i>	Subabhul	Tree	Mimosaceae	Cultivated
<i>Limnophila indica</i>		Herb	Scrophulariaceae	Frequent
<i>Limnophila repens</i>		Herb	Scrophulariaceae	Frequent
<i>Linum mysorense</i>	Undri	Herb	Linaceae	Abundant
<i>Lobelia nicotianaefolia</i>	Jangli Tambaku	Herb	Lobeliaceae	VU
<i>Ludwigia octovalvis</i>	Pan-lavang	Herb	Onagraceae	Occasional



<i>Luffa acutangula</i>	Dodka	Climber	Cucurbitaceae	Cultivated
<i>Luffa cylindrica</i>	Ghosale	Climber	Cucurbitaceae	Cultivated
<i>Lycopersicon esculentum</i>	Tomato	Herb	Solanaceae	Cultivated
<i>Macaranga peltata</i>	Chandiva	Tree	Euphorbiaceae	Occasional
<i>Macrosolen capitellatus</i>	Lahan-bandgul	Shrub	Loranthaceae	Occasional
<i>Maesa indica</i>	Atki	Shrub	Myrsinaceae	Abundant
<i>Malachra capitata</i>	Ran-Ambadi	Herb	Malvaceae	Abundant
<i>Mangifera indica</i>	Aamba	Tree	Anacardiaceae	Abundant
<i>Martynia annua</i>	Nakti	Herb	Martyniaceae	Abundant
<i>Maytenus rothiana</i>	Henkal	Shrub	Celastraceae	Frequent
<i>Melia azadirach</i>	Limbara	Tree	Meliaceae	Occasional
<i>Melia dubia</i>	Nimbara	Tree	Meliaceae	Occasional
<i>Melilotus indica</i>	Van-methi	Herb	Fabaceae	Abundant
<i>Mentha arvensis</i>	Pudina	Herb	Lamiaceae	Abundant
<i>Merremia aegyptia</i>		Climber	Convolvulaceae	Frequent
<i>Merremia vitifolia</i>	Navli	Climber	Convolvulaceae	Frequent
<i>Meyna laxiflora</i>	Alu	Tree	Rubiaceae	Frequent
<i>Modecca bracteata</i>		Climber	Passifloraceae	Occasional
<i>Mollugo pentaphylla</i>	Jharasi	Herb	Molluginaceae	Abundant
<i>Momordica dioica</i>	Kartoli	Climber	Cucurbitaceae	Frequent
<i>Morus alba</i>	Tuti	Shrub	Moraceae	Cultivated
<i>Mucuna pruriens</i>	Khajkuily	Climber	Fabaceae	Occasional
<i>Muntingia calabura</i>		Tree	Elaeocarpaceae	Cultivated
<i>Murraya koenigii</i>	Kadhipatta	Shrub	Rutaceae	Occasional
<i>Murraya paniculata</i>	Kamini	Tree	Rutaceae	Scarce
<i>Neanotis lancifolia</i>	Tanoti	Herb	Rubiaceae	EI
<i>Nerium indicum</i>	Kanher	Shrub	Apocynaceae	Occasional
<i>Nichandra physaloides</i>	Popti	Herb	Solanaceae	Frequent
<i>Nothapodytis nimmoniana</i>	Amrut	Shrub	Icacinaceae	EN
<i>Nyctanthus arbor-tristis</i>	Prajakta	Shrub	Oleaceae	Cultivated
<i>Ocimum americanum</i>	Ram-tulsi	Shrub	Lamiaceae	Frequent
<i>Ocimum tenuiflorum</i>		Shrub	Lamiaceae	Cultivated
<i>Olea dioica</i>	Parjambhul	Tree	Oleaceae	Occasional
<i>Olismenus compositus</i>		Grass	Poaceae	Frequent
<i>Operculina turpethum</i>	Nisottar	Climber	Convolvulaceae	Frequent
<i>Oryza sativa</i>	Bhat	Grass	Poaceae	Cultivated
<i>Osyris quadripartita</i>		Shrub	Santalaceae	Occasional

<i>Oxalis corniculata</i>	Ambushi	Herb	Oxalidaceae	Frequent
<i>Panicum montanum</i>		Grass	Poaceae	Abundant
<i>Panicum notatum</i>		Grass	Poaceae	Abundant
<i>Paracalyx scariosus</i>	Ran-ghevda	Climber	Fabaceae	Frequent
<i>Paspalidium flavidum</i>		Grass	Poaceae	Abundant
<i>Passiflora foetida</i>	Vel-ghani	Climber	Passifloraceae	Occasional
<i>Pavetta indica</i>	Papat	Shrub	Rubiaceae	Occasional
<i>Pedilanthus tithymaloides</i>		Shrub	Euphorbiaceae	Cultivated
<i>Peltophorum pterocarpum</i>	Sonmohar	Tree	Caesalpiniaceae	Cultivated
<i>Pennisetum polystachion</i>		Grass	Poaceae	Abundant
<i>Pennisetum setosum</i>		Grass	Poaceae	Abundant
<i>Pentanema indicum</i>	Sonkadi	Herb	Asteraceae	Frequent
<i>Pergularia daemea</i>	Utaran	Climber	Asclepiadaceae	Frequent
<i>Peristrophe paniculata</i>		Herb	Acanthaceae	Abundant
<i>Persicaria dichotoma</i>		Herb	Polygonaceae	Frequent
<i>Persicaria glabra</i>		Herb	Polygonaceae	Frequent
<i>Phoenix sylvestris</i>	Shindi	Tree	Arecaceae	Frequent
<i>Phragmites vallatoria</i>		Grass	Poaceae	Occasional
<i>Phylla nodiflora</i>	Gour mundi	Herb	Verbenaceae	Frequent
<i>Phyllanthus fraternus</i>	Bhuiavali	Herb	Euphorbiaceae	Abundant
<i>Phyllanthus reticulatus</i>		Shrub	Euphorbiaceae	Frequent
<i>Physalis minima</i>	Ran-Popti	Herb	Solanaceae	Abundant
<i>Pilea microphylla</i>		Herb	Urticaceae	Frequent
<i>Pimpinella tomentosa</i>	Ranjire	Herb	Apiaceae	EM
<i>Pinda concanensis</i>	Panda	Herb	Apiaceae	EI
<i>Plectranthus mollis</i>		Shrub	Lamiaceae	Frequent
<i>Plumbago zeylanica</i>	Chitrak	Shrub	Plumbaginaceae	Occasional
<i>Plumeria alba</i>	Pandhara-chapha	Tree	Apocynaceae	Cultivated
<i>Pogostemon benghalensis</i>	Pangli	Shrub	Lamiaceae	Frequent
<i>Pogostemon deccanensis</i>	Jambhli-manjiri	Herb	Lamiaceae	EI
<i>Pogostemon plectranthoides</i>	Pangli	Shrub	Lamiaceae	Frequent
<i>Polyalthia longifolia</i>	Ashok	Tree	Annonaceae	Cultivated
<i>Polygala erioptera</i>	Gulpankhi	Herb	Polygalaceae	Abundant
<i>Polygala persicariifolia</i>		Herb	Polygalaceae	Abundant
<i>Polygonum plebeium</i>	Godhadi	Herb	Polygonaceae	Abundant
<i>Pongamia pinnata</i>	Karanj	Tree	Fabaceae	Abundant
<i>Porana malabarica</i>	Bhawari	Climber	Convolvulaceae	Frequent

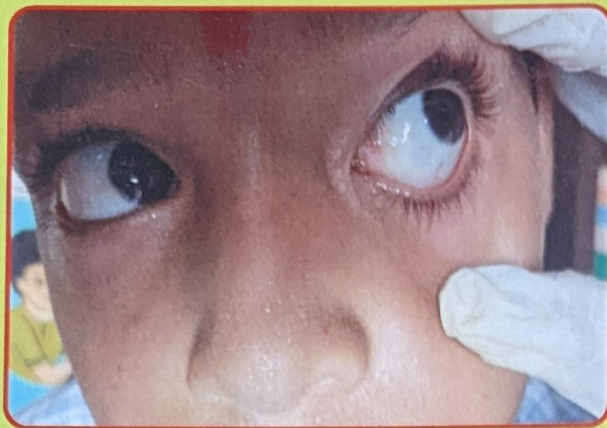
<i>Portulaca oleracea</i>	Ghol	Herb	Portulacaceae	Frequent
<i>Psidium guajava</i>	Peru	Shrub	Myrtaceae	Cultivated
<i>Pueraria tuberosa</i>	Dari	Climber	Fabaceae	Occasional
<i>Pulicaria angustifolia</i>	Sontikli	Herb	Asteraceae	Frequent
<i>Pupalia lappacea</i>	Chikta	Herb	Amaranthaceae	Abundant
<i>Quisqualis indica</i>	Lalchemeli	Shrub	Combretaceae	Cultivated
<i>Rhamphicarpa longifolia</i>	Tutari	Herb	Scrophulariaceae	LR
<i>Ricinus communis</i>	Erand	Shrub	Euphorbiaceae	Abundant
<i>Rivea hypocrateriformis</i>	Phang	Climber	Convolvulaceae	Abundant
<i>Rivea laotica</i>	Punwa	Climber	Convolvulaceae	Frequent
<i>Rotala densiflora</i>	Jalmukhi	Herb	Lythraceae	Frequent
<i>Rotala rosea</i>		Herb	Lythraceae	Frequent
<i>Rubia cordifolia</i>	Manjishtha	Herb	Rubiaceae	Occasional
<i>Ruellia tuberosa</i>	Ruvel	Herb	Acanthaceae	Abundant
<i>Rungia crenata</i>	Rungia	Herb	Acanthaceae	LR
<i>Rungia pectinata</i>		Herb	Acanthaceae	Abundant
<i>Saccharum spontaneum</i>	Us-gavat	Grass	Poaceae	Abundant
<i>Samanea saman</i> (Jacq.) Merr.	Rain-tree	Tree	Mimosaceae	Cultivated
<i>Santalum album</i>	Chandan	Tree	Santalaceae	Occasional
<i>Schleichera oleosa</i>	Kusum	Tree	Sapindaceae	Occasional
<i>Scirpus affinis</i>		Grass	Cyperaceae	Frequent
<i>Scoparia dulcis</i>	Dulas	Herb	Scrophulariaceae	Abundant
<i>Scurrula stocksii</i>		Shrub	Loranthaceae	EM/LR
<i>Scutia myrtina</i>	Chimat	Shrub	Rhamnaceae	Occasional
<i>Securinega leucopyrus</i>	Pandharphali	Shrub	Celastraceae	Frequent
<i>Semecarpus anacardium</i>	Bibba	Tree	Anacardiaceae	Occasional
<i>Senecio bombayensis</i>	Sonki	Herb	Asteraceae	Abundant
<i>Senecio edgeworthii</i>	Hiwali-sonki	Herb	Asteraceae	EI
<i>Sesamum orientale</i>	Ran-til	Herb	Pedaliaceae	Frequent
<i>Sesbania sesban</i>	Shevri	Shrub	Fabaceae	Frequent
<i>Setaria glauca</i>	Chikta	Grass	Poaceae	Abundant
<i>Setaria intermedia</i>		Grass	Poaceae	Frequent
<i>Sida acuta</i>	Bala	Herb	Malvaceae	Abundant
<i>Sida rhombifolia</i>	Atibala	Herb	Malvaceae	Abundant
<i>Smilax ovalifolia</i>	Ghotvel	Climber	Smilacaceae	Frequent
<i>Smilax zeylanica</i>	Ghotvel	Climber	Smilacaceae	Frequent
<i>Smithia conferta</i>		Herb	Fabaceae	Abundant

<i>Smithia hirsuta</i>	Kawla	Herb	Fabaceae	Abundant
<i>Smithia racemosa</i>		Herb	Fabaceae	Abundant
<i>Smithia sensitiva</i>	Lajalu-kawla	Herb	Fabaceae	Abundant
<i>Solanum anguivi</i>		Herb	Solanaceae	Frequent
<i>Solanum nigrum</i>	Laghukavali	Herb	Solanaceae	Occasional
<i>Solanum virginianum</i>	Bhuiringni	Herb	Solanaceae	Occasional
<i>Solena amplexicaulis</i>	Gometi	Climber	Cucurbitaceae	Frequent
<i>Sonchus asper</i>	Mhatara	Herb	Asteraceae	Abundant
<i>Sopubia delphinifolia</i>	Dudhali	Herb	Scrophulariaceae	Abundant
<i>Sorghum halepense</i>	Boru	Grass	Poaceae	Frequent
<i>Spermacoce articularis</i>	Madanghanti	Herb	Rubiaceae	Abundant
<i>Spermacoce stricta</i>		Herb	Rubiaceae	Abundant
<i>Sphaeranthus africanus</i>	Mundi	Herb	Asteraceae	Abundant
<i>Sphaeranthus indicus</i>	Gorakhmundi	Herb	Asteraceae	Abundant
<i>Spilanthus paniculata</i>	Akkalkadha	Herb	Asteraceae	Frequent
<i>Spondias pinnata</i>	Ambada	Tree	Anacardiaceae	Occasional
<i>Stemodia viscosa</i>	Satmodi	Herb	Scrophulariaceae	Frequent
<i>Sterculia urens</i>	Kandol	Tree	Sterculiaceae	Frequent
<i>Striga asiatica</i>	Pivla-agya	Herb	Scrophulariaceae	Abundant
<i>Striga densiflora</i>	Agya	Herb	Scrophulariaceae	Abundant
<i>Striga gesnerioides</i>	Bambaku	Herb	Scrophulariaceae	Frequent
<i>Synedrella nodiflora</i>		Herb	Asteraceae	Abundant
<i>Synedrella vialis</i>		Herb	Asteraceae	Abundant
<i>Syzygium cumini</i>	Jambhul	Tree	Myrtaceae	Abundant
<i>Syzygium heyneanum</i>	Par-jambhal	Tree	Myrtaceae	Frequent
<i>Tabernaemontana alternifolia</i>	Nagkuda	Tree	Apocynaceae	Frequent
<i>Tabernaemontana heyneana</i>	Chandani	Tree	Bignoniaceae	EI
<i>Tagetes erecta</i>	Zendu	Herb	Asteraceae	Cultivated
<i>Tamarix ericoides</i>	Sherni	Shrub	Tamaricaceae	Frequent
<i>Tectona grandis</i>	Sag	Tree	Verbenaceae	Occasional
<i>Tephrosia coccinea</i>	Lal-unhali	Herb	Fabaceae	EI
<i>Tephrosia purpurea</i>	Unhali	Herb	Fabaceae	Abundant
<i>Teramnus labialis</i>	Ran-udid	Herb	Fabaceae	Abundant
<i>Terminalia bellirica</i>	Behda	Tree	Combretaceae	Abundant
<i>Terminalia chebula</i>	Hirda	Tree	Combretaceae	Frequent
<i>Terminalia cuneata</i>	Arjun-sadada	Tree	Combretaceae	Occasional
<i>Terminalia elliptica</i>	Ain	Tree	Combretaceae	Abundant

<i>Thelepaepale ixiocephala</i>	Patri	Shrub	Acanthaceae	EI
<i>Themeda ciliata</i>	Kusalgavat	Grass	Poaceae	Abundant
<i>Thespesia lampas</i>	Ran-bhendi	Shrub	Malvaceae	Frequent
<i>Thespesia populnea</i>	Bhendi	Tree	Malvaceae	Frequent
<i>Thevetia nerifolia</i>	Bitti	Shrub	Apocynaceae	Cultivated
<i>Thunbergia alata</i>		Climber	Thunbergiaceae	Frequent
<i>Tinospora cordifolia</i>	Gulvel	Climber	Menispermaceae	Abundant
<i>Tinospora sinensis</i>	Motha-gulvel	Climber	Menispermaceae	Frequent
<i>Tonningia axillaris</i>	Bechka	Herb	Commelinaceae	Abundant
<i>Trachyspermum roxburghianum</i>	Pinela	Herb	Apiaceae	Occasional
<i>Tragia involucrata</i>	Agya	Climber	Euphorbiaceae	Occasional
<i>Trema orientalis</i>	Gol	Tree	Ulmaceae	Frequent
<i>Trichodesma indicum</i>	Chhota-kalpa	Herb	Boraginaceae	Abundant
<i>Tricholepis amplexicaulis</i>	Dahan	Herb	Asteraceae	Abundant
<i>Tricholepis radicans</i>	Lahan	Herb	Asteraceae	Abundant
<i>Tridax procumbens</i>	Ekdandi	Herb	Asteraceae	Abundant
<i>Trigonella occulta</i>	Ran-methi	Herb	Fabaceae	Abundant
<i>Triplopogon ramosissimus</i>		Grass	Poaceae	Abundant
<i>Triumfetta pentandra</i>	Nichardi	Herb	Tiliaceae	Abundant
<i>Triumfetta pilosa</i>	Nichardi	Herb	Tiliaceae	Abundant
<i>Triumfetta rhomboidea</i>	Thinjhira	Shrub	Sterculiaceae	Abundant
<i>Tylophora dalzellii</i>	Lahan-Pitmari	Climber	Asclepiadaceae	Frequent
<i>Tylophora indica</i>	Bedki	Climber	Asclepiadaceae	Frequent
<i>Urena lobata</i>	Van-bhendi	Herb	Malvaceae	Frequent
<i>Verbascum chinense</i>	Kutki	Herb	Scrophulariaceae	Frequent
<i>Vernonia cinera</i>	Sahdevi	Herb	Asteraceae	Abundant
<i>Vernonia divergens</i>	Bundar	Shrub	Asteraceae	Abundant
<i>Vernonia indica</i>	Sahdevi	Herb	Asteraceae	EI
<i>Vigna sublobata</i>		Climber	Fabaceae	Frequent
<i>Vigna trilobata</i>	Mukni	Climber	Fabaceae	Frequent
<i>Vigna vexillata</i>	Halunda	Climber	Fabaceae	Frequent
<i>Vitex negundo</i>	Nirgudi	Shrub	Verbenaceae	Abundant
<i>Wahlenbergia marginata</i>		Herb	Campanulaceae	Occasional
<i>Wattakaka volubilis</i>	Hirandodi	Climber	Asclepiadaceae	Frequent
<i>Wedelia biflora</i>	Solanki	Herb	Asteraceae	Frequent
<i>Withania somnifera</i>	Ashwagandha	Herb	Solanaceae	Occasional
<i>Woodfordia fruticosa</i>	Dhayati	Shrub	Lythraceae	Abundant

<i>Wrightia tinctoria</i>	Kala-Kuda	Tree	Apocynaceae	Abundant
<i>Xanthium indicum</i>	Landga	Herb	Asteraceae	Abundant
<i>Zingiber neesatum</i>	Nisam	Herb	Zingiberaceae	EI/VU
<i>Zinnia linearis</i>	Zinia	Herb	Asteraceae	Frequent
<i>Ziziphus caracutta</i>	Ghot-bor	Tree	Rhamnaceae	Frequent
<i>Ziziphus mauritiana</i>	Bor	Tree	Rhamnaceae	Abundant
<i>Ziziphus oenoplea</i>	Burgi	Shrub	Rhamnaceae	Frequent
<i>Ziziphus rugosa</i>	Turan	Climber	Rhamnaceae	Occasional
<i>Zornia gibbosa</i>	Landgu	Herb	Fabaceae	Abundant





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# SUCCESS PUBLICATIONS

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