

Biodiversity and afforestation assignment



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KOHINOOR BUSINESS SCHOOL Business Research Management Research

Report On Afforestation Process in Lonavala & Khandala Guided By:

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project. Index S. No. TopicPage 1Introduction1 2Research Objectives2

3Methodology3 4Limitations4 5 6Sampling and Data Gathering7 7Data

Processing and Analysis8 8Conclusion 14 9Scope for further research15

10Bibliography17 ? ABSTRACT Afforestation is being practiced in several

parts of India for the conservation of our forest resources. Today there is

undeniable evidence of the failure to control deforestation and prevent

widespread forest mismanagement by the state or private companies. This

paper examines the importance and the need of afforestation.

A primary survey was conducted with experts in the field of forestry. Data

were also collected from secondary data analysis. Some environmental

policies adopted by the government and some NGO's were studied. The study shows that deforestation could be prevented to some extent and awareness is created among people. The statistical studies from the survey shows that more than 50 % of the people are aware of afforestation and are interested in participating in afforestation programs

INTRODUCTION The purpose of this report is to study on the afforestation process in Lonavala and Khandala. Afforestation is the planting of seeds or trees to make a forest on a land which has not been a forest for a long time". Lonavala & Khandala are a part of unique ecosystem. Their ecological & cultural attributes make them favorite tourist destinations. Surrounded by thick forest & dense canopied trees, these regions offer some spectacular views of gushing waterfalls. Afforestation is necessary to heal the environment because these regions are eco ??? fragile and cannot sustain tourism activity beyond a certain point. Urbanization, deforestation, hunting & lack of education have put stress on these region.

There are over hundred species of migratory birds, 65 to 70 different types of plant and trees. But deforestation is affecting the flora & fauna of this area. ?

METHODOLOGY Method of Investigation: The following are the major research methods used: A)Secondary Data B)Pilot study C)Experiential Survey & Personal Interview D)Online Survey. E)Questionnaire A survey was done by the method of probability sampling. An experiential survey was conducted with three experts in the area of forestry. An online survey and questionnaire was done to examine the awareness of afforestation in the campus.

Around 76 people were surveyed which includes 62 students and 14 faculty members. LIMITATIONS: A)The report was mainly dependent on the secondary data. B)A survey of the local people could not be done because of time constraint. C)The secondary data available from different sources such as internet was about the whole India or Maharashtra as a state, but no specific data was available about Lonavala & khandala. D)Taking appointment with the concerned authority was a difficult task. Even one major appointment with the forest range officer of khandala was cancelled because he had to go out of state.

E) At some point a communication gap was created because none of the members of the research team are comfortable with the vernacular language. ? RESEARCH OBJECTIVES: a)To identify the objectives & need of afforestation in Lonavala & Khandala. b)To study on the afforestation methods adopted and implemented by the government c)To identify the importance of afforestation in preserving the biodiversity. d)To examine the awareness of afforestation in the Kohinoor Global Campus. BACKGROUND Lonavala & Khandala occupy a small geographical area, on the Western Ghats, one of the important global biodiversity hotspots.

They are interesting regions for observing the flora & fauna of Maharashtra, including several endemic species. The hilly town of Khandala is situated on the northern range of the Western Ghats or the Sahyadri. Lonavala is located on the Sahyadri and Deccan Plateau about 5 km to the south-east of Khandala and is surrounded by hills. There are five major man made reservoirs in this region behind dams constructed for hydro electric projects.

These are the Lonavala Lake, backwaters at Walwhan, Shiravata, Kundli and Thokerwadi.

The reservoirs are under the management of Tata Power Company and the adjoining forest area is protected by the Forest department. The major hill forts in the region are Rajmachi fort with inner forts of Manoranjan and Shrivarddhan, Dhakcha Bahiri, Manjar Suma, Lohogad, Visapur and ancient Buddhist and Hindu hill caves at Karla and Bhaje. Climate: The region receives heavy monsoon rainfall from June till September, with a break of few days in between, due to its unique location on the edge of the Western Ghats, since the monsoon clouds from the Arabian Sea make their first contact with this mountain range and precipitate heavily.

The average annual precipitation is about 3000 mm to 3500 mm. The winters are cool and summer is salubrious. However, as a result of extensive deforestation activities, which began in 1939 and are going on till date, ever increasing traffic movement and increased urbanization in this region, the summers are now appreciably warmer. The hottest months are March and April (37.8 - 40 deg C) and the coldest months are from December to January (as low as 5 deg C). The daily temperature range in the 1950's was 17 deg C but over a period of past 50 years it has increased to about 20+ deg C.

Average humidity range is 55% (100% in wet and 55% in dry seasons). Soil Porous red soil bears evergreen and semi-evergreen vegetation, alluvial black soil supports crop and lateritic soil with poor nutrients harbors scrub vegetation. Humus is abundant in forested areas in ravines under dense

vegetation. THE RESEARCH PROCESS ? LITERATURE REVIEW We observed that there has been destruction to thousands of acres of ecosystem & residual pocket of natural forest for developing a township ' Sahara Lake City' near Lonavala.

As per the BEAG survey, dirt from the deforested zone will flow into the freshwater lake during rainfalls. There would be other long term effects on the pollutant drain into the Lonavala Lake where it joins the duct released from Valvan dam for supply to Lonavala & Khandala. Generating more than power: Tata Power's unique CSR initiatives in Lonavala have created awareness about forest preservation and the environment, and have also provided employment opportunities to villagers living in the catchment areas of its dams

The Walwhan, a historic 90-year old dam, is a familiar sight to picnickers and visitors to the small twin hill stations of Lonavala and Khandala, 100 km from Mumbai. In fact, Lonavala is the source of the beating pulse of the metropolis. Tata Power's three hydroelectric power stations at Khopoli, Bhira and Bhivpuri supply India's financial capital with 450 mw of life-giving electricity, ensuring that the lights are never switched off. The company has six dams in the Western Ghats ??? Lonavala, Walwhan, Shirwata, Kundli, Mulshi and Thokerwadi ??? that supply the powerhouses with water.

The lakes behind these dams and their catchments were once abundant with greenery and forest cover. But over the years, due to biotic pressures, the area has seen a lot of soil erosion, population pressure and human activity, which have contributed to depletion of the forests, rendering this an

ecologically fragile area. What makes matters worse is that local communities have not been provided alternate fuel options, and largely depend on the forests for firewood. Greening the valley: Over the last 30 years, Tata Power has been involved in the conservation of the natural habitat here.

Through the dedicated efforts of SN Ogale (a retired AGM, still actively involved in Tata Power's CSR activities), and his team, the company has spearheaded several environmental initiatives. A team of botanists and scientists carried out a survey of the six catchment areas, spread over 400 sq km and studied the composition of the degraded forests. With the help of experts, they decided on suitable endemic tree species to grow in the region; a mix of fast-growing trees that provide firewood, as well as trees that grow slowly but are evergreen, which have more biodiversity value, and are local to the Western Ghats. Villagers are educated about which trees to cut, so as to conserve the biodiversity of the region. "By planting more trees that provide firewood, we hope trees that have a longer life span and support other life in the environment will be protected," says Ogale. The focus is on saving and conserving the remaining natural forest cover and the afforestation of the degraded forest. Local forest officials allowed them to plant trees in degraded forest land, increasing the greening area.

Tata Power has managed to develop stretches of forests and wetlands that attract wildlife like leopards, barking deer, sambar and wild boar, as well as over 100 species of migratory birds like painted storks and cormorants. Beautiful tiger butterflies migrate to a particular grove of trees at the Walwhan fish farm area between December and February. To see thousands

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of tiger butterflies flutter around a 10 sq m area is a sight that is at once startling and exhilarating.

The company has actually recreated the biodiversity of the Western Ghats on a 60-acre tract of land near the Walwhan Lake. “ There are nearly 65 to 70 different species of plants and trees and eight different types of bamboo,” Ogale says with pride as he points out the different species. Once a particular species grows well, it is then planted in other areas. There is also a wetland, and a nursery. Between 1979 and 2005, Tata Power has planted over 10 million saplings. Villagers are also trained to plant and nurture saplings, and help in afforestation.

Tata Power started an environment education programme for schools in 1996, much before it was made a norm by the Indian government, with the help of Pune’s Bharati Vidyapeeth Environment Education and Research Institute (BVEERI). Over 900 teachers were trained to impart knowledge about conservation of natural resources, pollution control, etc. An environment manual published by BVEERI is used as reference. Children from nearly 60 schools participate in an annual environment fair. This pioneering initiative, funded by Tata Power, has become a model and is implemented in some other states by the central government through BVEERI. EXPERIENTIAL SURVEY & PERSONAL INTERVIEW A)WITH MR KAPSE (FOREST OFFICER, KHANDALA) The reserve forest area constitutes 6000 hectares. There are six guards appointed per 1000 hectares. Also two watchmen are there per 1000 hectares. According to Mr Kapse, deforestation does not happen in the reserve forest region. But trees have been felled for the construction of houses and hotels. The severe noise which arose from <https://assignbuster.com/biodiversity-and-afforestation-assignment/>

the construction purpose scared the wild animals here and made them disappear somewhere else. Even there is an instance of landslide happened in Kuruvanda village in 1989.

Afforestation programs adopted by the government: There are about 65 villages in and around Lonavala. There is a Van Sanrakshan Samiti formed in each village. Each committee constitutes 11 members. This committee is formed to motivate village people to preserve the forest. Every year the government allots 1 lakh rupees to the village which excels in preserving the forest resources. Several awareness programs are held to make the villagers understand the importance of afforestation. An NGO named Friends of Nature in Talegaon is working for this.

They have caught snakes from the residential areas and handed over to the forest department. The forest department officers leave them safe in the jungle. Faunal diversity: Wild dog, striped hyena, jackal, Indian gaur, wild boar, Hanuman langur, four horned antelope, barking deer, Indian hare, giant squirrel, chinkara, jungle cat, ruddy mongoose, Indian pangolin, porcupine, bonnet macaque, bats, three striped palm squirrel, mouse deer etc B)WITH MR VISHWASRAO (TATA POWER) Mr VishwasRao is the manager in charge of the horticulture department of Tata Power located in Lonavala.

He is also the co-author of the book ' The Birds of Lonavala and Khandala'. According to him, Tata started its afforestation process at Lonavala since 1979. They have taken the catchment areas of Lonavala Dam and Walwan Dam for this process. The company has six dams in the Western Ghats to supply water for generating power. Tata has also developed environment

policy for the preservation of biodiversity. Trees help increase the water holding capacity of dams. This project of Tata is providing 100% employment in villages. There are several N. G. O's working to create awareness of afforestation among villages.

One of the most deforested zone in Lonavala is the region around Bhusi dam.

The following type of plants are used for the afforestation purpose:

Indigenous plants, fast growing plants(to meet the fuel consumption of the villages) and fruit plants. VEGETATION: Evergreen forests, moist and mixed deciduous forests, montane forests, grass lands and wetlands are encountered in this region. Large trees upto 30 m tall lianas are found in the undisturbed moist forests on plateaus, ravines and hill tops. (Caryota, Alstonia, Albizia, Olea, Terminalia, Pongamia, Bombax, Holoptelea, Mangifera, etc species).

Medium sized trees of 12-18m are also seen. (Gmelina, Syzygium, Emblica, Sterculia, Murraya, Hymenodictyon etc species) along with climbers like Entada and Piper nigrum. Other vegetation like Carissa species and bamboo are present along with ferns, orchids (Habenaria, Platanthera etc), herbaceous plants, bulbous plants, shrubs, liverworts (Funaria, Anthoceros etc) and introduced exotic plants are also present. Luxuriant grasses are seen on rocky plateaus with interspersed trees like Bridelia, Memecylon, Murraya, Ixora etc. Several water bodies are infested with water hyacinth.

Cropland- Orysa, Elusine, Cicer, Solanum etc Garden trees- Cassia, Anogeissus, Delonix, Syzygium, Mangifera, Lannea etc FAUNAL DIVERSITY: REPTILES: The entire Western Ghats are home to about 157 species of

reptiles and most of these are snakes. Two genera of turtle, 20 snakes and 14 lizards are endemic. Abundance of reptilian species decreases with altitude, but increases with number of fallen logs, herbs and gradient of slopes. Some varieties of lizards found in this region are Forest Calotes, Common Indian Monitor, Skink, Chameleon, Fan throated lizard etc.

Some common species of snakes found in this region are Cobra , Rusell's Viper, Bamboo pit viper, Krait, Bronze back tree snake, vine snake, cat snake, python etc. MAMMALS: About 125 species of mammals are recorded from the entire Western Ghats of which 14 species are endemic. These include insectivores (11 species), bats (41 species) and rodents (27 species including the porcupine), ungulates, carnivores, primates and others. Some mammals like the Slender Loris and Fishing Cat are likely to be present in the region though not recently recorded. BUTTERFLIES

Some species of butterflies found in this region are Red Helen, Common Jay, Pea Blue, Plum Judy, Psyche etc. BIRDS There are around 320 migratory birds found in this region. Some of them are Shikira, Buzzard, Eagle, Cuckoo, Stint, Dunlin, Pigeon, Dove etc. A)Interview with Mr Sandeep Patil Mr Sandeep Patil currently working in the IT department of KBS, has taken part in afforestation programs conducted in Khopoli. According to him, industrialization and booming real estate are the major reasons for deforestation in Khopoli. There was a committee formed which constitutes around 12 members.

They along with some school children guided by one forest officer, did an appreciable work. They planted saplings back 5 years and the area is

covered with lush greenery. They made underground water storage systems for preserving water for summer seasons. CAUSES OF DEFORESTATION

Cattle grazing Cutting of Trees Some other reasons of deforestation are

Industrialization, forest fire, urbanization activities, etc. SIDE-EFFECTS OF

DEFORESTATION SOIL EROSION Erosion is a gravity driven process that moves solids (sediment, soil, rock and other particles) in the natural environment or their source and deposits them elsewhere.

It usually occurs due to transport by wind, water, or ice; by down-slope creep of soil and other material under the force of gravity; or by living organisms, such as burrowing animals, in the case of bioerosion. BARREN LAND Barren

Land has thin soil, sand, or rocks. Barren lands include deserts, dry salt flats, beaches, sand dunes, exposed rock, strip mines, quarries, and gravel pits.? B)

LINE SURVEYS & QUESTIONNAIRE: An online survey was conducted through e-survey pro to know the awareness about afforestation with in the campus.

The sample size was taken as 42 and the respondents were all students.

There were 15 questions.

Even a questionnaire was given to a sample size of 34 out of which 14 were faculty members and 20 were students. Out of 62 students questioned within the campus 23 students generally planted the trees each year but 18

students were those who never do planting and the remaining students do planting more than twice the year. Out of 14 faculties interviewed 7 faculty members plant a tree once a year and four faculty plant it between 2-3 times

a year, and three faculty never did planting.? Q. According to you what are the side effects of afforestation? Out of 62 students 35 students think that all the three things i. . soil erosion , global warming and land slide are the

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side affects of deforestation and 21 students consider global warming is the biggest threat of deforestation and according to both the respondent that is student and faculty land slide is least caused by deforestation. Q. Do you agree that afforestation helps in the presrvation of plants? 50 out 62 students strongly agree that afforestation helps in preservation of plants and 11 students were partially agreeing with the fact. When it came to faculty almost everyone agreed that afforestation has a great impact on plant preservation. Q.

How often have you participated in any afforestation program? 47 percent of the total students have never participated in any of the afforestation program and rest have participated in at least one of the afforestation program once in there lifetime. But in case of faculty they have participated in at least one of the afforestation program. Only three faculty have never participated in any such program? Suggestions After doing the research it was found that most of the respondents are having some knowledge about afforestation. It was also found that most of the respondents were ready to work for afforestation process.

Some of the very interesting and innovative ideas were given by the respondents. One of the most common reply was that people must be made aware about the benefits and needs of the afforestation. Respondents said that it is not only the responsibility of government or the forest department. But every citizen should come forward for promoting afforestation. Some of the respondent said that we can help afforestation process by promoting the eco-tourism in these regions. Eco-tourism should be promoted in areas like Lonavala and khandala which is rich in bio-diversity.

Some of them also suggested that people are too lazy to work toward planting the trees until they are forced to do it. So according to them it must be made a compulsory activity for each and every one. Government should frame some rules and regulations regarding it. People also told that school and collages should organize different afforestation activities. They can also start some certificate course about the same which will motivate the students. Corporate should also come forward and take afforestation as their social responsibility.

Government should also promote by giving them incentives to those firms who are working toward it. These afforestation programs must be conducted in a fun field way so that more people will come forward with more interest. It has been found that on special occasion like environment day people should show maximum concern toward the environment. So advantage must be taken of such occasions by conducting program based on afforestation by making people plant more trees. People must promote the concept of ownership of one plant which can help in a big way to promote afforestation.. people should make the habit of planting at least one tree on special occasions of their life birthday, marriage anniversary, etc. to make day special not only for them selves but for mother nature too. Afforestation can also be promoted by taking the help of media i. e. is by the use of documentary, TV ads, hoarding etc. People can also be made aware about this by doing road side plays, which is more appealing. (A survey on afforestation) KOHINOOR BUSINESS SCHOOL KHANDALA, PUNE. We are a group of students from Kohinoor Business School conducting a research study on afforestation process in Lonavala & Khandala.

We are doing a survey about the awareness of afforestation in the college campus. DEFINITION: Afforestation is planting seeds or trees to make a forest on land which has not been a forest recently, or which has never been a forest. Reforestation is the reestablishment of a forest after removal, for example from a timber harvest. Name:

_____ 1. Age Under 18 years 19-25

26-35 36+ 2. Gender 3. College in which you are studying.

_____ 4. According to you, to what extent afforestation is necessary?

Very Necessary Necessary Less Necessary Not Necessary Don't Know 5. How

often do you plant trees? More than 5 times a year. 2-5 times a year.

Only once a year. Never do planting. 6. For what purpose do you plant

trees ? For business purpose. Personal Interest. For the Nature. Not

Applicable. 7. Do you agree afforestation increases rainfall? Strongly Agree.

Partially Agree. Strongly Disagree. Don't Know 8. Do you agree that

afforestation helps in the preservation of plants & animals? Strongly Agree.

Partially Agree. Strongly Disagree. Don't Know. 9. According to you which

areas afforestation is required mostly? Urban Rural Don't' Know 10.

According to you what is the side affects of deforestation or destruction of

plants? Soil Erosion. Global Warming. Land Sliding. All the Above. 11.

How many times have you visited forest in your life? More than thrice. 2-3

times. Once. Never 12. How often have you participated in any

afforestation program? More than once. Only once. Never Participated.

13. Are you aware of any afforestation program in Lonavala & Khandala? Yes.

No . 14. Is your college associated with any organization to promote

afforestation? Yes. No. Don't Know. 15. Would you like to be a part of any afforestation program? Yes No . 16. Would you like to give awareness among people about afforestation? Yes. No. 17. According to you what is the most important factor which attract tourists in Lonavala & Khandala? Summer Retreat. Natural Surroundings. Mountain Sports. Plant & Animal Diversity. Adventures & Explorer. 18. According to you how we can promote afforestation? Comment?