



**NAOROJI GODREJ CENTRE FOR PLANT RESEARCH  
(NGCPR)**

A research project on

**Eco-restoration and forest regeneration studies of degraded hill slopes of Palashi and Mirje villages located at the fringes of Western Ghats.**

*"May plants, the waters and the sky preserve us, and  
woods and mountains with their trees for tresses"*

- Rigveda - V41.11

A biodiversity hot spot is a region which harbors more than 1500 endemic species of vascular plants and had already lost 70 percent of its primary vegetation. It means that these are the most diverse gene banks essential for human survival, yet neglected and threatened.

Norman Myers who proposed the concept of Biodiversity hot spots recognized 34 hot global spots. Among them, the Western Ghats–Sri Lankan region is one of the most critical hot spots.

The Khandala taluka of Satara district in Maharashtra where Lawkim Motors group is located is situated at the fringes of Northern Western Ghats. The hill slopes receive less rain fall (average annual rain fall 60cm) and naturally should support a mixed deciduous forest. However, due to centuries of misuse, these hill slopes have been extremely degraded and deprived of natural vegetation. Presently they support only low quality grass lands. Eco-restoration of this region is urgent as it is linked to local economy and employment.

The present research study is aimed to afforest and eco-restore degraded forest land patches belonging to the Forest department with indigenous species and to study scientifically the forest regeneration and succession of plant species. The present study also expected to develop a scientific model which will enable other interested parties to replicate such programmes.

The present project is not just a plantation programme. It will include all efforts to eco-restore the forest land with simple and cost effective techniques and to create a data base which can be utilized as reference manual for other corporates to take up such activity.

The major components of this research project are as follows:

- 1) Identification of indigenous species and preparation of nursery for plantation. The criterion for selecting the species will be based on their hardiness to withstand the local climatic conditions and human related disturbances. In addition, species that can generate income to local communities, particularly minor forest producing species.
- 2) Biodiversity study in the project study area.
- 3) Identification of important wildlife habitats for conservation purpose. The project will also try to identify threatened plants and animals and their habitats and plan plantation programmes accordingly. .
- 4) Designing and implementing appropriate rain and ground water harvesting techniques.

- 5) Scientific monitoring of plantation and forest regeneration.
- 6) Since the study area is a degraded forest and a grass land for many centuries we will incorporate plans that are essential to protect useful fodder grasses and their habitats.
- 7) In and all, the plantation programme will be carried out in 70% of the land and the rest of the area will be protected and restored for grass lands for sustainable utilization of local communities.
- 8) The project also planned programmes that involve Gram Panchayats and local communities at various levels in forest protection and conservation as to make it a successful community driven programme.

### **The Project and the Agreement**

The present project is being carried out under the directives and guidelines issued by the Department of Forests and Environment, which is a part of Government resolution under National Forest policy (1998), where as a view to accelerate the Afforestation work on the degraded forest areas having density of 0.1 within the state of Maharashtra, a resolution has been issued wherein voluntary participation of Corporates to undertake afforestation work in such areas with the help of NGO'S under a Tripartaite agreement.

Accordingly, the government of Maharashtra granted a license /permission to Naoroji Godrej Centre for Plant Research about 125 hectares of land in the Khandala taluka for the purpose of afforestation and rehabilitation for a period of 7 years.

### **Organizations involved**

- 1) Government – Forest department, Kolhapur division
- 2) Corporate – Naoroji Godrej Centre for Plant Research (NGCPR), promoted by Lawkim Motors Group – A Godrej Company.
- 3) NGO – Maharashtra Vriksha Samvardhini, Pune

## Land details

**Villages:** Palashi & Mirje

**Latitude and Longitude:** 73<sup>0</sup>57'-73<sup>0</sup>59'L and 18<sup>0</sup>7'-18<sup>0</sup>9'

**Total area :** 125 hectares

### **Survey numbers**

Palashi : 270, 393, 314 and 321

Mirje: 193, 154, 153, 152, 90

### **Gat number**

Palshi 1575, 1879, 1880, 1902

Mirje: 953, 946, 944, 945

**Vegetation type:** Grass lands

### **Forest status**

Degraded hill slopes without tree cover except some plantation

**List of Indigenous Plants Planted at  
Afforestation Project Site – Palashi (July 2012- March 2013)**

<b>Sr. No.</b>	<b>Name of the Plant</b>	<b>No. of Plants</b>
1.	<i>Ficus racemosa</i> (Umbar)	67
2.	<i>Dendrocalamus strictus</i> & <i>Bambusa bambos</i> (Bamboo)	1620
3.	<i>Cordia myxa</i> . (Bhokar)	19
4.	<i>Samania saman</i> (Rain Tree)	7
5.	<i>Bauhinia</i> sp. (Kanchan)	2
6.	<i>Caesalpinia bonducella</i> (Sagargota)	182
7.	<i>Semecarpus anacardium</i> (Marking nut, Bibwa)	1670
8.	<i>Erythrina suberosa</i> (Pangara)	577
9.	<i>Bombax ceiba</i> (Lal-savar)	1171
10.	<i>Caesalpinia sepiaria</i> (Chillar)	2438
11.	<i>Terminalia arjuna</i> (Arjun)	200
12.	<i>Albizia lebeck</i> (Shirish)	325
13.	<i>Tectona grandis</i> (Teak, Sagwan)	1015
14.	<i>Madhuca latifolia</i> (Mahua)	61
15.	<i>Acacia catechu</i> (Khair)	81
16.	<i>Leucena leucopholea</i> (Su babul)	10
17.	<i>Moringa olifera</i> (Shewga, Drumstick)	27
18.	<i>Butea monosperma</i> (Palas)	380
19.	<i>Terminalia bellerica</i> (Behda)	360
20.	<i>Acacia nilotica</i> (Ramkathi Babul)	1000
21.	<i>Azadirachta indica</i> (Kadunimb)	800
22.	<i>Emblica officinalis</i> (Awala)	200
23.	<i>Acacia concinna</i> (Shikekai)	230
24.	<i>Melia dubia</i> (Limbara)	1
25.	<i>Anona squamosa</i> (Sitaphal, Custard Apple)	100
26.	<i>Terminalia alata/tomentosa</i> (Ain)	239
27.	<i>Agave americana</i> ( Ghaipat)	5000
28.	<i>Euphorbia nerifolia</i> (Nivdung)	25
	<b>Total</b>	<b>17, 807</b>

## Palshi Afforestation & development Programme (2013-2014)

### List of Indigenous Plants Planted at Afforestation Project Site - Palashi

Sr. No.	Name/Species Planted	Number
1	<i>Acacia nilotica</i> ( Babul / Ramkati babul )	700
2	<i>Cordia myxa</i> (Bhokar)	207
3	<i>Bridelia retusa</i> (Asana)	25
4	<i>Alstonia scholaris</i> (Saptaparni)	23
5	<i>Mangifera indica</i> (Aamba)	64
6	<i>Anthocephalus cadamba</i> (Kadamba)	20
7	<i>Heterophragma quadriloculare</i> (Varas)	100
8	<i>Ficus benghalensis</i> (Vad)	10
9	<i>Hardwickia binata</i> (Anjan)	660
10	<i>Terminalia bellerica</i> (Behada)	2192
11	<i>Terminalia elliptica</i> (Ain)	575
12	<i>Bombax ceiba</i> Lal-sawar/Kate-sawar)	6987
13	<i>Agave</i> ( Ghaipat)	5000
14	<i>Zizyphus jujuba</i> (Bor)	405
15	<i>Ficus racemosa</i> (Umber)	295
16	<i>Semicarpus anacardium</i> (Bibba)	2582
17	<i>Acacia catechu</i> (Khair)	690
18	<i>Gmelina arborea</i> (Shivan)	2363
19	<i>Dendrocalamus strictus</i> (Mes Bamboo)	4000
20	<i>Bambusa bambos</i> (Kalak)	4480
21	<i>Terminalia arjuna</i> (Arjun)	320
22	<i>Erythrina indica</i> (Pangara)	2730
23	<i>Lagerstroemia speciosa</i> (Taman)	1075
24	<i>Zizyphus rugosa</i> (Toran)	45
25	<i>Carissa congesta</i> (Karvand)	3000
26	<i>Bauhinia racemosa</i> (Aapta)	90
27	<i>Dalbergia sissoo</i> (Shisam)	3480
28	<i>Emblica officinalis</i> (Aawla)	3100
29	<i>Pithecolobium dulce</i> (Vilayati Chinch)	257
30	<i>Butea monosperma</i> (Palas)	1070
31	<i>Tectona grandis</i> (Saag)	1507
32	<i>Dolichandrone falcata</i> (Medasingi)	94
33	<i>Firmiana colorata</i> (Kaushi )	452
34	<i>Pongamia pinnata</i> (Karanj)	3600
35	<i>Azadirachta indica</i> (Kadu-nimb)	15250
36	<i>Albizia lebbeck</i> (Shirish)	15
37	<i>Sapindus laurifolius</i> (Ritha)	485
38	<i>Tamarindus indica</i> (Chinch)	2820
39	<i>Annona squamosa</i> (Sitaphal)	2720
40	<i>Cassia fistula</i> ( Bhava)	295
41	<i>Bauhinia</i> sp.	3
42	<i>Madhuca longifolia</i> var. <i>latifolia</i> (Moha)	2000
43	<i>Syzygium cumini</i> (Jambhul)	100
44	Unidentified species from Dapsar sacred grove	15

45	<i>Acacia</i> sp.	70
46	<i>Acacia concinna</i> (Shikekai)	53
47	<i>Melia azadirach</i> (Bakan-nimb)	250
48	<i>Terminalia chebula</i> (Hirda)	5
49	<i>Putranjiva roxburghii</i> (Putranjiva)	100
50	<i>Calamus</i> sp. (Vet)	1
51	<i>Murraya koenigii</i> (Kadipatta)	50
52	<i>Caesalpinia bonducella</i> (Sagargota)	5
53	<i>Leucaena leucophloea</i> (Subabhul)	10
54	<i>Acrocarpus</i> sp.	50
55	<i>Elaeocarpus oblongus</i> (Kasa)	6
56	<i>Euphorbia</i> sp.	896
57	Others	43
	<b>TOTAL</b>	<b>77, 440</b>

**A List of plant spp. planted at Palashi-Mirje afforestation Project Site - (2014-15) as on 15-9-14**

<b>Sr. No.</b>	<b>Plant Species</b>	<b>Quantity</b>
1	<i>Azadirachta indica</i> (Kadu-nimb)	3500
2	<i>Emblica officinalis</i> (Aawla)	2508
3	<i>Euphorbia ligularia</i> (=E. nerifolia) Nivdung	2300
4	<i>Tectona grandis</i> (Saag)	2175
5	<i>Tamarindus indica</i> (Chinch)	1500
6	<i>Pongamia pinnata</i> (Karanj)	1035
7	<i>Gmelina arborea</i> (Shivan)	920
8	<i>Sapindus laurifolius</i> (Ritha)	900
9	<i>Annona squamosa</i> (Sitaphal)	526
10	<i>Dalbergia sissoo</i> (Shisam)	500
11	<i>Aegle marmelos</i> (Bel)	500
12	<i>Bambusa bambos</i> (Mes)	350
13	<i>Acacia nilotica</i> (Ramkathi Babhul)	230
14	<i>Erythrina suberosa</i> (Buch-Pangara)	147
15	<i>Cordia myxa</i> (Bhokar)	140
16	<i>Semicarpus anacardium</i> (Bibba)	100
17	<i>Acacia catechu</i> (Khair)	84
18	<i>Caesalpinia bonducella</i> (Sagargota)	78
19	<i>Albizia lebbeck</i> (Kala-Shirish)	41
20	<i>Acacia nilotica</i> (Ramkathi Babhul)	28
21	<i>Terminalia bellerica</i> (Behada)	24
22	<i>Terminalia catappa</i> (Badam)	12
23	<i>Butea monosperma</i> (Palas)	10
24	<i>Ficus racemosa</i> (Umbar)	5
25	<i>Carissa conjesta</i> (Karvand)	3
26	<i>Cassia fistula</i> (Bahava)	4
	<b>Total</b>	<b>17620</b>

**A List of plant spp. replanted at Palashi-Mirje afforestation Project Site - (2014-15) as on 16-9-14**

Sr. No.	Plant Species	Quantity
1	<i>Tectona grandis</i> (Saag)	2766
2	<i>Erythrina suberosa</i> (Buch-Pangara)	1190
3	<i>Gmelina arborea</i> (Shivan)	1182
4	<i>Cordia myxa</i> (Bhokar)	1090
5	<i>Terminalia arjuna</i> (Arjun)	858
6	<i>Pongamia pinnata</i> (Karanj)	600
7	<i>Bambusa bambos</i> (Mes)	450
8	<i>Emblica officinalis</i> (Aawla)	425
9	<i>Semicarpus anacardium</i> (Bibba)	328
10	<i>Ficus racemosa</i> (Umbar)	300
11	<i>Putranjiva roxburghii</i> (Putranjiva)	300
12	<i>Caesalpinia bonducella</i> (Sagargota)	100
13	<i>Pithecolobium dulce</i> (Vilayati Chinch)	100
14	<i>Butea monosperma</i> (Palas)	100
15	<i>Albizzia lebbbeck</i> (Kala-Shirish)	65
16	<i>Annona squamosa</i> (Sitaphal)	50
17	<i>Bauhinia variegata</i> (Kanchan)	42
18	<i>Tamarindus indica</i> (Chinch)	27
19	<i>Terminalia catappa</i> (Badam)	10
20	<i>Cassia saimea</i> (Kashid)	10
21	<i>Bombax ceiba</i> (Lal-sawar/Kate-sawar)	7
	<b>Total</b>	<b>10000</b>



**A List of plant spp. replanted at Palashi-Mirje afforestation Project Site - (2015-16)  
as on 31.12.2015**

<b>Sr. No.</b>	<b>Plant Species</b>	<b>Quantity</b>
1.	<i>Tectona grandis</i> (Saag)	366
2.	<i>Erythrina suberosa</i> (Buch-Pangara)	15
3.	<i>Azadirachta indica</i> (Kadu-nimb)	405
4.	<i>Pongamia pinnata</i> (Karanj)	466
5.	<i>Bambusa bambos</i> (Mes)	861
6.	<i>Embllica officinalis</i> (Aawla)	438
7.	<i>Ficus racemosa</i> (Umbar)	20
8.	<i>Putranjiva roxburghii</i> (Putranjiva)	164
9.	<i>Euphorbia antiquorum</i>	350
10.	<i>Dalbergia sissao</i> (Sisso)	1025
11.	<i>Agave americana</i> (Ghaipat)	2250
12.	<i>Bombax ceiba</i> (Lal-sawar/Kate-sawar)	25
13.	<i>Tamarindus indica</i> (Chinch)	420
14.	<i>Terminalia chebula</i>	20
15.	<i>Acacia concinna</i> (Shike Kai)	86
16.	<i>Terminalia arjuna</i>	40
17.	<i>Cordia myxa</i> (Bhokar)	26
	<b>Total</b>	<b>7057</b>

## Afforestation at Glance: A pictorial View



Views from Afforestation site during the initial years (2011-2012)



Watering April 2015



6th June 2015 a Day Seminar at Palashi



Expertise visit at Afforestation site Palshi



A view of Afforestation site June 2015



Gramsabha at Mirje August 2015



A view of Afforestation site September 2015



Teak plantation view September 2015



Fire line preparation January 2016