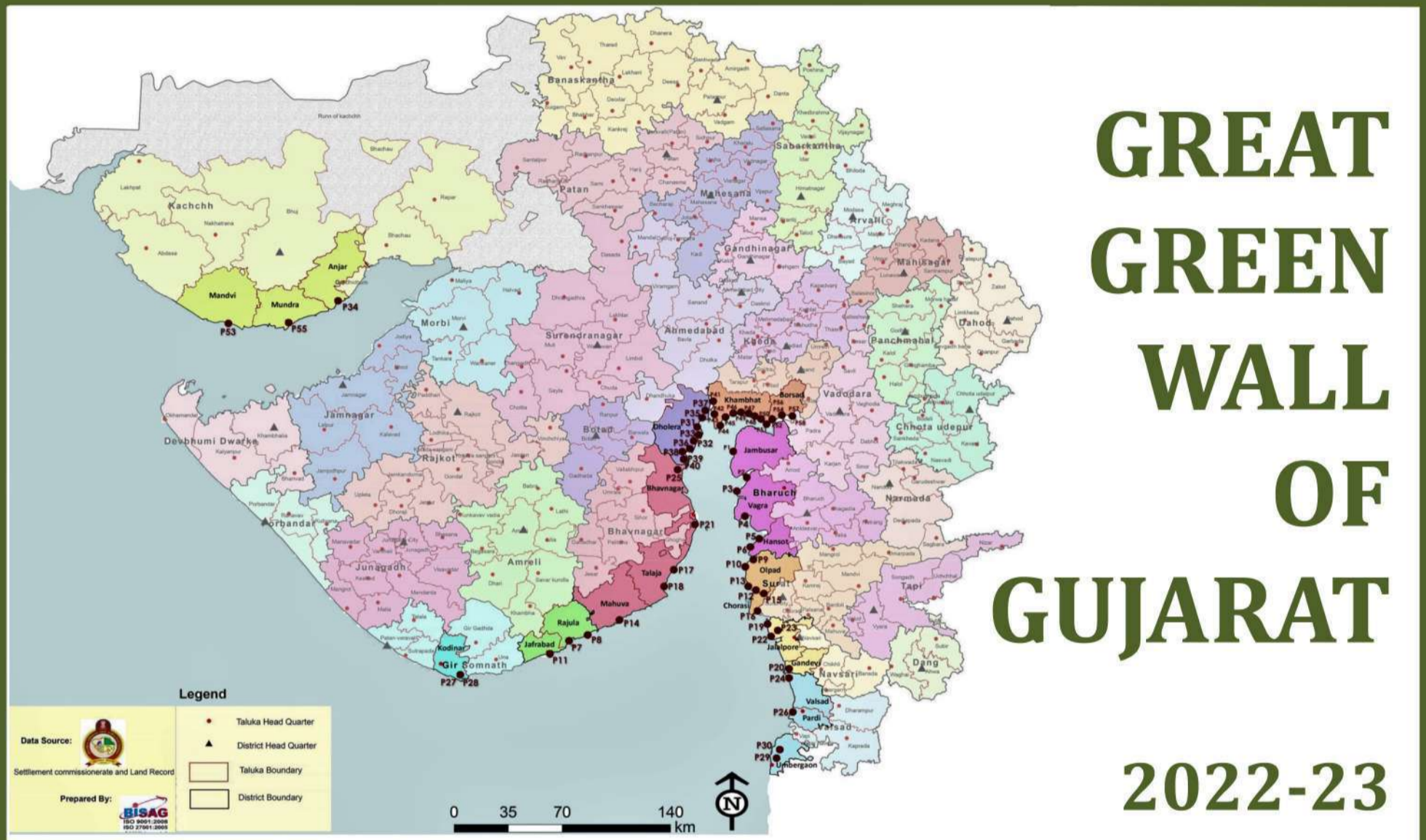


A Feasibility Study

To access the Potential of Mangrove Plantation along the Coast of Gujarat, India



Prepared by
Saline Area Vitalisation Enterprise Limited
Ahmedabad, India

Project Supported by
Goodcarbon Impact GmbH
Germany

Great Green Wall of Gujarat

Feasibility Study

Introduction:

Great Green Wall of Gujarat (GGWG), a joint initiative of VIKAS Centre for Development (VIKAS CFD), Saline Area Vitalisation Enterprise (SAVE) Limited and Goodcarbon GmbH, Germany hopes to establish community led Bio-shield, a Multi-layer multi species plantation of mangroves and associates in about 10,000 hectares (ha) of area along the coast of Gujarat state. The goal of the project is to participate in the Combat against Climate Change by creating a large scale green cover which would absorb greenhouse gases and restore the balance between man and nature by positively impacting the environmental and ecological conditions in the region.

This project is being implemented in the backdrop of work already carried out by VIKAS CFD and SAVE limited over a period of two decades covering 2,000 ha of mangrove plantation and 18 km long Bio- shield in Bharuch district of Gujarat, India. These mangrove plantation projects were carried out by VIKAS CFD and SAVE limited in the inter-tidal areas through grant funding received from government and corporates to fulfil compliance conditions.

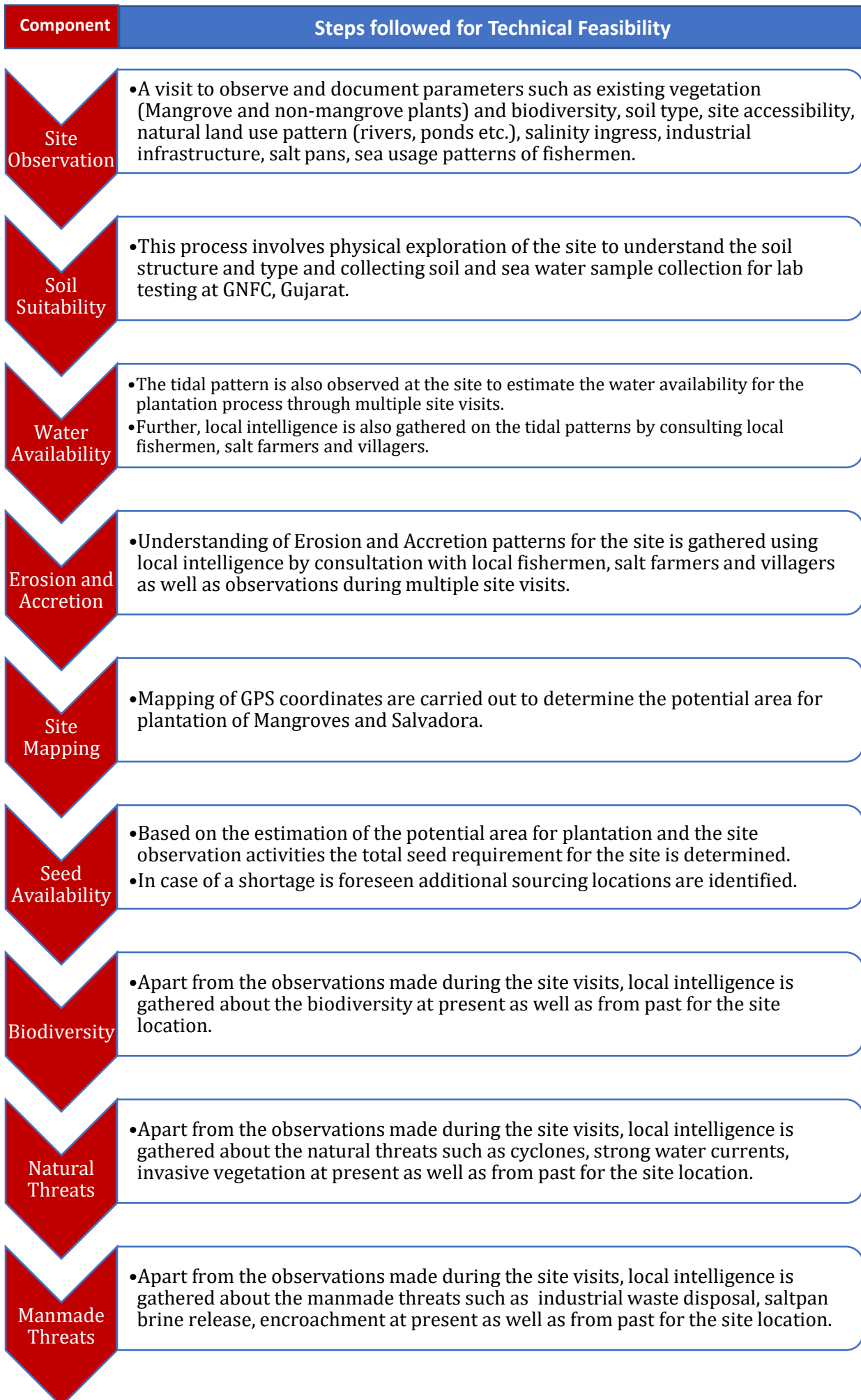
In early 2022, GoodCarbon GmbH, Germany in partnership with VIKAS CFD and SAVE limited conceived the initiative of GGWG. In order to systematically plan and implement this ambitious project it was decided to carry out 1) a Feasibility Study covering about 200 villages of 25 taluka of 11 coastal districts of Gujarat state and 2) Implement a Pilot project covering 200 ha of mangrove plantation. The duration of both the projects is June 2022 to March 2023.

SAVE being a technical services organisation, the task of carrying out the feasibility study for was assigned to the company. The objective of the feasibility study is to identify technically, socially and administratively feasible plantation sites along the coast of Gujarat. Based on the feasibility study and the pilot plantation project a detailed implementation plan to cover the larger area will be drawn up.

The Feasibility Study:

The specific objectives of the Feasibility Study (covering 25 Talukas and 250 villages across the coast of Gujarat state) are as under:

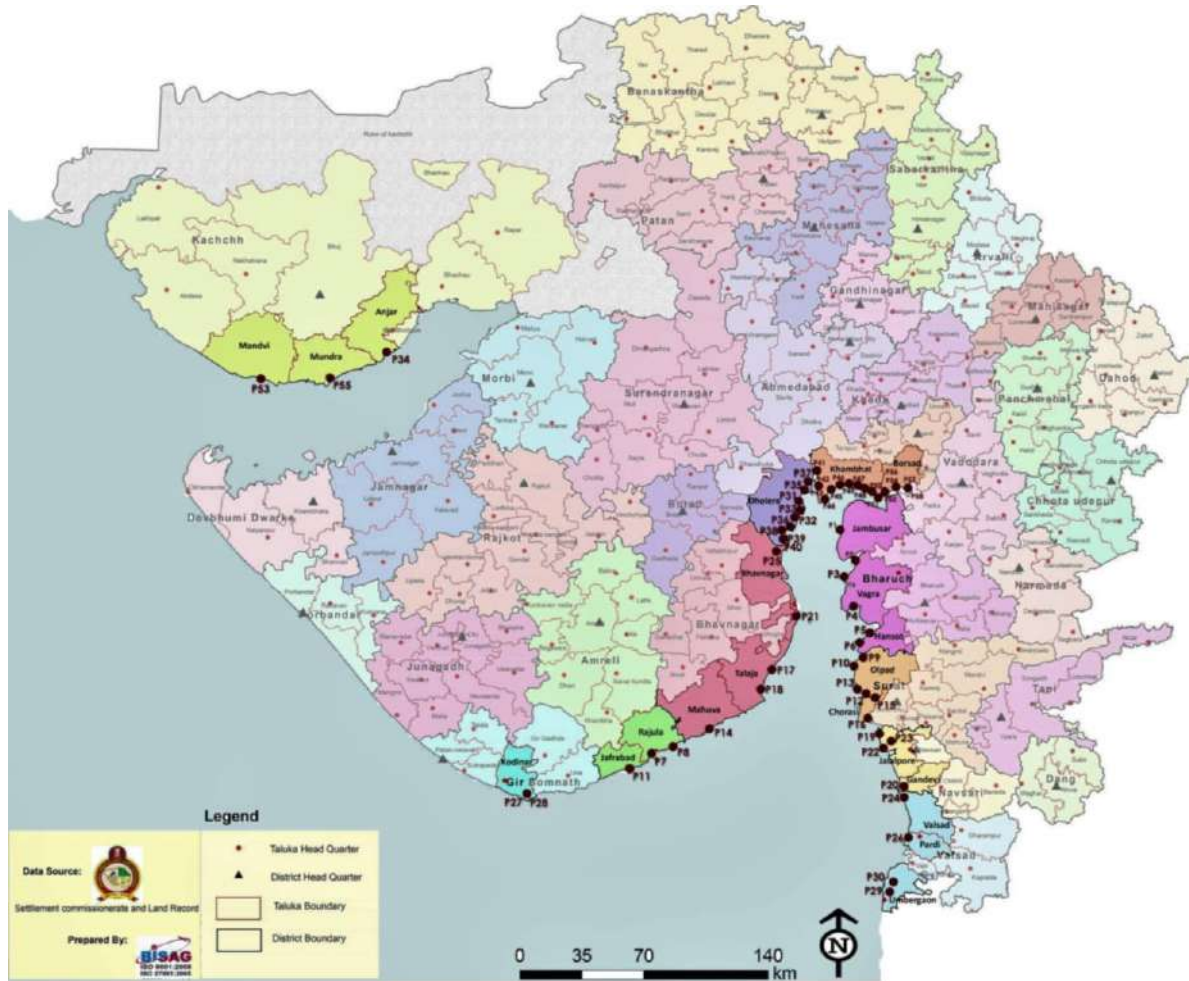
1. Estimate potential for sustained carbon sequestration through plantation of mangrove and associate species,
2. Identify sites that are technically, socially and administratively (in association with VIKAS CFD) feasible for carrying out plantation activities of mangroves and associates.
3. The process includes the following for each potential site.
 - i. Technical feasibility study
 1. soil structure,
 2. tidal pattern,
 3. erosion & accretion pattern,
 4. presence of naturally grown mangroves; and
 5. availability of seeds
 - ii. Social feasibility
 1. interest of local people,
 2. availability of skilled/unskilled labourers
 - iii. Administrative feasibility
 1. Consent from local civic body (Village Panchayat)
 2. Consent/permission from the applicable state administration such as District Collector, Gujarat Coastal Zone Management Authority (GCZMA))
4. Explore and arrive at administrative protocol to ensure accrual of carbon credit to Goodcarbon Impact GmbH, Germany for the life of the plantation.



Component	Steps followed for Social Feasibility
Civic Body Meeting	<ul style="list-style-type: none"> •An introductory meeting with the village civic body head (Sarpanch) is carried out. •Project background, relevance with respect to climate change and the activities to be carried out is discussed.
Coastal livelihoods	<ul style="list-style-type: none"> •A deeper understanding of the socio-economic and socio-political conditions is achieved through discussion with the community and village civic body representatives. •Further, the current status and challenges to the lives and livelihoods of the people working at coast is documented. This includes, fishermen, salt farmers, farmers, people involved in the animal husbandry.
Social Infrastructure	<ul style="list-style-type: none"> •Information about the presence civil society organisations active in the villages adjacent to the sites is gathered for potential future use. •Further, a discussion with Anganwadi workers, School staff and ASHA workers are also carried out to build rapport with the village community.
Labour Availability	<ul style="list-style-type: none"> •To understand the current labour employment pattern and wage rates discussion with community and civic body representatives is carried out. •Community readiness, labour availability and wage expectations for plantation activity is assessed.
Land Availability	<ul style="list-style-type: none"> •Based on the technical feasibility assessment and discussions with the civic body availability of land for plantation is estimated. •Intelligence about existing and future projects by any public or private organisations is also gathered in these discussions.
Civic body Consent	<ul style="list-style-type: none"> •Discussion with the civic body is carried out to avail a written no objection certificate for any future plantation activity based on the technical feasibility report of the site.

Status of land identified for Plantation

As of April 2023



No	District	No	Taluka	No of Plots Identified	Plot No	Mangrove Area (Ha)	Salvadora Area (Ha)	Other Plants (Ha)	Total Area (Ha)	Total Area (Ha) per district	Remark
1	Bharuch	1	Jambusar	1	P1	200			200	2,505	
		2	Vagra	3	P2, P3, P4	670			670		
		3	Hansot	2	P5, P6	885	750		1,635		
2	Amreli	4	Rajula	2	P7, P8	390			390	550	
		5	Jafrabad	1	P11	160			160		
3	Surat	6	Olpad	4	P9, P10, P12, P13	535	150		685	785	
		7	Choryasi	2	P15, P16	100			100		
4	Bhavnagar	8	Mahuva	1	P14	300			300	2,125	No land
		9	Talaja	2	P17, P18	430			430		
		10	Bhavnagar	2	P21, P25	895	500		1,395		
		11	Ghogha	0					-		
5	Navsari	12	Jalalpor	3	P19, P22, P23	75	475		550	620	
		13	Gandevi	1	P20	70			70		
6	Valsad	14	Valsad	1	P24	70			70	345	
		15	Pardi	1	P26	150			150		
		16	Umargam	2	P29, P30	125			125		
7	Gir-Somnath	17	Kodinar	2	P27, P28	75	25	200	300	300	No land
		18	Sutrapada	0					-		
		19	Una	0					-		
8	Anand	20	Khambhat	12	P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52	8,850	2,905		11,755	11,755	
9	Ahmedabad	21	Dholera	9	P31, P32, P33, P35, P36, P37, P38, P39, P40	3,535	2,820		6,355	6,355	
10	Kutchh	22	Bhachau	0					-	3,340	
		23	Anjar	1	P34	45			45		
		24	Mundra	1	P55	850			850		
		25	Mandvi	1	P53	300	205		505		
		26	Borsad	4	P54, P56, P57, P58,	1,010	930		1,940		
		26		58		19,720	8,760	200	28,680		

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- ❖ Project Background
- ❖ Process Followed
- ❖ Current Status
- ❖ Details of 01 to 58 Plots

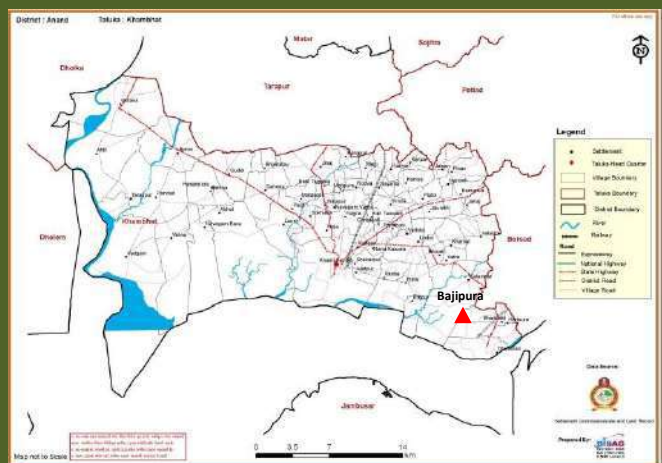
Table showing Plot & Village wise plantation area								
Sr.	District Name	Block Name	Plot No	Village Name	Plot Area(Ha)	Salvadora	Forestry	Types
1	Bharuch	Jambusar	1	Malpur,Devla	200	0	0	Mangrove
2	Bharuch	Vagra	2	Paniyadra	220	0	0	Mangrove
3	Bharuch	Vagra	3	Kadodra	250	0	0	Mangrove
4	Bharuch	Vagra	4	Ambheta	200	0	0	Mangrove
5	Bharuch	Hashot	5	Ambheta	650	750	0	Mangrove+Pillu
6	Bharuch	Hashot	6	Kantiyajal	235	0	0	Mangrove
7	Amreli	Rajula	7	Rampara-2, Bherai	240	0	0	Mangrove
8	Amreli	Rajula	8	Patva	150	0	0	Mangrove
9	Surat	Olpad	9	Karanj	55	25	0	Mangrove+Pillu
10	Surat	Olpad	10	Mor	320	0	0	Mangrove
11	Amreli	Jafrabad	11	Jafrabad	160	0	0	Mangrove
12	Surat	Olpad	12	Chhini	110	75	0	Mangrove+Pillu
13	Surat	Olpad	13	Dabhari	50	50	0	Mangrove+Pillu
14	Bhavnagar	Mahuva	14	Katpar	300	0	0	Mangrove
15	Surat	Choryashi	15	Vasva	50	0	0	Mangrove
16	Surat	Choryashi	16	Dumas	50	0	0	Mangrove
17	Bhavanagar	Talaja	17	Padri	130	0	0	Mangrove
18	Bhavanagar	Talaja	18	Trasara	300	0	0	Mangrove
19	Navsari	Jalalpur	19	Danti	75	0	0	Mangrove
20	Navsari	Ghandevi	20	Mendhar	70	0	0	Mangrove
21	Bhavnagar	Bhavanagar	21	Koliyat	130	0	0	Mangrove
22	Navsari	Jalalpur	22	Vasi	0	75	0	Pilu
23	Navsari	Jalalpur	23	Bhinar	0	400	0	Pilu
24	Navsari	Valsad	24	Moti Dati	70	0	0	Mangrove
25	Bhavanagar	Bhavanagar	25	Jasvanatpura	765	500	0	Mangrove
26	valsad	Pardi	26	Umarsadi	150	0	0	Mangrove
27	Somanath Gir	Kodinar	27	Kaaj	75	25	0	Mangrove 75 + Pillu 25
28	Somanath Gir	Kodinar	28	Kaaj	0	0	200	Forestry
29	Valsad	Umargam	29	Khatalvada	50	0	0	Mangrove
30	Valsad	Umargam	30	Aahu	75	0	0	Mangrove
31	Ahemdabad	Dholere	31	Khun	470	960	0	Mangrove+Pillu
32	Ahemdabad	Dholere	32	Rahtalav	440	500	0	Mangrove+Pillu
33	Ahemdabad	Dholere	33	Navagam	560	250	0	Mangrove+Pillu
34	Kutch	Anjar	34	Tuna	45	0	0	Mangrove
35	Ahemdabad	Dholera	35	Kamatalav	475	160	0	Mangrove
36	Ahemdabad	Dholera	36	Bhangadh	820	150	0	Mangrove+Pillu
37	Ahemdabad	Dholera	37	Buranpur	200	150	0	Mangrove+Pillu
38	Ahemdabad	Dholera	38	Mingalpur	300	260	0	Mangrove+Pillu
39	Ahemdabad	Dholera	39	Rajpur	70	170	0	Mangrove+Pillu
40	Ahemdabad	Dholera	40	Adhelai	200	220	0	Mangrove+Pillu
41	Anand	Khambhat	41	Mitli	300	0	0	Mangrove
42	Anand	Khambhat	42	Tarakpar	100	0	0	Mangrove
43	Anand	Khambhat	43	Vadgam	730	0	0	Mangrove
44	Anand	Khambhat	44	Talatalav	2940	500	0	Mangrove+Pillu
45	Anand	Khambhat	45	Navagambara	500	130	0	Mangrove+Pillu
46	Anand	Khambhat	46	Juni Akhol	275	130	0	Mangrove+Pillu
47	Anand	Khambhat	47	Khambhat	820	800	0	Mangrove+Pillu
48	Anand	Khambhat	48	Ralej/Rajpur	1000	400	0	Mangrove+Pillu
49	Anand	Khambhat	49	Lunej	1320	650	0	Mangrove+Pillu
50	Anand	Khambhat	50	Bajipura	600	280	0	Mangrove+Pillu
51	Anand	Khambhat	51	Ratneswar	130	0	0	Mangrove
52	Anand	Khambhat	52	Dhuvaran	135	15	0	Mangrove+Pillu
53	Kutch	Mandvi	53	Modhava	300	205	0	Mangrove+Pillu
54	Anand	Borsad	54	badalpur	430	210	0	Mangrove+Pillu
55	Kutch	Mundra	55	Luni	850	0	0	Mangrove+Pillu
56	Anand	Borsad	56	Dahevan	290	610	0	Mangrove+Pillu
57	Anand	Borsad	57	Sarol	30	10	0	Mangrove+Pillu
58	Anand	Borsad	58	Gajna	260	100	0	Mangrove+Pillu
				Total	19,720	8,760	200	

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India

Plot No. 50

Bajipura Village, Khambhat Taluka, Anand District



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Summary note on Feasibility

Technical feasibility

- Based on technical observations, this site has a potential of **600 ha** of Mangroves plantation and **280 ha** of Salvadora plantation.

Social feasibility

- At this location there is sufficient community support and therefore it is socially feasible for plantation activity.

Administrative feasibility

- The applications seeking administrative permissions have been made to group Village Panchayat.

Special Concerns

- **Accessibility:** Transportation from village to plantation site for the labourers is required.
- **Salt farming:** No special concerns regarding salt farming.
- **Animal husbandry:** In order to stop free grazing of animals in mangrove plantation areas and avoid resultant damages, rational cutting of mangrove leaves needs to be promoted.
- **Fisheries:** No special concerns regarding fisheries and fishermen.
- **Industry:** No special concerns regarding any industry.

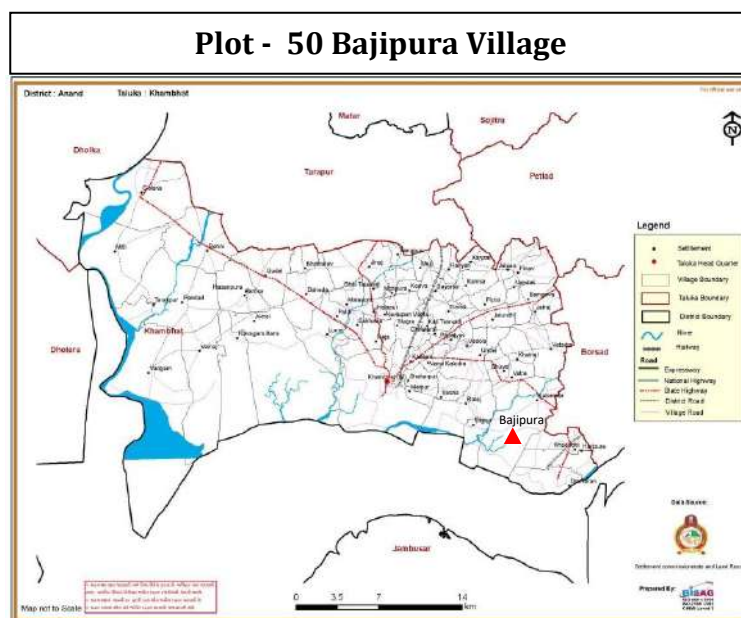


Site Photo

Introduction of the Village

General information of Bajipura Village

Taluka	Khambhat
District	Anand
Latitude and Longitude	22°15'25.40"N 72°41'59.90"E
Pin code	388640
Total area	6599 ha
Type of Gram Panchayat	Group
Village is located 17 Km from Khambhat taluka and 7 Km away from the coast	



Population (Source: Census of India 2011)	Data
Number of households	498
Total population - Person	2860
Total population - Males	-
Total population - Females	-
Scheduled Castes - Persons	-
Scheduled Tribes - Persons	-

Occupation	Families
Agriculture	250
Animal Husbandry	148
Fisheries	40
Daily wage Labour	60
Salt Pan workers	0

Sr.	Name	Contact No.
1	Chimanji Padhiyar (Sarpanch)	6351430865
2	Jitubha Vaghela (Talati)	7016067097
3	Vinodbhai Dayaji (Fisherman)	6351336065
4	Kesarsingh makvana (Farmer)	7698887126
5	Pravinbhai Natubhai (Fisherman)	9726863608
6	Manubhai Mafatji (Animal husbandry)	9825315376
7	Arvindji Makvana (Labour)	-

General Information of the site

Location

- This site is connected with **Bajipura** village.

Green Cover: Current status and potential

- There is existing vegetation around the coastal area which includes : **Prosopis juliflora and Grass**
- There is land available for plantation on the site and it is suitable for: **Mangrove (Avicennia marina), Salvadoria**.

Soil condition

- Type of soil of the site: **Muddy soil and grassland**
- Type of soil surrounding the site : **Black soil**
- The plot is at a **higher** level than the mean sea level.

Presence of Industries and its impact

- **There is no** industrial unit is located near to coastal area.

Additional general information

- Key livelihoods for the people in the village : **Agriculture, Animal husbandry, Fisheries and Daily wage labour**
- Species of fish present on site: **Bumla, Choli, Lepta,**
- **Boyi, Crabs and Prawns**
- Within **Bajipura** village the groundwater is **saline** and it is available at **50-60** feet.
- The nearest bank from **Bajipura** village is at **Dhuvaran (6 km away)** and **Kalamsar (3 km away)**

1: Technical feasibility

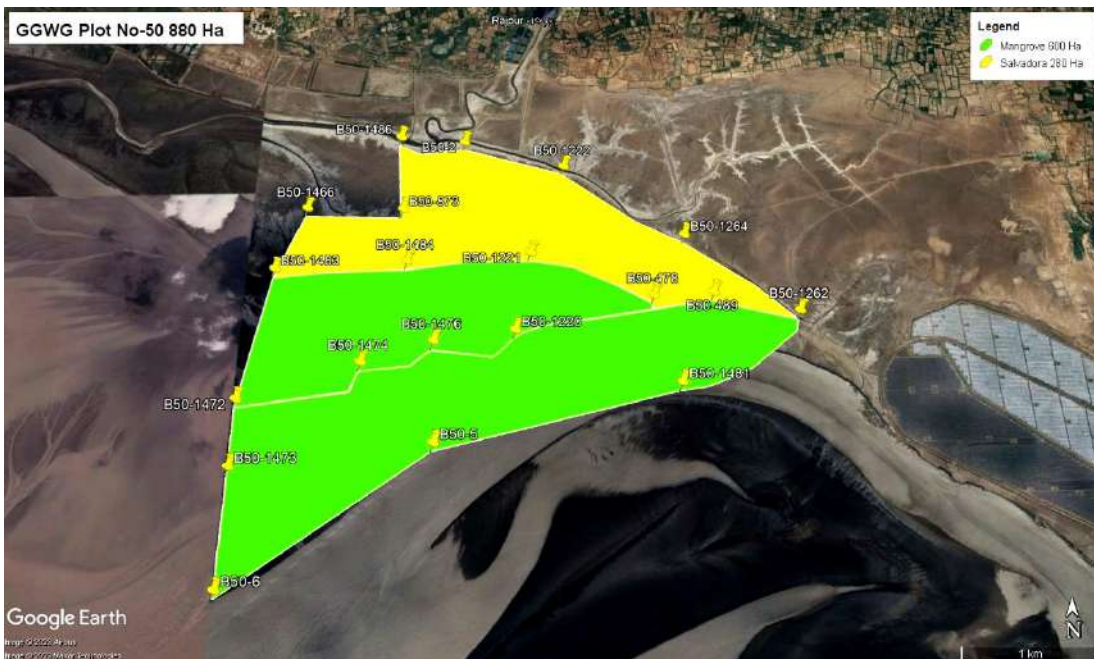
1.1: Context map



Accessibility:

The site can be accessed from **Bajipura** through a **7 km Kachcha** road. During summer and winter half the way can be accessed through vehicle but during monsoon vehicular access will not be possible.

1.2: Site map



2: Social feasibility

2.1 Community engagement, availability of Labourers and Challenges

- **Fishermen:** All the **40** families involved in fishing activity for **twelve** months. They all are “Pagadiya fishermen” and **no one** owns a boat.
- **Animal husbandry:** There are **148** families involved in **animal husbandry** having **6000** cows, **4000** buffaloes, **100** oxen, **500** goats and **400** Sheep in this village. Green fodder is available only for **4** months from farm lands and nearby villages. During summer in absence of green fodder **dry grass** is being used as fodder and also **open grazing** happens here.
- **Farmers:** There are **250** families engaged in **agriculture**. Nearest farm from the coast is **3km** away. The crops in the farm lands near coast get damaged due to increasing salinity. Within the village the ground water is **saline** and it is available within **50-60** feet.
- **Salt farmers:** There are **no** families involved in Salt farming.
- **Labour Availability:** This site will require approximately **700** labours per day for plantation activity. About **60-80** labourers would be available for plantation activity at the wage rate of INR **400** per day.

At Present, about **100-120** labourers are engaged in **agriculture, daily wages work and near coastal area** during the months of **July, August and December and January**. Their usual wage rate is INR **350-400** per day. In the need of additional labourers they can be sourced from **nearby** villages.

Discussions with labourers regarding Challenges and mitigations

Sr. No.	Challenges	Mitigations
1	Accessibility to the site	Special transport will be arranged, but during monsoon it is challenging to access the site.
2	Unavailability of shed to rest	Resting Shed as well as temporary living tents will be developed near the coast as per requested by labourers.
3	Access to Drinking water	Drinking water facility will be developed.
4	People are willing to join the plantation activity. However few of them might not have active bank accounts.	Arrangements will be made to activate the bank accounts.
5	Skill of labourers for the mangrove plantation	People have not done the work of Mangrove plantation before so training will be given.

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India



Taking GPRS Points



Meeting with Panchayat Members



Soil Sample Collection



Water Sample Collection




Meeting with Laborers Fishermen & Cattle rears



3: Administrative feasibility

3.1: Approval Letter from Gram Panchayat


સત્યમેવ જયતે
સ્વચ્છ ગામ
સંપ ત્યાં જંપ નિર્મળ ગામ



॥ વિના સઠકાર નહિ ઉદાર ॥

બાજુપુરા ગૃપ ગ્રામ પંચાયત

તા.ખંભાત, જી.આઇંદ પીન :- ૩૮૮૬૪૦
(પંચાયત વેરાઓ અચુક ભરીએ)



પા.નં.

સંમતી પત્રક

તા. ૨૬-૦૨ ૨૦૨૩

વિકાસ સેન્ટર ફીર ડેવલોપમેન્ટ એક સ્વૈચ્છિક સંસ્થા છે. જે
 જેલુસર તાલુકામાં દેવલા જીલ્લા વર્ષવા દરિયા કિનારા
 વિસ્તારમાં કુદરતી સંસ્થાઓ નો વિકાસ પર્યાવરણ
 બચાવવાનું તેમજ ગ્રામ્ય સ્તરે વાસ્તવિક શિક્ષણી આયોજન
 કામ કરે છે.

બાજુપુરા ગામના દરિયા કિનારે વિકાસ સંસ્થા તબર
 વાવેલટ કરવાની ઇચ્છા ધરાવે છે. જે તબરના વાવેલરશર અમારા
 ગામના દરિયા કિનારે એક લાભ દેવાળ ઉભા થશે. જેને લઈ
 પર્યાવરણમાં અને દરિયાઈ જીવસુસ્ટીમાં સુધારા આપણે
 તેમજ કુદરતી સંસ્થા સાથે અમારા ગામને સુભા મળશે.
 આ ઉપરાંત આ કામથી અમારા ગામની જાબલા વર્ગના વારિ
 નાકોને શિક્ષણી મળશે, તેમજ લાંબાગઈ તેમજ આજીવિયામાં
 સુધારા આપશે.

અમારા ગામમાં પર્યાવરણ સુધારણા માટે વિકાસ સેન્ટર
 કામ કરશે તો આ કામમાં, અમે ગ્રામ પંચાયત કરી રી રોકો સુભા
 પાડશે અમારા ગામમાં જાબલા વર્ગના નાકોને શિક્ષણી મળે
 માટે સાથ રહી આ કામમાં સહકાર આપીશું.

આ કાર્યક્રમને સમારે ગ્રામ પંચાયત આપકાં છે. આ
 કાર્યક્રમને જાડવાં માર્ગ સેમતી દર્શાવેલો છે.

સહકારની અપેક્ષા સહ

સીમજી.પરિવાર
 સચાંચ
 બાજુપુરા ગૃપ ગ્રામ પંચાયત,
 તા. ખંભાત. જિ. આઇંદ.

4: Annexure

4.1: GPS points of the available plot

GGWG Plot No-50 - 880 Ha			
No	Point .No.	N	E
1	B50-478	22°15'34.70"N	72°42'39.50"E
2	B50-480	22°15'41.80"N	72°42'25.90"E
3	B50-483	22°15'45.60"N	72°42'17.20"E
4	B50-485	22°15'47.30"N	72°42'6.30"E
5	B50-486	22°15'29.20"N	72°42'9.00"E
6	B50-487	22°15'27.00"N	72°42'2.40"E
7	B50-488	22°15'30.60"N	72°42'21.60"E
8	B50-489	22°15'35.30"N	72°42'56.60"E
9	B50-1220	22°15'25.40"N	72°41'59.90"E
10	B50-1221	22°15'47.30"N	72°42'4.30"E
11	B50-1222	22°16'13.20"N	72°42'14.40"E
12	B50-1262	22°15'29.90"N	72°43'20.80"E
13	B50-1263	22°15'38.60"N	72°42'33.00"E
14	B50-1264	22°15'52.10"N	72°42'49.20"E
15	B50-1472	22°15'7.80"N	72°40'42.90"E
16	B50-1483	22°15'43.60"N	72°40'50.60"E
17	B50-1486	22°16'23.10"N	72°41'25.40"E
18	B50-1466	22°16'1.40"N	72°40'58.70"E
19	B50-873	22°16'0.76"N	72°41'26.90"E
20	B50-1	22°16'20.10"N	72°41'32.40"E
21	B50-2	22°16'21.20"N	72°41'44.70"E
22	B50-3	22°15'58.30"N	72°42'36.00"E
23	B50-4	22°15'39.20"N	72°43'9.70"E
24	B50-5	22°14'55.70"N	72°41'37.60"E
25	B50-6	22°14'20.60"N	72°40'42.10"E
26	B50-1484	22°15'45.30"N	72°41'28.60"E
27	B50-1485	22°15'47.30"N	72°41'46.20"E
28	B50-1487	22°14'50.40"N	72°40'42.60"E
29	B50-1488	22°15'17.20"N	72°41'16.60"E
30	B50-1473	22°14'50.40"N	72°40'42.60"E
31	B50-1474	22°15'17.20"N	72°41'16.60"E
32	B50-1475	22°15'18.40"N	72°41'31.00"E
33	B50-1476	22°15'22.70"N	72°41'36.80"E
34	B50-1477	22°15'20.50"N	72°41'54.40"E
35	R51-1481	22°15'10.70"N	72°42'46.20"E
36	R51-1482	22°15'11.60"N	72°42'53.80"E
37	R51-1483	22°15'14.00"N	72°43'0.90"E
38	R51-1484	22°15'16.60"N	72°43'7.00"E
39	R51-1485	22°15'26.60"N	72°43'20.30"E
40	KS39-16	22°15'38.50"N	72°42'7.60"E
41	KS39-17	22°15'21.60"N	72°41'8.20"E

4.2: Soil Report

Soil Analysis

Contents in the Soil	Amount
Nitrogen / organic carbon (%)	0.46
Available phosphorus (kg/ha)	56
Available Potash (kg/ha)	544
pH level	8.3
Electrical Conductivity (TDS) (ml umhos/cm)	14.10



જમીનનું પૃથ્થકરણ અને રાસાયણિક ખાતરોની ભલામણનો અહેવાલ

ગુજરાત નર્મદાવેલી ફર્ટીલાઇઝર્સ એન્ડ કેમીકલ્સ લિમિટેડ, પો. નર્મદાનગર, જી. ભરૂચ - ૩૯૨ ૦૧૫
ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૯૫૭, ૨૦૨૯૫૮
(આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

પૃથ્થકરણ અહેવાલ							
લેખ નંબર	૨૨૦૫૪૦૯	બેગ નં.	૩	કુલ નાઈટ્રોજન (સેન્ટ્રિય કાર્બન)	૦.૪૬	ઓછો	૨૫ %
નામ	સલાઈન એરિયા વાઈટેલાઈઝેશન એન્ટરપ્રાઈઝ			લાભ્ય ફોસ્ફરસ	૫૬	મધ્યમ	કિલો/હેક્ટર
ગામ	બાજીપુરા	તાલુકો	ખંભાત	લાભ્ય પોટાશ	૫૪૪	વધારે	કિલો/હેક્ટર
જિલ્લો	આણંદ			પી.એચ. (pH)	૮.૩	ભાર્શ્મીક	
સર્વે નં.	પી ૫૦			ઈ.સી. (કુલ દ્રાવ્ય શાર)	૧૪.૧૦	નુકશાનકર્તા	મીલી મહો/સે.મી.
ખેતરનું નામ	તવર વાળો વિસ્તાર-૧						
NKSK	ખેડૂત અને અન્ય કવર નં ૨૨૨૩૧૧૦						
પાર્કનું નામ							
સેન્ટ્રિય ટેશી ખાતર	પોષક તત્વના રૂપમાં ભલામણ			રાસાયણિક ખાતરોના રૂપમાં ભલામણ			
	નાઈટ્રોજન N	ફોસ્ફરસ P	પોટાશ K	નર્મદા નીમ યુરિયા (૪૬ %)	નર્મદા ફોસ (૨૦-૨૦-૦)	સીંગલ સુપર ફોસ્ફેટ (૧૬ %)	મ્યુરેટ ઓફ પોટાશ (૬૦ %)
ગામ	કિ.ગ્રા. / હેક્ટર			કિ.ગ્રા. / હેક્ટર			
			૦				
અન્ય ભલામણ							
૧) જમીનનો નિતાર સુધારવો / નિતાર નીક બનાવવી.							
૨) છાણીય ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો.							
૩) પ્રતિ હેક્ટરે ૨૧/૨ ટન જીપ્સમ જમીનમાં સારી રીતે વાવતા પહેલા ભેળવી દેશો.							
૪) પિચત માટે વપરાતા પાણીનું પૃથ્થકરણ કરાવવું જરૂરી છે.							
(આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)							
				લેખકનું નામ			
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				૦૪-૦૩-૨૦૨૩			

4.3: Water Report

Water Analysis

Contents in the water	Amount
pH level	7.5
Electrical Conductivity (ml umhos/cm)	19.60
Sodium Absorption Rate	30.9
Residual sodium carbonate	0.00
Water class	C-4S-4



પિયત પાણીના પૃથ્થકરણ અને ભલામણનો અહેવાલ

ગુજરાત નર્મદાવેલી ફર્ટીલાઈઝર્સ એન્ડ કેમીકલ્સ લિમિટેડ, પો. નર્મદાનગર, જી. ભરૂચ - ૩૯૨ ૦૧૫
ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૯૫૭, ૨૦૨૯૫૮
(આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

પૃથ્થકરણ અહેવાલ	
લેબ નંબર ૨૨૩૩૩૧	નમુના નં. ૨
નામ સલાઈન અરિયા વાઈટેલાઈઝેશન એન્ટરપ્રાઈઝ લીમિટેડ.	(pH) ૭.૫
ગામ બાજીપુરા તાલુકો ખંભાત	વિદ્યુત વાહકતા (EC) ૧૯.૬૦ મીલીમોર્/સે.મી.
જિલ્લો આણંદ	સોડિયમ અવિશોષણ આંક (SAR) ૩૦.૯
સર્વે નં. પી ૫૦	શેષ સોડિયમ કાર્બોનેટ (RAC) ૦.૦૦
ખેતરનું નામ તવર વાળો વિસ્તાર-૧	પાણી નો વર્ગ (water class) સી-૪એસ-૪
NKSK ખેતર અને અન્ય ક્વર નં ૨૨૨૩૧૧૦	
દ્રાવ્ય ક્ષારનું પ્રમાણ એમ.ઈ.ક્યુ. / લીટર (Meq./lit.)	
કેલ્શિયમ (Ca) ૨૫.૦૦	કાર્બોનેટ (CO ₃) ૦.૧૦
મેગ્નેશિયમ (Mg) ૧૪૧.૦૦	બાયકાર્બોનેટ (HCO ₃) ૩.૦૦
સોડિયમ (Na) ૩૦૨.૬	ક્લોરાઈડ (Cl) ૪૩૮.૦૦
અન્ય ભલામણ	ખૂબ જ હાનિકારક છે.
૧) પાણીના પૃથ્થકરણ ઉપરથી જણાય છે, કે પાણી પિયત માટે	
૨) છાણીયા ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો. (આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)	
This is computer generated report hence signature is not required	લેબ નંબર ૦૪-૦૩-૨૦૨૩ જી.એન.એફ.સી. લિ.

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Summary note on Feasibility

Technical feasibility

- Based on technical observations, this site has a potential of **2940 ha** of Mangroves plantation and **500ha** of Salvadora Plantation.

Social feasibility

- At this location there is sufficient community support and therefore it is socially feasible for plantation activity.

Administrative feasibility

- The applications seeking administrative permissions have been made to Village Panchayat.

Special Concerns

- **Accessibility:** The site can be accessed from **Tada talav** through a **12 km** of *kaccha* road. During summer and winter half the way can be accessed through vehicle but during monsoon vehicular access will not be possible.
- **Salt farming:** No special concerns regarding salt farming.
- **Animal husbandry:** In order to stop free grazing of animals in mangrove plantation areas and avoid resultant damages, rational cutting of mangrove leaves needs to be promoted.
- **Fisheries:** No special concerns regarding fisheries and fishermen.
- **Industry:** No special concerns regarding any industry.

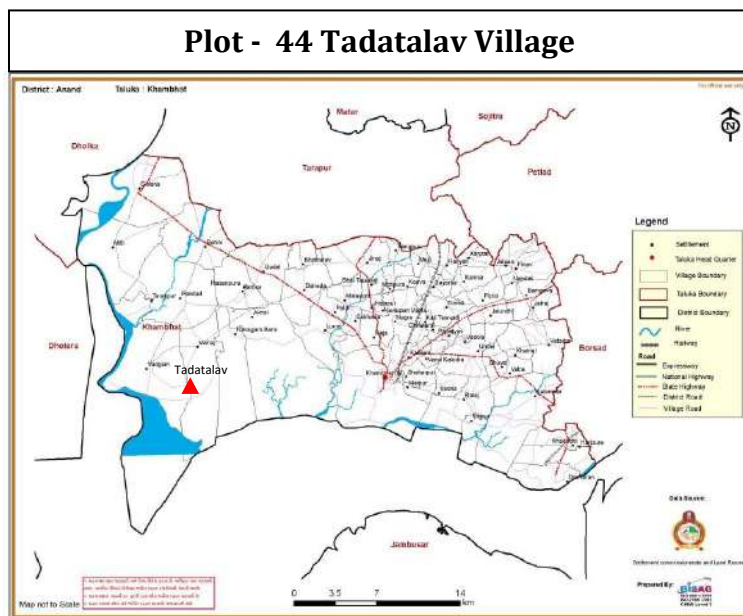


Site Photo

Introduction of the Village

General information of **Tadatalav** Village

Taluka	Khambhat
District	Anand
Latitude and Longitude	22°18'24.60"N 72°27'32.72"E
Pin code	388625
Total area	434 ha
Type of Gram Panchayat	Independent
Village is located 25Km from Khambhat taluka and 12 Km away from the coast	



Population (Source: Census of India 2011)	Data
Number of households	150
Total population - Person	1198
Total population - Males	-
Total population - Females	-
Scheduled Castes - Persons	-
Scheduled Tribes - Persons	-

Occupation	Families
Agriculture	65
Animal Husbandry	30
Fisheries	20
Daily wage Labour	35
Salt Pan workers	0

Sr.	Name	Contact No.
1	Ambalal Gohel (Sarpanch)	7990767952
2	Nayanbhai (Talati)	9904841264
3	Manubhai Bharvad (Animal Husbandry)	9265092267
4	Manojbhai Vaghri (Fisherman)	6351948995
5	Sanjaybhai Vaghri (Labour)	6352327629
6	Pravinbhai mer (Farmer)	9327992678
7	Chhotubhai mer (Labour)	6351602082

General Information of the site

Location

- This site is connected with **Tadatalav** village.

Green Cover: Current status and potential

- There is existing vegetation around the coastal area which includes : **Mangrove (Avicennia marina)**
- There is an existing vegetation covering more than **200** ha of area (Naturally grown and planted) containing **Mangroves**.
- Existing mangroves are of **2-5 ft** in height and are used for fodder.
- There is land available for plantation on the site and it is suitable for: **Mangrove (Avicennia marina), Salvadoria**

Soil condition

- Type of soil of the site: **Muddy soil**
- Type of soil surrounding the site : **Black soil**
- The plot is at a **higher** level than the mean sea level.

Presence of Industries and its impact

- **There is no** industrial unit is located near to coastal area.

Additional general information

- Key livelihoods for the people in the village : **Agriculture, Animal husbandry, Fisheries and Daily wage labour**
- Species of fish present on site: **Chel, Ghadiya, Lepta, Prawns and Crabs**
- Within **Tadatalav** village the groundwater is **saline** and it is available at **8-10** feet.
- The nearest bank from **Tadatalav** village is at **Vadgam and Khambhat (28 km away)**

1.3: Erosion and accretion

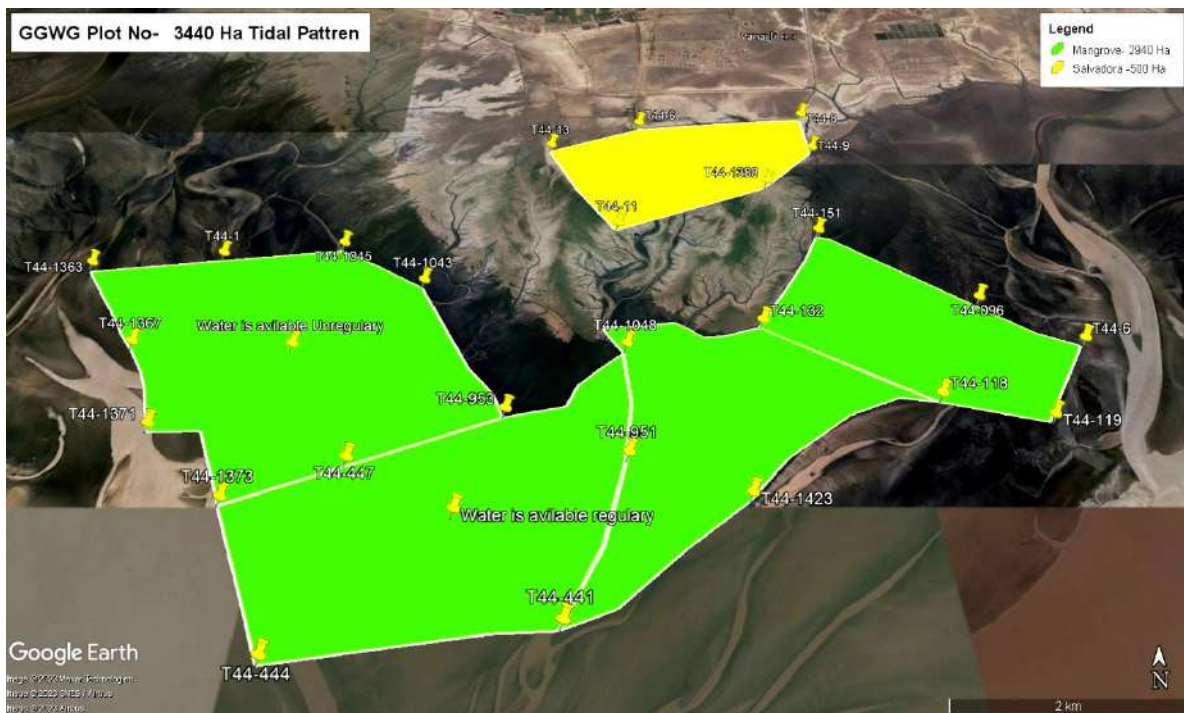
- At this site the erosion occurs from the month of **June to August** at some locations.
- At this site the accretion occurs from the month of **December and January**.

1.4: Availability of Seeds and Irrigation

- Mangrove seed availability is **sufficient** for plantation. In the additional need Seeds can be arranged from nearby village **Mitli**.
- Seedlings are **available** for direct dibbling.

1.5: Tidal pattern

- The tidal water ingress is greater than **150 m**.
- Tidal water will be available for **13 days** during 15 days of cycle hence it is **sufficient**.
- Tide has a **high** current.



2: Social feasibility

2.1 Community engagement, availability of Labourers and Challenges

- **Fishermen:** All the **30** families involved in fishing activity for **twelve** months. They all are “*Pagadiya* fishermen” and **no one** owns a boat.
- **Animal husbandry:** There are **30** families involved in **animal husbandry** having **250** cows, **350** buffaloes, **150** goats and **one** horse in this village. Green fodder is available only for **6** months from farm lands and nearby villages. During summer in absence of green fodder **dry grass** is being used as fodder and also **open grazing** happens here.
- **Farmers:** There are **65** families engaged in **agriculture**. Nearest farm from the coast is **2km** away. The crops in the farm lands near coast get damaged due to increasing salinity. Within the village the ground water is **saline** and it is available within **8-10** feet.
- **Salt farmers:** There are **no** salt farms, at the coast.
- **Labour Availability:** To work in the whole site at once it will require approximately **2000** labours per day for plantation activity. About **100-150** labourers would be available for plantation activity at the wage rate of **INR 350** per day.

At Present, about **100-150** labourers are engaged in **agriculture and near coastal area** outside the village during the **whole year**. Their usual wage rate is **INR 250-350** per day. In the need of additional labourers they can be sourced from **nearby** villages.

Discussions with labourers regarding Challenges and mitigations

Sr. No.	Challenges	Mitigations
1	Accessibility to the site	Special transport will be arranged, but during monsoon it is challenging to access the site.
2	Unavailability of shed to rest	Resting Shed as well as temporary living tents will be developed near the coast as per requested by labourers.
3	Access to Drinking water	Drinking water facility will be developed.
4	People are willing to join the plantation activity. However few of them might not have active bank accounts.	Arrangements will be made to activate the bank accounts.
5	Skill of labourers for the mangrove plantation	People have not done the work of Mangrove plantation before so training will be given.

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India



Taking GPRS Points



Meeting with Sarpanch



Soil Sample Collection



Water Sample Collection



Meeting with Laborers & Cattle rearers



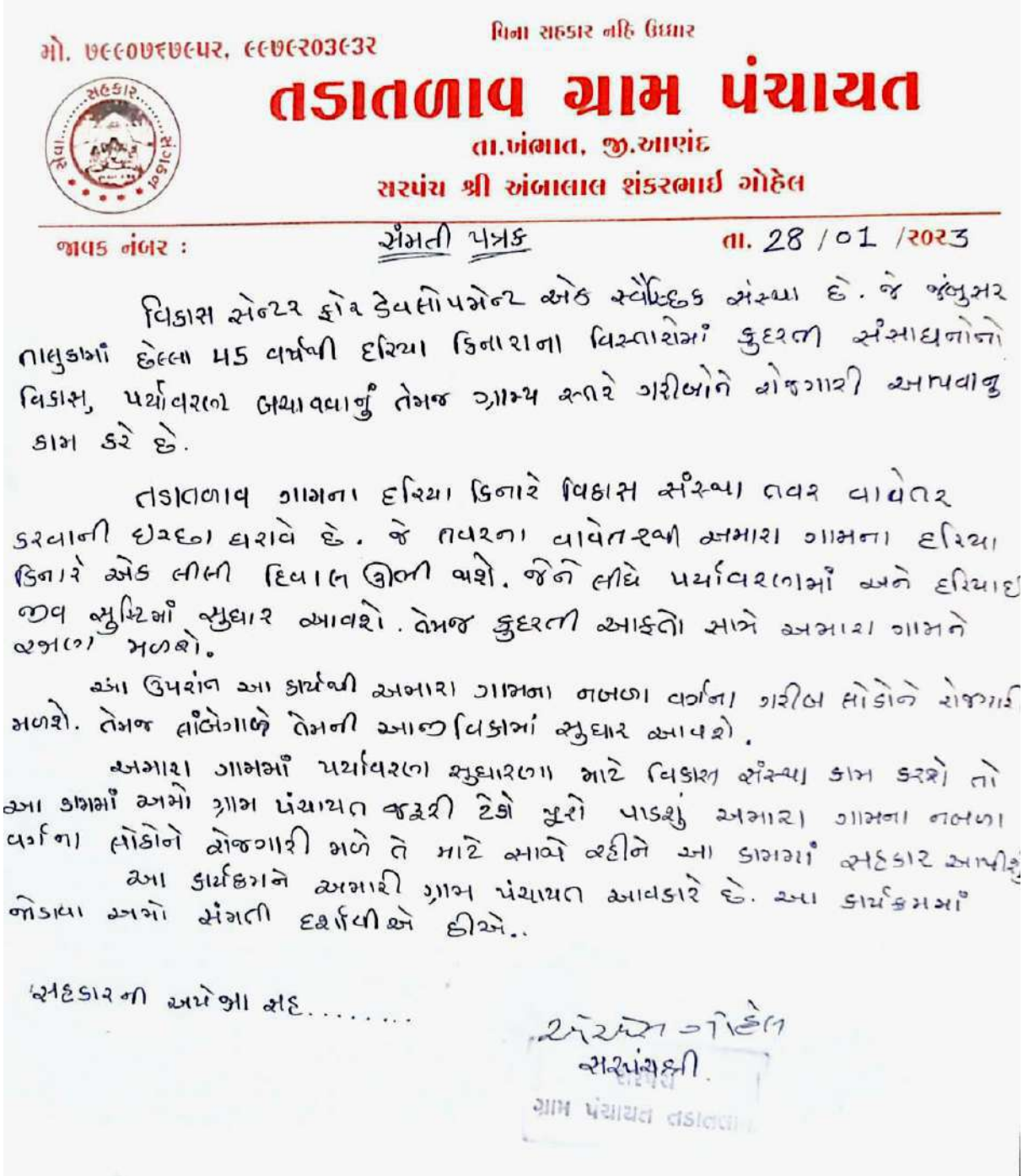
Meeting with Fishermen

Mangrove Photographs



3: Administrative feasibility

3.1: Approval Letter from Gram Panchayat



4: Annexure


4.1: GPS points of the available plot

GGWG Plot No-44 3440 Ha			
No	Point .No.	N	E
1	T44-949	22°14'30.60"N	72°27'26.70"E
2	T44-950	22°13'55.80"N	72°27'26.70"E
3	T44-951	22°13'31.40"N	72°27'23.90"E
4	T44-952	22°13'33.60"N	72°27'16.30"E
5	T44-953	22°13'49.70"N	72°26'39.60"E
6	T44-954	22°13'60.00"N	22°13'60.00"N
7	T44-955	22°14'2.80"N	72°26'32.50"E
8	T44-991	22°14'11.80"N	72°26'25.30"E
9	T44-1043	22°14'52.20"N	72°26'2.70"E
10	T44-1044	22°15'4.30"N	72°25'43.10"E
11	T44-1045	22°15'13.10"N	72°25'26.70"E
12	T44-1046	22°14'3.10"N	72°27'6.90"E
13	T44-1047	22°14'11.50"N	72°27'14.70"E
14	T44-1048	22°14'19.50"N	72°27'24.10"E
15	T44-1049	22°14'38.00"N	72°27'23.70"E
16	T44-1	22°13'54.10"N	72°27'2.50"E
17	T44-2	22°14'30.50"N	72°27'15.80"E
18	T44-3	22°14'33.70"N	72°27'44.80"E
19	T44-4	22°14'26.20"N	72°27'55.00"E
20	T44-117	22°13'58.70"N	72°29'5.00"E
21	T44-118	22°13'56.60"N	72°29'19.30"E
22	T44-119	22°13'47.20"N	72°29'57.50"E
23	T44-440	22°12'59.40"N	72°27'16.00"E
24	T44-441	22°12'32.00"N	72°27'2.40"E
25	T44-442	22°12'38.40"N	72°27'20.10"E
26	T44-443	22°12'30.50"N	72°26'40.90"E
27	T44-444	22°12'21.20"N	72°25'31.70"E
28	T44-446	22°12'35.20"N	72°25'25.20"E
29	T44-447	22°13'29.30"N	72°25'45.80"E
30	T44-1363	22°15'2.10"N	72°23'44.60"E
31	T44-1364	22°14'51.60"N	72°23'52.80"E
32	T44-1365	22°14'35.50"N	72°24'3.70"E
33	T44-1366	22°14'28.50"N	72°24'8.40"E
34	T44-1367	22°14'20.60"N	72°24'14.70"E
35	T44-1368	22°14'10.80"N	72°24'22.40"E
36	T44-1369	22°14'3.00"N	72°24'26.70"E
37	T44-1370	22°13'57.50"N	72°24'28.70"E
38	T44-1371	22°13'43.20"N	72°24'32.50"E
39	T44-1372	22°13'43.40"N	72°24'51.80"E
40	T44-1373	22°13'14.00"N	72°25'6.00"E
41	T44-1421	22°13'51.00"N	72°28'45.70"E
42	T44-1422	22°13'32.40"N	72°28'20.20"E
43	T44-1423	22°13'15.70"N	72°28'5.40"E
44	T44-1424	22°13'5.90"N	72°27'52.60"E
45	T44-1425	22°12'58.40"N	72°27'42.80"E

4.2: Soil Report

Soil Analysis

Contents in the Soil	Amount
Nitrogen / organic carbon (%)	0.38
Available phosphorus (kg/ha)	16
Available Potash (kg/ha)	544
pH level	8.1
Electrical Conductivity (TDS) (ml umhos/cm)	7.80





જમીનનું પૃથ્થકરણ અને રાસાયણિક ખાતરોની ભલામણનો અહેવાલ
 ગુજરાત નર્મદાવેલી ફર્ટીલાઈઝર્સ એન્ડ કેમિકલ્સ લિમિટેડ,, પો. નર્મદાનગર, જી. ભરૂચ - ૩૯૨ ૦૧૫
 ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૯૫૭, ૨૦૨૯૫૮
 (આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

પૃથ્થકરણ અહેવાલ							
લેબ નંબર	૨૨૦૪૯૬૦	ભેગ નં.	૮	કુલ નાઈટ્રોજન (સોનિય કાર્બન)	૦.૩૮	ઓછો	ટકા %
નામ	સલાઈન ઓરિયા વાઈટેલાઈઝેશન એન્ટરપરાઈ	ગામ	તળાવળાવ તાલુકો ખંભાત	લભ્ય ફોસ્ફરસ	૧૬	ઓછો	કિલો/હેક્ટર
જીલ્લો	આણંદ	જીલ્લો	આણંદ	લભ્ય પોટાશ	૫૪૪	વધારે	કિલો/હેક્ટર
સર્વે નં.	પી ૪૪	પ્લોટ નં.	તવર વરળો વિસ્તાર - ૧	પી.એચ. (pH)	૮.૧	ભાર્શ્મીક	
પ્લોટ નં.	પી ૪૪	પ્લોટ નં.	તવર વરળો વિસ્તાર - ૧	ઈ.સી. (કુલ દ્રાવ્ય ક્ષાર)	૭.૮૦	નુકશાનકર્તા	મીલી મોલ/સે.મી.
NKSK	ખેડૂત અને અન્ય	કવર નં	૨૨૨૩૦૯૪				
પાકનું નામ							
સેન્ટ્રલ દેશી ખાતર	પોષક તત્વના રૂપમાં ભલામણ			રાસાયણિક ખાતરોના રૂપમાં ભલામણ			
	નાઈટ્રોજન N	ફોસ્ફરસ P	પોટાશ K	નર્મદા નીમ યુરિયા (૪૬ %)	નર્મદા ફોસ (૨૦-૨૦-૦)	સીંગલ સુપર ફોસ્ફેટ (૧૬ %)	મ્યુરેટ ઓફ પોટાશ (૬૦ %)
ગણ	કિ.ગ્રા. / હેક્ટર			કિ.ગ્રા. / હેક્ટર			
			૦				


અન્ય ભલામણ

- જમીનનો નિતાર સુધારવો / નિતાર નીક બનાવવી.
- છાણીય ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો.
- પ્રતિ હેક્ટરે ૦ ટન જીપ્સમ જમીનમાં સારી રીતે વાવતા પહેલા ભેળવી દેશો.
- પિયત માટે વપરાતા પાણીનું પૃથ્થકરણ કરાવવું જરૂરી છે.

(આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

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 લેબ ઈન્ચાર્જ
 જી.એન.એફ.સી. લિ.
 ૧૬/૦૨/૨૦૨૩

4.3: Water Report

Water Analysis

Contents in the water	Amount
pH level	6.9
Electrical Conductivity (ml umhos/cm)	10.60
Sodium Absorption Rate	9.98
Residual sodium carbonate	0.00
Water class	C-4S-1



પિયત પાણીના પૃથ્થકરણ અને ભલામણનો અહેવાલ

ગુજરાત નર્મદાવેલી ફર્ટીલાઈઝર્સ એન્ડ કેમિકલ્સ લિમિટેડ., પો. નર્મદાનગર, જી. ભરૂચ - ઉલ્લ ૦૧૫
ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૮૫૭, ૨૦૨૮૫૮
(આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

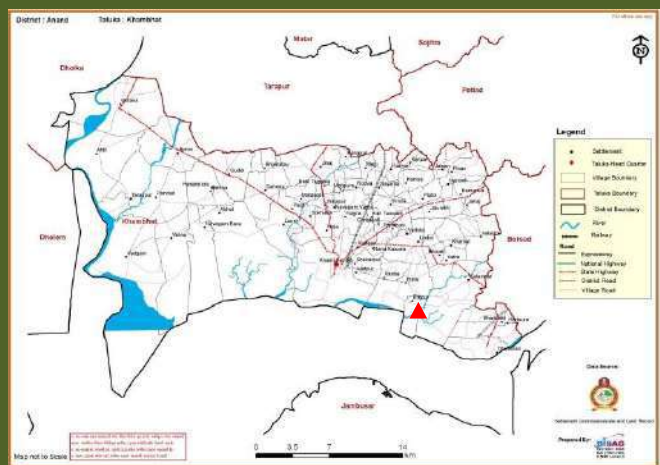
પૃથ્થકરણ અહેવાલ	
લેબ નંબર ૨૨૩૧૩૫ નમુના નં. ૫	પી. એચ. (pH) ૬.૯
નામ સલાઈન એરિયા વાઈટેલાઈઝેશન એન્ટરપ્રાઈઝ લીમિટેડ	વિદ્યુત વાહકતા (EC) ૧૦.૬૦ મીલીમોહ/સે.મી.
ગામ તળાવળાવ તાલુકો ખંભાત	સોડિયમ અધિશોષણ આંક (SAR) ૯.૯૮
જિલ્લો આણંદ	શેષ સોડિયમ કાર્બોનેટ (RAC) ૦.૦૦
સર્વે નં. પી ૪૪	પાણી નો વર્ગ (water class) સી-૪એસ-૧
ખેતરનું નામ તવર વરળો વિસ્તાર -૧	
NKSK ખેડૂત અને અન્ય ક્વર નં ૨૨૨૩૦૯૪	
દ્રાવ્ય ક્ષારનું પ્રમાણ એમ.ઈ.ક્યુ. / લીટર (Meq./lit.)	
કેલ્શિયમ (Ca) ૧૦.૪૦	કાર્બોનેટ (CO3) ૦.૧૦
મેગ્નેશિયમ (Mg) ૬૩.૪૦	બાયકાર્બોનેટ (HCO3) ૦.૩૦
સોડિયમ (Na) ૬૪.૭૮	ક્લોરાઈડ (Cl) ૩૦૬.૦૦
અન્ય ભલામણ	
૧) પાણીના પૃથ્થકરણ ઉપરથી જણાય છે, કે પાણી પિયત માટે ખુબ જ હાનિકારક છે.	
૨) છાણીયા ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો.	
(આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)	
This is computer generated report hence signature is not required	
લેબ ઈન્ચાર્જ જી.એન.એફ.સી. લિ. ૧૫/૦૨/૨૦૨૩	

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India

Plot No. 48

Rajpur Village, Khambhat Taluka, Anand District



Prepared by : Saline Area Vitalisation Enterprise Limited, Ahmedabad, India

Project Supported by: Goodcarbon Impact GmbH, Germany

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Summary note on Feasibility

Technical feasibility

- Based on technical observations, this site has a potential of **1000 ha** of Mangroves plantation and **400 ha** of *Salvadora* plantation.

Social feasibility

- At this location there is sufficient community support and therefore it is socially feasible for plantation activity.

Administrative feasibility

- The applications seeking administrative permissions have been made to Village Panchayat and are being pursued.

Special Concerns

- **Accessibility:** Transportation from village to plantation site for the labourers is required.
- **Salt farming:** No special concerns regarding salt farming.
- **Animal husbandry:** In order to stop free grazing of animals in mangrove plantation areas and avoid resultant damages, rational cutting of mangrove leaves needs to be promoted.
- **Fisheries:** No special concerns regarding fisheries and fishermen.
- **Industry:** No special concerns regarding any industry.



Site Photo

Introduction of the Village

General information of **Rajpur** Village

Taluka	Khambhat	<div style="text-align: center;">Plot - 48 Rajpur Village</div>
District	Anand	
Latitude and Longitude	22°15'24.80"N 72°38'25.80"E	
Pin code	388640	
Total area	3441 ha	
Type of Gram Panchayat	Group (with Ralej)	
Village is located 07 Km from Khambhat taluka and 08 Km away from the coast		

Population (Source: Census of India 2011)	Data
Number of households	107
Total population - Person	685
Total population - Males	353
Total population - Females	332
Scheduled Castes - Persons	14
Scheduled Tribes - Persons	0

Occupation	Families
Agriculture	42
Animal Husbandry	35
Fisheries	0
Daily wage Labour	30
Salt Pan workers	0

Sr.	Name	Contact No.
1	Chandubhai M. (up Sarpanch)	9978156606
2	Gaurangbhai v. (Talati)	6352480228
3	Rathod Dimpalben (Anganwadi worker)	9099383691
4	Hiteshbhai Solanki (Animal Husbandry)	9724483142
5	Vishalbhai Solanki (Labour)	6354546042
6	Makwana Aswinbhai (Farmer)	6355093230
7	Ramanbhai Vaghela (Chairman of AFS organisation)	9328718430

General Information of the site

Location

- This site is connected with **Rajpur** village.

Green Cover: Current status and potential

- There is existing vegetation around the coastal area which includes : **Prosopis juliflora and Grass**
- There is land available for plantation on the site and it is suitable for: **Mangrove (Avicennia marina), Salvadoria**.

Soil condition

- Type of soil of the site: **Muddy, sandy soil and grassland**
- Type of soil surrounding the site : **Black and Sandy soil**
- The plot is at a **higher** level than the mean sea level.

Presence of Industries and its impact

- **There is no** industrial unit is located near to coastal area.

Additional general information

- Key livelihoods for the people in the village : **Agriculture, Animal husbandry and Daily wage labour**
- Within **Khambhat** the groundwater is **saline** and it is available at **100-150** feet.
- The nearest bank from **Rajpur** village is at **Khambhat (8km away)**

1: Technical feasibility

1.1: Context map



Accessibility:

- The site can be accessed from **Rajpur** through a **8 km pucca road**. During summer and winter half the way can be accessed through vehicle but during monsoon vehicular access will not be possible.

1.2: Site map



1.3: Erosion and accretion

- At this site the erosion occurs from the month of **November** to **January** at some locations.
- At this site the accretion occurs from the month of **Jun** to **August**.

1.4: Availability of Seeds and Irrigation

- Mangrove seed availability is **not sufficient** for plantation. Seeds need to be arranged from nearby village Talatalav and old Aakhol.
- Seedlings are **not available** for direct dibbling.

1.5: Tidal pattern

- The tidal water ingress is greater than **150 m**
- Tidal water will be available for **12** days for mangroves and **7-8** days for **Salvadora** during 15 days of cycle hence it is **sufficient**.
- Tide has a **high** current.



2: Social feasibility

2.1 Community engagement, availability of Labourers and Challenges

- **Fishermen:** There are **no** families involved in Fisheries.
- **Animal husbandry:** There are **35** families involved in **animal husbandry** having **100-150** cows and **300** buffaloes in this village. Green fodder is available only for **8** months from farm lands and nearby villages. During summer in absence of green fodder **dry grass** is being used as fodder and also **open grazing** happens here.
- **Farmers:** There are **42** families engaged in **agriculture**. Nearest farm from the coast is **6km** away. The crops in the farm lands near coast get damaged due to increasing salinity. Within the village the ground water is **saline** and it is available within **100-150** feet.
- **Salt farmers:** There are **no** families involved in Salt farming.
- **Labour Availability:** This site will require approximately **1100** labours per day for plantation activity. About **50-60** labourers would be available for plantation activity at the wage rate of INR **400** per day.

At Present, about **50-60** labourers are engaged in **agriculture, daily wages work and near coastal area** during the 8 months of the year (**October to May**). Their usual wage rate is INR **350-400** per day. In the need of additional labourers they can be sourced from **Ralej and other nearby** villages.

Discussions with labourers regarding Challenges and mitigations

Sr. No.	Challenges	Mitigations
1	Accessibility to the site	Special transport will be arranged, but during monsoon it is challenging to access the site.
2	Unavailability of shed to rest	Resting Shed as well as temporary living tents will be developed near the coast as per requested by labourers.
3	Access to Drinking water	Drinking water facility will be developed.
4	People are willing to join the plantation activity. However few of them might not have active bank accounts.	Arrangements will be made to activate the bank accounts.
5	Skill of labourers for the mangrove plantation	People have not done the work of Mangrove plantation before so training will be given.

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India



Taking GPRS Points



Site Observation



Soil Sample Collection



Water Sample Collection



Meeting with Dy. Sarpanch



Meeting with Committee members



Meetings with laborers, Cattle rears, Fishermen

3: Administrative feasibility

3.1: Approval Letter from Gram Panchayat

- The applications seeking administrative permissions have been made to Village Panchayat and are being pursued.

4: Annexure

4.1: GPS points of the available plot

GGWG Plot No-48 - 1400 Ha			
No	Point .No.	N	E
1	R48-1492	22°15'54.30"N	72°40'30.10"E
2	R48-1493	22°16'31.40"N	72°40'38.90"E
3	R48-1512	22°16'45.50"N	72°39'25.00"E
4	R48-1513	22°16'57.60"N	72°38'56.40"E
5	R48-1514	22°16'46.70"N	72°38'45.50"E
6	R48-093	22°16'47.70"N	72°39'45.60"E
7	R48-094	22°16'47.80"N	72°39'52.50"E
8	R48-095	22°16'42.90"N	72°40'17.30"E
9	R48-097	22°16'36.10"N	72°40'39.50"E
10	R48-098	22°16'32.50"N	72°40'59.20"E
11	R48-099	22°16'30.80"N	72°40'59.40"E
12	R48-1471	22°15'49.30"N	72°38'21.60"E
13	R48-1472	22°15'7.80"N	72°40'42.90"E
14	R48-1473	22°14'50.40"N	72°40'42.60"E
15	R48-1483	22°15'43.60"N	72°40'50.60"E
16	R48-1464	22°16'26.40"N	72°40'26.40"E
17	R48-1466	22°16'1.40"N	72°40'58.70"E
18	R48-873	22°16'0.76"N	72°41'26.90"E
19	R48-1486	22°16'23.10"N	72°41'25.40"E
20	R48-1487	22°16'24.90"N	72°41'16.30"E
21	R48-1488	22°16'30.10"N	72°40'44.90"E
22	R48-1489	22°16'28.00"N	72°40'57.20"E
23	R48-1	22°16'22.70"N	72°40'7.50"E
24	R48-2	22°16'44.10"N	72°39'44.40"E
25	R48-3	22°16'40.80"N	72°39'19.10"E
26	R48-4	22°16'43.10"N	72°38'52.20"E
27	R48-5	22°16'37.50"N	72°39'7.50"E
28	R48-6	22°16'54.30"N	72°39'30.90"E
29	R40-13	22°14'20.60"N	72°40'42.10"E
30	R40-14	22°14'29.40"N	72°39'39.40"E
31	R40-15	22°14'27.60"N	72°38'50.40"E

Great Green Wall of Gujarat

A Feasibility Study to assess the Potential of Mangrove Plantation along the Coast of Gujarat, India

GGWG Plot No-48 - 1400 Ha			
No	Point .No.	N	E
32	R48-7	22°16'40.90"N	72°38'41.20"E
33	R48-8	22°16'36.80"N	72°38'39.90"E
34	R48-524	22°16'17.00"N	72°39'46.10"E
35	R48-621	22°14'50.40"N	72°40'10.10"E
36	R48-622	22°14'51.20"N	72°39'23.90"E
37	R48-623	22°15'12.10"N	72°38'44.70"E
38	R48-624	22°15'24.80"N	72°38'25.80"E
39	R48-625	22°15'31.70"N	72°38'15.20"E
40	R48-626	22°16'8.10"N	72°38'28.20"E
41	RS48-9	22°15'25.50"N	72°40'6.20"E
42	RS48-10	22°15'58.10"N	72°39'24.20"E



4.2: Soil Report

Soil Analysis

Contents in the Soil	Amount
Nitrogen / organic carbon (%)	0.29
Available phosphorus (kg/ha)	13
Available Potash (kg/ha)	511
pH level	8.6
Electrical Conductivity (TDS) (ml umhos/cm)	2.00



જમીનનું પૃથ્થકરણ અને રાસાયણિક ખાતરોની ભલામણનો અહેવાલ

ગુજરાત નર્મદાવેલી ફર્ટીલાઈઝર્સ એન્ડ કેમીકલ્સ લિમિટેડ., પો. નર્મદાનગર, જી. ભરૂચ - ૩૯૨ ૦૧૫
ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૯૫૭, ૨૦૨૯૫૮

(આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

લેબ નંબર		ભેગ નં.		પૃથ્થકરણ અહેવાલ			
૨૨૦૪૯૬૮		૧૬		કુલ નાઈટ્રોજન (સેન્દ્રિય કાર્બન)	૦.૨૯	ઓછો	ટકા %
નામ		સલાઈન એરિયા વાઈટેલાઈઝેશન એન્ટરપ્રાઈઝ		લભ્ય ફોસ્ફરસ	૧૩	ઓછો	કિલો/હેક્ટર
ગામ		રાજેલ . રાજપુર તાલુકો ખંભાત		લભ્ય પોટાશ	૫૧૧	વધારે	કિલો/હેક્ટર
જીલ્લો		આણંદ		પી.એચ. (pH)	૮.૬	ભારતીય	
સર્વે નં.		પીજીટ તવર વરણો વિસ્તાર - ૧		ઈ.સી.	૨.૦૦	વધારે	મીલી મહોઝ/સે.મી.
ખેતરનું નામ		NKSJ ખેડૂત અને અન્ય કવર નં ૨૨૨૩૦૯૪		(કુલ દ્રાવ્ય શાર)			
પાર્કનું નામ							
સેન્દ્રિય દેશી ખાતર	પોષક તત્વના રૂપમાં ભલામણ			રાસાયણિક ખાતરોના રૂપમાં ભલામણ			
	નાઈટ્રોજન N	ફોસ્ફરસ P	પોટાશ K	નર્મદા નીમ યુરિયા (૪૬ %)	નર્મદા ફોસ (૨૦-૨૦-૦)	સીંગલ સુપર ફોસ્ફેટ (૧૬ %)	મ્યુરેટ ઓફ પોટાશ (૬૦ %)
ગણતરી	કિ.ગ્રા. / હેક્ટર			કિ.ગ્રા. / હેક્ટર			
			૦				
અન્ય ભલામણ							
૧) જમીનનો નિતાર સુધારવો / નિતાર નીક બનાવવી.							
૨) છાણીય ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો.							
૩) પ્રતિ હેક્ટરે ૪ ટન છોપ્સમ જમીનમાં સારી રીતે વાવતા પહેલા ભેળવી દેશો.							
૪) પિયત માટે વપરાતા પાણીનું પૃથ્થકરણ કરાવવું જરૂરી છે.							
(આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)							
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જી.એન.એફ.સી. લિ. ૧૬/૦૨/૨૦૨૩							

4.3: Water Report



Water Analysis

Contents in the water	Amount
pH level	7.7
Electrical Conductivity (ml umhos/cm)	1.20
Sodium Absorption Rate	9.17
Residual sodium carbonate	0.00
Water class	C-3S-1



પિયત પાણીના પૃથ્થકરણ અને ભલામણનો અહેવાલ

ગુજરાત નર્મદાવેલી ફર્ટીલાઈઝર્સ એન્ડ કેમીકલ્સ લિમિટેડ., પો. નર્મદાનગર, જી. ભરૂચ - ૩૯૨ ૦૧૫
ફોન નંબર - (૦૨૬૪૨) - ૨૦૨૯૫૭, ૨૦૨૯૫૮
(આ પૃથ્થકરણ અહેવાલ કાયદાકીય/કોર્ટ ના ઉપયોગ માટે માન્ય નથી)

પૃથ્થકરણ અહેવાલ	
લેબ નંબર ૨૨૩૧૩૯ નમુના નં. ૯	પી. એચ. (pH) ૭.૭
નામ સલાઈન એરિયા વાઈટેલાઈઝેશન એન્ટરપ્રાઈઝ લીમિટેડ	વિદ્યુત વાહકતા (EC) ૧.૨૦ મીલીમોહ/સે.મી.
ગામ રાજેલ . રાજપુર તાલુકો ખંભાત	સોડિયમ અધિશોષણ આંક (SAR) ૯.૧૭
જિલ્લો આણંદ	શેષ સોડિયમ કાર્બોનેટ (RAC) ૦.૦૦
સર્વે નં. પી ૪૮	પાણી નો વર્ગ (water class) સી-૩એસ-૧
ખેતરનું નામ તવર વરળો વિસ્તાર - ૧	
NKSK ખેડૂત અને અન્ય કવર નં ૨૨૨૩૦૯૪	
દ્રાવ્ય ક્ષારનું પ્રમાણ એમ.ઈ.કયુ. / લીટર (Meq./lit.)	
કેલ્શિયમ (Ca) ૨.૨૦	કાર્બોનેટ (CO ₃) ૦.૨૦
મેગ્નેશિયમ (Mg) ૫.૭૦	બાયકાર્બોનેટ (HCO ₃) ૦.૭૦
સોડિયમ (Na) ૨૦.૬૦	ક્લોરાઈડ (Cl) ૯.૦૦
અન્ય ભલામણ	
૧) પાણીના પૃથ્થકરણ ઉપરથી જણાય છે, કે પાણી પિયત માટે મધ્યમ છે.	
૨) છાણીયા ખાતરનો પુરતો ઉપયોગ કરવો, લીલો પડવાશ કરવો.	
(આ રીપોર્ટ કોર્ટ ના ઉપયોગ માટે માન્ય નથી)	
 	
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લેબ ઈન્ચાર્જ જી. એન. એંક. સી. લિ. ૧૫/૦૨/૨૦૨૩	

