



No.11-94/2009-IA-III dated 20th January 2010

CRZ Clearance for revamping of Jetty at KRIBHCO-Hazira, Surat

Compliance Status Report for the CRZ Clearance For the period Jan. 2021 to May 2021

6. Specific Conditions:

S. No.	Condition	Compliance
i)	All conditions stipulated by Gujarat Coastal Zone Management Authority shall be strictly complied with.	Being Complied
ii)	Dust suppression measures shall be provided along transportation through conveyor.	Fertilizer is being transported to warehouse through closed / covered conveyor system to avoid and emission of dust to environment.
iii)	Chromium and Manganese shall be examined and shall be included in the EMP.	comprehensive post project marine quality monitoring is being carried out periodically and both the parameters have been included in aforesaid study.
iv)	Mangrove plantation on an area of 100 ha. Shall be carried out as per the condition stipulated by the Govt. of Gujarat. A plan of mangrove plantation shall be submitted to the Ministry.	<p>Society had signed MoU with M/s. Gujarat Ecology Commission-Gandhinagar for planting Mangroves. Work of Mangrove plantation (Sp. Avicenia Marina) had been completed at the project site at Kanthiyajal, district Hansot. To improve biodiversity, Rhizophora spp and Ceriops tagal were also planted at the site. The copy of MoU and project report is attached below:</p> <p>Copy of MOU:</p>  <p>The document is a Memorandum of Understanding (MoU) between KRIBHCO (Krishak Bharati Cooperative Limited) and Gujarat Ecology Commission. It details the terms and conditions for mangrove plantation on an area of 100 hectares at Kanthiyajal Village, District Bharuch. The MoU includes clauses regarding the release of funds, payment terms, and the requirement for a bank account for fund transfer. It is signed by P.K. Sumbh, General Manager (Technical) of KRIBHCO, and dated 30/07/2010.</p>

 **Gujarat Ecology Commission**
Government of Gujarat
Block No.18, First Floor, Udyog Bhawan, Sector-11, Gandhinagar - 380011
Phone : 2325059/58-59, Fax : 079-23257607

G H Pandya, IAS,
Director
Date: 16/7/2010

To,
Shri A.K.Sharma
Sr. Sp. (L-40)
KRIBHCO
Surat-394515


Subject: Signing of MoU for the Mangrove plantation at Kantiyaji village.

Dear Sir,

This is in reference to your e-mail dated 29th July 2010 regarding draft MoU for the plantation of mangrove on an area of 100 ha. at Kantiyaji village. In this regard, kindly find herewith two copies of final MoU after incorporating some of your comments.

It is therefore requested to return one copy duly signed for and on behalf of Krishak Bharati Cooperative Limited, Surat to this office soon.

With regards,

Yours sincerely,

(G.H. Pandya)

Encl: As above

Memorandum of Understanding Between

**Krishak Bharati Cooperative Limited,
KRIBHCO Nagar,
Surat 394 515.**

And

**Gujarat Ecology Commission,
Gandhinagar**

For Project

**Restoration, Plantation & Conservation of Mangroves at
Kantiyaji Village of Hansot Taluka, Bharuch District**

(This Memorandum of Understanding made on the date of the month of between Krishak Bharati Cooperative Limited, KRIBHCO Nagar, Surat-394 515, (hereinafter referred to as KRIBHCO) and Gujarat Ecology Commission, Block No.18, First Floor, Udyog Bhawan, Sector-11, Gandhinagar, Ahmedabad-380011, (hereinafter referred to as Gujarat Ecology Commission), Government of Gujarat, (hereinafter referred to as G.E.C.) for and on behalf of KRIBHCO to implement the project Restoration, Plantation & Conservation of Mangroves at Village Kantiyaji, Taluka, Hansot, District - Bharuch (hereinafter referred to as the Project area).

WHEREAS

- (1) KRIBHCO a Cooperative Society based at Hansot, Bharuch, desires to develop 100 hectares of Mangrove plantation at and around Kantiyaji Village Taluka - Bharuch, District - Bharuch.
- (2) KRIBHCO approached GEC to prepare a concept paper to meet an implementing agency for the project.
- (3) GEC submitted a Project Proposal for the same.
- (4) KRIBHCO accepted the project proposal submitted by GEC.

NOW THEREFORE the parties hereby agree as follows:

1. The following documents attached hereto will be deemed to form an integral part of this MoU.

- | | |
|-------------|--|
| Annexure A. | Project Description |
| Annexure B. | Financial Proposal & Letter of Payment |
| Annexure C. | Project Proposal Report |

2. End of the project

The detailed layout of the project under various heads is given in Annexure B.

3. Disbursement of funds and Method of Payment

1. KRIBHCO will disburse necessary funds to GEC for the implementation of the Project as given in Annexure B. The financial proposal will be based on the activity given in Annexure C, under the respective budget heads. Details of the budget are given in Annexure B.
2. Each disbursement will be made through a written request by GEC to KRIBHCO.
3. The Payment will be released as per the status given in Annexure B by KRIBHCO to GEC.



3.4 Documentation and records in support of the above statements will be retained by GEC.

3.5 The payment will be released through (E)lectronics (F)und (T)ransfer System by KRIBHCO with intimation to GEC at the address indicated as above.

4. Maintenance of Accounts:

4.1 GEC will open a separate bank account and for all the expenditures incurred out of the payments made by the KRIBHCO from time to time for the execution of the project. The bank account will be operated by the designated officers of GEC.

4.2 At the end of each financial year, GEC will get the accounts audited by a firm of qualified chartered accountants. Copy of the audit report shall be forwarded to KRIBHCO.

5. Project Period

The project period will be from 1st July 2010 to 30th June 2011.

7. Intellectual Property Right

All knowledge and information, acquired from the implementation of the project, will be jointly shared by both parties and the GEC will have the right to publish or disseminate reports arising from the implementation of the project with due acknowledgement to the KRIBHCO. The provision under this clause will continue to be effective, notwithstanding the termination/expiry of this Agreement.

8. Duties and responsibilities of the GEC

8.1 GEC will make arrangements for the Technical Experts for the Restoration work.

8.2 GEC will facilitate the training in various aspects through experts;

8.3 Baseline Surveys will be carried out by GEC with inputs from KRIBHCO;

8.4 GEC will regularly supervise, inspect and monitor the progress of the Project, by having review discussions and field-visits; 1

8.5 GEC will play a role of a facilitator for creating or rejuvenating Community Based Organizations (CBOs) for the execution of project related activities.

8.6 GEC will be responsible for arranging training programmes with regard to mangrove regeneration, protection and community participation in the project;

8.7 GEC will also be responsible for the project administration at the micro-level, including the development of microplans, monitoring, reporting etc.

8.8 GEC will be responsible for the maintenance of the Mangrove plantation carried out under the project for the next one two years on free of cost.

9. Duties & Responsibility of KRIBHCO

9.11 KRIBHCO will make the payment to GEC as per the terms defined in Annexure-B

9.12 KRIBHCO along-with GEC shall endeavor in achieving socio-economic upliftment of the CBO.

9.13 KRIBHCO shall provide accommodation facility, if available at KRIBHCO Guest house, or Hotel for the office of GEC on chargeable basis.

11 Amendments

If required, necessary amendments may be made in the MoU, on mutual consent.

12 Dispute Settlement

The parties will make best efforts to settle any disputes that may arise out of or in connection with any aspect of this MoU through mutual and amicable consultation. However, if the dispute is not settled through such consultation, the matter may be referred for arbitration Member Secretary, GEC and KRIBHCO's Operation Director shall be appointed as joint arbitrators for any dispute between GEC and KRIBHCO. The jurisdiction of dispute – settlement will be Gandhinagar only.

The Memorandum of Understanding is hereby signed on 2010.

FOR and on behalf of
Gujarat Ecology Commission

Director

[Signature]
Director
Gujarat Ecology Commission
Gandhinagar



[Signature]
20/11/2010

P. K. SONEJI
General Manager (Technical)
Krupan Bharati Cooperative Limited
BURA-304 515, Gujarat, India.

FOR and on behalf of
Krupan Bharati Cooperative Limited, Surat

		<p style="text-align: center;">Annexure A Project Description</p> <p>1. Project Title : Restoration, Plantation and Conservation of Mangroves at Village Kantiyad, Taluka : Harad, District : Bharuch</p> <p>2. Project Period : 1st July 2009 to 30th June 2011</p> <p>3. Sector of major involvement : Coastal Restoration</p> <p>4. Project Location : Sites at Village Kantiyad, Taluka : Harad, District : Bharuch (Total Restoration area 100 hectares)</p> <p>5. Problems or issues the Project intends to address: The Project will demonstrate how to address the factors that cause degradation of mangroves. These may broadly be divided into three groups: 1) Over-exploitation of mangroves for fuel and food by local communities and Maldivaria 2) Reduced natural regeneration caused by natural as well as man-made factors. These causes reduction in freshwater inflow leading to increased salinity, violent sea action, frequent cyclones 3) Destruction of mangrove lands for other uses like salt pans, industries</p> <p>6. Project beneficiaries and target groups: The project beneficiaries will include a wide range from the local communities in the selected villages to the State in general. The major group of beneficiaries will be the marginal and agricultural labourers, the livestock owners and the fishing communities.</p> <p>7. Assumptions and risks: Assumptions: 1. Partners support and cooperation 2. Industries positive response Risks: 1. Non-availability of land for the implementation of the project (Medium risk). 2. Natural disasters (Low Risk). 3. Access to the coastal area to the restoration area (Medium Risk)</p> <p style="text-align: center;">Financial Proposal</p> <p style="text-align: center;">Financial Requirement for taking up 100 hectare plantation</p> <table border="1"> <thead> <tr> <th>Budget Head</th> <th>Total Amount</th> </tr> </thead> <tbody> <tr> <td>1. Mangrove Plantation</td> <td>20,00,000</td> </tr> <tr> <td>2. Baseline Survey</td> <td>05,25,000</td> </tr> <tr> <td>4. Awareness Creation</td> <td>05,50,000</td> </tr> <tr> <td>5. Administration (Salary, wage etc)</td> <td>02,50,000</td> </tr> <tr> <td>6. Documentation & Dissemination</td> <td>02,20,000</td> </tr> <tr> <td>7. Travel & others</td> <td>02,45,000</td> </tr> <tr> <td>Total</td> <td>58,90,000</td> </tr> </tbody> </table> <p>Terms & Conditions of the Payments > 50 % Amount after signing of MoU. > 20 % Amount during survey's progress i.e. in August-10 > 20 % Amount during implementation of survey related activities i.e. in December-2010 > 10 % during post-planting period i.e. in March-11</p> <p>Reporting & Monitoring Schedule > GEC will submit quarterly/ yearly progress reports followed by Final First Year Implementation and Outcome Reports. > The Second & Third year maintenance reports will also be submitted to KRIBHCO, Surat. > GEC along with proposed CBO will also be responsible for the maintenance of plantation carried out during the project.</p> <p style="text-align: right;">20</p> <p style="text-align: center;">ANNEXURE - C</p> <p>Project Title A Community Based Restoration, Plantation and Conservation of Mangroves along the Gujarat Coast in association with KRIBHCO, Harad towards the sustainable Coastal Zone Management of Gujarat coastline</p> <p>Name & Address of Implementing Agency Nishat Ashi (Coastal Ecosys) Sr. Manager Gujarat Ecology Commission Govt. of Gujarat Block-18, 1st Floor Udyog Bhawan, Sector-11 Gandhinagar, Gujarat Tel: 079-23278658, 639, 068250 21373 (M) Fax: 079-23278677 Email: gsc_jar@gmail.com Website: www.gem.gov.in</p> <p>Project Goal • To contribute to India's capacity to promote environmentally sound development in Coastal Zone sector.</p> <p>Introduction & Back Ground In the new millennium, the development is concentrated in coastal regions, resulting into migration of people towards the coast. It has been estimated that about 60% of population of USA, 29% of Canada, 60% of Netherlands, 75% of Australia, 70% of Thailand and over 20% of India live on the coastal belt. These figures speak about the importance of coastal environments in the 21st Century (Singh 2006). The coastal area is a place where natural disasters take place. The recent examples in Taiwan on Andaman & East coast of India, the Gujarat coast on the west and the islands of Lakshadweep and Andaman & Nicobar are frequently being cyclonic conditions which some time cause large scale destruction of lives & property. The Super cyclone has caused massive destruction in Gujarat & Orissa in 1998 & 1999 respectively. Recent incident in the south pacific only reiterates the importance of Mangrove protection & regeneration.</p> <p>Mangroves Mangroves are salt tolerant plants growing on the coastal zone in the intertidal area, and in estuaries of rivers. These plants occur in the world in tropical and subtropical areas in many countries. In India, mangroves are found in the States of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Andaman and Nicobar Islands, Kerala, Goa, Maharashtra, and Gujarat. The Mangroves in Gujarat are second only to the Mangroves in the West Bengal on the East Coast in terms of area, occurring in about 1024 sq. km (FSI 2005) area in Gujarat. Mangroves play a very significant role in maintaining the coastal environment, reducing the impact of wave action and</p> <p style="text-align: right;">20</p>	Budget Head	Total Amount	1. Mangrove Plantation	20,00,000	2. Baseline Survey	05,25,000	4. Awareness Creation	05,50,000	5. Administration (Salary, wage etc)	02,50,000	6. Documentation & Dissemination	02,20,000	7. Travel & others	02,45,000	Total	58,90,000
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erosion in the coastal areas, preventing salinity and seawater ingress into the inland agricultural areas, and also providing protection to the coastline from the impact of cyclones. Apart from these ecological functions, mangroves play a very significant economic role in the lives of the coastal village communities. The villagers are dependent on mangroves mainly for fodder, fuel, wood and fishing activities. There has been considerable degradation of mangroves in Gujarat over the years. The reasons for this are many, like dependency of the local and semi-rural pastoral communities on the mangroves for fodder, fuel, timber, etc. Mangrove areas in isolation, salt pans, and construction of ports, jetties, reduction in natural regeneration and dying off of such mangroves because of decreased inflow of fresh water into the mangrove areas, due to construction of dams, both small and big in upstream areas.

Rationale of the Project

- Mangroves form one of the most important ecosystems of coastal and marine areas. It safeguards the ecological security of the coastal areas that provides livelihood opportunities to the Fishermen & pastoral families living in coastal area.
- Gujarat is the only state having more than 1400 km long coastline in the country. It stands first among the western states of India's coastal zone in terms of the area under Mangroves.
- With increase in land hunger due to anthropogenic causes, there has been an ever increasing dependency over this natural resource. This coupled with coastal erosion taking place due to large infrastructural and reduction in the fresh-water inflow into the sea, mangroves have been under constant pressure leading to its degradation.
- Degradation of Mangroves hence calls for an immediate attention to be paid in order to take suitable measures for its restoration/revival along the coastal zone. From International community has also put in great attention to the community based mangrove regeneration programme to fulfill the objectives of the coastal zone management in India.

Project Objectives

- To contribute towards increased understanding and acceptance of the need to protect, conserve and regenerate mangroves by local communities, Government and coastal industries.
- To contribute towards capacity building of coastal communities and Government for community based mangrove regeneration as part of integrated coastal zone management.
- **Need for people's participation**
Mangrove afforestation programmes of the Forest department, and also that of industries, suffer from a serious lacuna of completely ignoring involvement of local communities in these efforts. Traditionally, local people, especially fishermen & pastoral community,

have been directly dependent on mangroves for their livelihood, fodder and fuel.

Mangroves also provide protection to agricultural fields in the coastal areas by preventing soil erosion and salinity ingress. They have, therefore, a very important role in protection and regeneration of mangroves. It is clear that no mangrove regeneration effort, except perhaps in some desolate and remote areas, can make any headway without their active involvement and participation. It is pertinent to note that most of the recovery of mangroves in the Gulf of Kachchh (natural as well as afforested) has been recorded on the isolated, sparsely populated interior areas where camel grazing and biotic pressures are less.

- Livestock rearing communities (Maddhars) also have a very important stake in conservation and regeneration of mangroves and can be persuaded to participate in developing systems for regeneration and sustainable use of mangroves. For realizing this potential for participatory management, it is vital that local community-based institutes and organisations are vested with long-term control and responsibility for regeneration and management of mangrove areas. Only such decentralised institutions can try out and develop different systems for preservation, regeneration and sustainable use of mangroves that are well suited to local conditions. This will also mean working out suitable arrangements with *Maddhars* for the regulated access and usage of mangroves.

Efforts by Gujarat Ecology Commission

Gujarat Ecology Commission has restored more than 6000 ha mangrove area along the coast of Gujarat with active involvement of coastal communities under the ICER, New Delhi funded REMAG project. A total 10 strong community based organisation were formed and expanded with the various inputs like trainings, capacity building exercise. Therefore, commission would like to replicate community based mangrove management model at other potential sites in Gulf of Kachchh and Kutch.

Project Locations

It is proposed to carry out said Mangrove plantation at intertidal area, falls under the revenue premises of Bhavnagar district or Saurashtra district. The area of 100 ha Mangrove plantation will be finalised in above said both districts based on mutual understanding and joint field visit.

PROJECT BENEFICIARIES/TARGET GROUPS (REACH OF PROJECT)

The project beneficiaries will include a wide range, from the local communities of the selected villages/ administrative units who are directly and indirectly dependent on mangroves and its resources and the State in general which will benefit in terms of enhanced capacities to

decentralised mangrove management, sustainable coastal resource management and better integration of environmental concerns in developmental planning for the coastal zone.

Major groups of beneficiaries will be marginal and agricultural labourers, livestock owners and fishermen communities. Marginal and agricultural labourers, especially womenfolk, will be benefited directly by increased employment generation through plantation and regeneration activities. Livestock rearing will also be benefited directly by way of increased fodder availability through alternative resource creation. Increase in mangrove areas will also help fishing communities by way of enhanced fishery resources in the near-shore waters.

As a whole, the village community will also be directly benefited by way of easy access to fuel wood through sustainable harvesting of resources developed for the purpose. This, besides reducing the stress on the mangroves, will greatly help the womenfolk who spend considerable time and effort for fodder collection. The project is also likely to open up new avenues of livelihood in the long run that would drive to integrate various farm-based activities such as apiculture, silviculture and non-intensive aquaculture.

Increase in mangrove cover and species diversity will bring about other associated benefits on a wider scale, such as increased fishery and other faunal resources, control of soil erosion and salinity intrusion, development of a natural barrier against storms, cyclones, tsunamis and hurricanes etc.

Project activities & Planning

Project Outcome
Enhanced capacity to communities to regenerate and sustainably manage the mangrove resources.

Output 1 Better skills to conserve mangroves and develop alternatives to mangroves for fodder

Community Based Mangrove Plantation/Restoration/Regeneration will be developed by adopting various site specific techniques like Nursery Preparation & transplantation, Direct Dribbling, Erosion mound preparation and Fish bone canal making

Activity 1.1 Select and finalise sites for mangrove regeneration/conservation with Communities/CBOs, based on expert advice

A Selection of the site will be carried out for assessing the current status of the site in terms of ecological & environmental condition. The team will survey the area and prioritise the sites based on the observations made during the visit. Apart from the technical aspects, the survey would also yield the socio-economic status of the villages. This would include results of Geographical Information System (GIS) based maps (Mangrove), Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA) exercises. Expert consultants will be hired and they will be entrusted with the responsibility of conducting the Base Line Survey (BLS), with the logistic support from GEC, and CBOs.

The scope of the base line survey will be identified through a consultation meeting with various experts. Through a participatory process of discussion involving all the stake holders, the entire scope for the base line survey will be identified.

Activity 1.2 Develop a baseline information for the proposed project area, with maps for existing and anticipated effluent discharge points.

The Base Line Survey will include assessment of current status of the Mangrove Ecosystem in the project sites. Apart from technical aspects, the study would also yield the socio-economic status of the villages. This would also include the results of the thematic (Mangrove) Participatory Rural Appraisal (PRA) exercise. The consultants will be hired who will be entrusted with the responsibility of conducting the BLS, with logistic support from GEC, and CBOs.

Activity 1.3 Develop Mangrove Plantation

Based on the recommendations of the BLS, the potential locations on each of the selected Project Sites will be decided. The exact area for the Restoration, Plantation and / or Conservation will be demarcated. It is planned to cover 100 ha of Mangroves in year 2009-10 by the adopting following models.

All the above activities will be carried out by the members of community based organisation with the help of Gujarat Ecology Commission. The management committee of the CBOs will be entrusted with this responsibility.

Technical Models

During the course of project implementation, different technical models will be tried in order to evolve the most effective model. It will also be ensured that better results are obtained. Based on the experience gained from REMAG project, following models will be adopted.

1. **Nursery Raising Seedlings** - This model is adopted due to its capacity to give better survival rate. Nursery beds will be prepared in the inter-tidal belts of the selected area. The nursery operations will start from the Month of July and will continue till the month of November-December while nursery raised transplantation will be carried out during the Month of January-February. In the Nursery raised plantation technique 2500 plants per ha will be developed and transplanted.
2. **Raised Earthen Mound Technique** - This Model is adopted and preferred due to its cost effectiveness. It is also easy to implement where large areas are to be brought under mangrove cover. The model has proved to be effective in terms of survival rate in adverse ecological conditions. In this technique per ha 2500 earthen mound will be developed in one ha area.

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Activity 1.4 Train CBOs in technical aspects of mangrove plantation and maintenance (Technical Trainings).

All Partner Community Based Organisations will be trained in the technical aspects of mangroves such as ecology of Mangroves, scientific aspects of the Mangrove restoration, different techniques of the plantation. The in-house capacity of GEC will be used for imparting necessary trainings.

Activity- 1.5 Increase Mangrove Biodiversity in the Proposed area

The Proposed project will also address the problem related to mono species culture in the State. In this connection, propagules of different species of Mangrove will be collected in the selected area as per technical guidelines. It is planned to introduce various species like *Rizophora* spp, *Ceriops* spp, *Avicennia* spp, *Acanthus* spp and other suitable species which are already found on west coast of India.

Implementation Planning

PROJECT MANAGEMENT & ADMINISTRATION

Project Management Unit (PMU):

This will be based at GEC and will be responsible for day-to-day progress of the project. Its major activities will include preparation of detailed plans, preparation of MIS, regular site visits and interactions with project implementation partners (CBOs), literature survey, documentation, development of handling information, develop and implement strategies for internal monitoring, report writing, organising meetings, workshops etc.

Mobilising local communities & Restoration activity through Field Functionaries:

The major strategy adopted to achieve the project purpose is to promote regeneration and maintenance of mangroves through local institutions. The village level institutions will be made responsible for protection, maintenance and controlled and sustainable use of the regenerated

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resources. There would be a Field worker with the background of rural science and forestry, functioning at each of the project implementation sites/villages.

Implementation strategy

GEC will execute Detailed Memoranda of Understanding (MoU) with the partner CBOs to clearly delineate the responsibilities in project implementation. Broadly, GEC will be responsible for overall co-ordination, liaison with government and industries, development of Management Information System, monitoring and reporting to Department of Forest & Environment. GEC will also obtain specialised technical inputs, work for broad-based documentation and dissemination, and conduct issue-based workshops. GEC will deploy field functionaries at project implementation sites. The field functionaries will be responsible for development of people's institutions, awareness generation and training with regard to mangrove regeneration, protection and participatory management and project administration at the micro-level, including development of micro plans, monitoring, reporting etc.

As a part of this project a total 100 ha of Mangroves will be developed in span of next two years i.e 2010-11, 2011-12 in which the first year entire 100 ha Mangrove plantation will be planned, while the second year will be kept for the maintenance and gap filling if any. Before plantation activities a micro plan will be developed to implement the project with key members of CBO and company.

Sr. No.	Plantation Year	Plantation target	Possible Location
1.	2010-11	100 ha (by using various techniques mentioned above)	Bharuch or Surat district
2.	2011-12	Gap filling and maintenance	Bharuch or Surat district

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Annexure 1: Project Budget

Budget estimates for this project have been shown in following table.
Financial Requirement for taking up 100 ha plantation

Budget Head	Total Amount
1. Mangrove Plantation	20,00,000/-
2. Baseline Survey	00,75,000/-
3. Awareness Creation	00,50,000/-
4. Administration (Salary, wage etc)	02,50,000/-
5. Documentation & Dissemination	00,20,000/-
6. Travel & others	00,05,000/-
Total	23,90,000/-

Note: Above said amount is quoted as per approved rates by Government of Gujarat

Terms & Condition of the Payments

- > 50 % Amount after signing of MoU.
- > 20 % Amount during nursery raising i.e. in August-10
- > 20 % Amount during transplantation of nursery raised saplings i.e. in December-2010
- > 10 % during gap-filling period i.e. in March-11

Reporting & Monitoring Schedule

- > GEC will submit quarterly/ yearly progress reports followed by Final First Year Implementation and Outcome Reports.
- > The Second & Third year maintenance reports will also be submitted to KRIBHCO, Surat.
- > GEC along with proposed CBO will also be responsible for the maintenance of plantation carried out during the project.

Annexure 2: Activity Chart for one year

Activity	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
Site Selection												
Rapid Environment Survey												
Entry Point activity												
Nursery & Plantation												
Development												
Maintenance and Protection												
Awareness creation & workshops												

Note: Under ideal situation, Nursery preparation must take place between June – Sept, whereas plantation activity should be undertaken between January to middle of March in order to achieve better survival rate. Any avoidable deviation may result in reduction in the percentage of survival rate. Maintenance of the planted mangroves will be taken care by the GEC for another two years

Report of GEC:

FINAL MAINTANANCE REPORT
INITIATIVES FOR COASTAL ENVIRONMENTAL INTEGRITY
THROUGH
PLANTATION, RESTORATION AND CONSERVATION OF MANGROVES
A PROJECT CARRIED OUT
UNDER
PUBLIC PRIVATE PARTNERSHIP MODEL

PROJECT PARTNERS

KRIBHCO
 KRISHAK BHARATI COOPERATIVE LTD.
 (KRIBHCO)
 (A Corporate Partner)

&

GUJARAT ECOLOGY COMMISSION
 GANDHINAGAR
 (A Govt. organization)

Implemented By
 KANTIYAJAL TAVAR VIKAS SAMITI
 At: Kantiyajal, Ta. Hansot
 Dt. Bharuch

Project Background

Mangroves are salt tolerant plants growing on the coastal zone in the tidal area, and in estuaries of rivers. These plants occur in the World in tropical and subtropical areas in many countries. In India, mangroves are found in the States of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Andaman and Nicobar Islands, Kerala, Goa, Maharashtra, and Gujarat. The Mangroves in Gujarat are second only to the Mangroves in the West Bengal on the East Coast in terms of area, occurring in about 1044 sq. km (PSI 2011) area in Gujarat. Mangroves play a very significant role in maintaining the coastal environment, reducing the impact of wave action and erosion in the coastal areas, preventing salinity and seawater ingress into the inland agricultural areas, and also providing protection to the coastline from the impact of cyclones. Apart from these ecological functions, mangroves play a very significant economic role in the lives of the coastal village communities. The villagers are dependent on mangroves mainly for fodder, fuel-wood and fishing activities. There has been considerable degradation of the mangroves in Gujarat over the years. The reasons for this are many, like the dependency of the local and nomadic pastoralist communities on the mangroves for fodder, fuel, diversion of mangrove areas to industries, salt pans, and construction of ports, jetties, reduction in natural regeneration and dying off of the rich mangroves because of decreased influx of fresh water into the mangrove areas, due to construction of dams, both small and big in upstream areas. Mangrove is one of the important ecosystems along the coast line of the Gujarat state. Considering importance of Mangroves and its surrounding environment State Government has taken up Mangrove plantation as one of the major activities in recent time. State Government has collaborated with various corporate houses under Public Private Partnership model to restore and conserve one of the important ecosystems in the state.

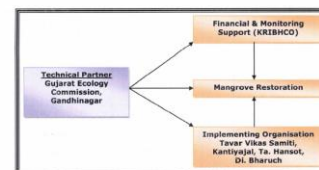
KRISHAK BHARATI COOPERATIVE LTD [KRIBHCO], HAJIRA is located in the South Gujarat region of the State of Gujarat at a distance of about 14 kms from the Surat City. Over the years it has evolved as a premiere multi-state fertilizer society, KRIBHCO is lifeline for the farmers of the India. Today, KRIBHCO is distinguished by its growth, financial performance and outstanding people and processes.

KRIBHCO has multi-state co-operative society India is one of the largest manufacturers of Urea in India. The HAZIRA fertilizer complex was revamped in 2013 to increase its production capacity by 4.65 LMTPA of Urea. HAZIRA complex has become largest single location urea plant in India.

The Company is established on the coastal region of the State, the company has decided to take measures and initiatives for coastal environmental integrity and also to fulfill compensatory eco-restoration with coastal community, a "time phased Mangrove plantation program" at Village Kantiyajal, Ta: Hansot, Dist: Bharuch.

As a part of this agreement, Commission along with representative of KRIBHCO & Village level Committee selected area at Kantiyajal village of Hansot taluka of Bharuch district with following objectives

Project Partners



Project Objectives

Within the overall objective of mangrove plantation in the mudflats of ports and nearby area, the following activity-wise objectives are envisaged.

- To assess the technical suitability of the proposed land for mangrove regeneration, including physico-chemical properties of soil and water and tidal pattern.
- To identify and select the potential native mangrove and associated species for plantation keeping in view the ecological suitability.
- To formulate site specific plantation strategy and execute it with the active involvement of local CBO adopting appropriate techniques.
- To prepare a plan for long term conservation and monitoring of the developed mangrove forests.

Progress

Description of Site

Based on the past experience and land availability, it was jointly decided to take up intertidal area of Kim estuary near Kantiyejal Village of Hansot taluka, of Bharuch district to carry out plantation in 100 ha. The selected site falls under the revenue boundary of the District. The Site is located between Narmada and Kim estuary at the bank of Gulf of Khambhat. The ecological status of the plantation site such as coastal vegetation, physio-chemical characteristics of water and soil, presence/absence of mangrove patch in the vicinity and its density was gathered through a rapid survey of area. This helped in understanding the general ecological situations of the plantation sites which played a crucial role to formulate the project implementation strategy. The average salinity is observed to be around 35 ppt. The Site was jointly selected by the representative of GEC, Officials of KRIBHCO along with Members of CBOs.



Selection of Species

The present coastal environmental conditions and climatic factors like rainfall, annual ambient temperature range and aridity of the zone have clearly established that in coastal Gujarat, the best candidate mangrove species for plantation are *Avicennia marina*, *Rhizophora* Spp. and *Ceriops* spp.



Avicennia marina



Rhizophora Spp.

ACTIVITY PROGRESS DURING YEAR 2012-13 & 13-14

PLANTATION

The plantation activities were completed in the year 2010-11 and 11-12. Plantation has been maintained by the Village level CBO in association with GEC by Gap-filling activities and protection through social fencing during the year 2012-13 & 13-14.

Process of Plantation: Plantation process followed for maintaining is nursery based plantation which is described in details as below:

Seeds selection:

- The seeds were collected from the nearby natural mangroves areas by the members of CBO. Collected seeds have been kept into fresh water pond which is very small and made for the same only for 48 hours into natural sun light to shatter the seed dormancy by natural heat.
- After 48 hours, seed coat has been removed manually and those seeds are taken for nursery plantation.



Nursery Preparation:

- To maintain the plantation area, Nursery Development activity has been undertaken during the year 2012-13 & 13-14. It was conducted in the month of October in both the years.
- Treated seeds transferred into polythin bags. Seeds rose within 12 to 15 days into the nursery and plants were kept in the nursery for two and half months for their better growth. Saplings are later transplanted on the ground after reaching at the average height of 1.0 to 1.5 ft.
- Total 25 nursery beds of 10*1mt were prepared during both maintenance years.
- An average 1000 plants were raised in each nursery bed.
- Around 25,000 saplings of *Avicennia marina* planted in each year.
- The Nursery operation was completed in the month of December in both the years, after which a regular monitoring of the same was carried out by village CBO representatives and GEC officials.



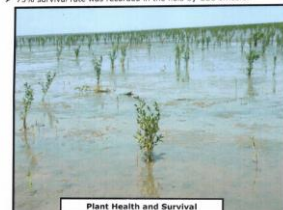
Transplantation of Nursery Raised Saplings

- Saplings were transplanted at the distance of 2.5 mt x 2.5mt, which comes to 25 plants per ha. In all, 25,000 plants have been transplanted on both years.
- Total area covered under gap filling through this plantation is 100 ha.
- The nursery raised saplings transplantation was initiated in middle of the month of February-March of both maintenance years and completed within 30 days time frame.



Plant Health and Survival:

- Growth and survival rate of the saplings was found satisfactory during the site visit by the CBO and GEC officials.
- The sapling attained a height of 28 cm in nursery, which is considered to be a good growth.
- 75% survival rate was recorded in the field by GEC officers.



Plant Health and Survival



Community support and man-days:

- The entire nursery operation was carried out by the Members of community based organization.

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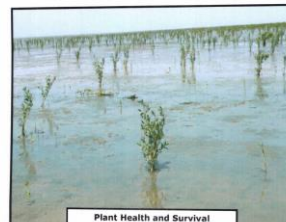
- Majority of women members had worked to raise Mangrove nursery.
- A total of more than 250 mandays were generated to raise 25,000 plants in nursery which was community contribution for the project.



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Current Status of the Area:

- Currently the area is having Mangroves with more than 70% of survival at the end of third year of plantation activities.
- At the site, planted mangroves have achieved the average height of around 2.5 to 4.5 ft with good ground coverage.
- The entire 100 ha area has been covered with mangroves and started generating in the new ecosystem. Following photograph is describing the latest position of the area.
- As the three years of maintenance has been carried out, hence now further no plantation or maintenance activities are required.



Plant Health and Survival

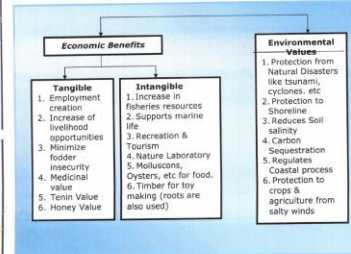
13

HANGROVE PLANTATION AT A GLANCE

- Successfully **Planted and Regenerated 100 ha** of mangroves area at Kariyepal, Ta: Harast, Di: Bharuch for KRIBHCO.
- The average heights of the plants have 30 cm.
- Ensured green belt as well as the nursery ground for the fish, crabs, mudskipper etc.
- Village community is empowered through project in the context of capacity building, gender equity and livelihood opportunities.
- Model of Industrial partnership in mangrove and restoring mangroves ecosystem is successfully established. This will help to motivate the company for replicating the model elsewhere.
- In all total 25,00,000 plants were planted during the span of one year.
- In all total more than 70 to 75% survival is recorded in the planted area.

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PROJECT BENEFITS



Plantation Highlights

Name of the Organization	Condition For Mangrove Plantation in ha	Total Mangrove Plantation carried out in ha till date	Time Scheduled for plantation to be carried out in future	Time Series Photographs of plantation carried out
KRISHAK BHARATI COOPERATIVE Ltd (KRIBHCO), NAJIRA	100	100	2010-11 to 2011-12 for plantation and 2012-13 and 2013-14 for gasfilling and maintenance	As above

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PHOTO PLATES





16



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		<div>  </div> <div>  </div>
v)	The hydro-dynamic studies shall be undertaken to indicate that the expansion activities of the existing port shall not have significant impact to the shoreline abetting the project and has no significant impact on the ecologically sensitive area along the stretch.	Comprehensive post project marine quality monitoring is being carried out periodically. Impact on the shoreline is included in the aforesaid study.
vi)	The approach road to the project site should be a proper compacted metal road instead of a unpaved road.	Compacted metal road has been made for the project site.
vii)	No construction works other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone Area.	Noted and will be complied.
viii)	No mangroves or other ecological important areas shall be destroyed.	No mangroves or other ecological important areas were destroyed.

ix)	It shall be ensured that the project does not lead to any shoreline changes. Periodic monitoring shall be carried out to assess the shoreline changes.	Being complied Assessment of shoreline changes is being included in the comprehensive post project marine quality monitoring.
x)	The wastewater generated shall be treated as per the GPCB norms in the Effluent Treatment plan before letting into creek.	Not applicable as no waste water is being generated.
xi)	Green belt with appropriate species shall be developed within the project site.	Saplings of different species have been planted in the area.
xii)	The site shall be kept free from pollution by providing suitable drainage system.	KRIBHCO has provided suitable drainage system to keep site free from any pollution.
xiii)	Sewage Treatment Facility shall be provided in accordance with the Coastal Regulation Zone Notification, 1991.	Sewage arising in the Jetty area is being collected in a soak pit and transported periodically to existing sewage treatment plant in the KRIBHCO premises for its treatment.
xiv)	The project proponent shall provide adequate funds in the Environment Management Plan of the project.	Adequate funds are available for EMS.
xv)	It shall be ensured that the fishing/fisherman communities shall not be disturbed during operation of the project.	The fishing/fisherman communities is not being disturbed during operation of the project.

7. General Conditions:

S. No.	Condition	Compliance
i)	The construction of the structures should be undertaken as per the plans approved by the concerned local authorities/ local administration, meticulously conforming to the existing local and central rules and regulations including the provisions of Coastal Regulation Zone Notification dtd. 19/02/1991 and the approved Coastal Zone Management Plan of Gujarat.	The construction of the structures was undertaken as per the plans approved by the concerned local authorities and as per statutory norms.
ii)	In the event of any change in the project profile a fresh reference shall be made to the Ministry of Environment and Forests.	Noted and shall be complied.
iii)	The Ministry reserves the right to revoke this clearance, if any, of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Noted
iv)	This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	Noted
v)	Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the offices of the Central and State Pollution Control Board by the project	Noted and shall be complied

	proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	
8.	These stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and Municipal Solids Wastes (Management and Handling) Rules, 2000 including the amendments and rules made thereafter.	Noted
9.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forests Conservations Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Not applicable
10.	<p>The project proponent should advertise in at least two local Newspapers widely circulated in the region , one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Gujarat Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forest at http://www.envfor.nic.in</p> <p>The advertisement should be made within 10 days from the date of the receipt of the Clearance Letter and the copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.</p>	<p>The advertisement was done within 10 days from the date of the receipt of the Clearance Letter and copy of the same was forwarded to the Regional office of this Ministry at Bhopal. The details are attached below:</p> <div style="text-align: center;">  कृषक भारती कोऑपरेटिव लिमिटेड KRISHAK BHARATI CO-OPERATIVE LIMITED <small>KRIBHCO Nager, Surat - 394 515. (Gujarat)</small> </div> <hr/> <p style="text-align: center;">REGISTERED A.D.</p> <p>Ref. No.: HP/10/Env Lab/Jetty comp/MOEF/ROO1 Dated: 26.12.2009</p> <p>To, The Chief Conservator of Forests (Central) Ministry of Environment & Forests, Regional Office (W), E.S. Arera Colony, Link Road-3, Bhopal-462016 (M.P.)</p> <p>Sub: Environmental clearance for Revamping of existing jetty</p> <p>Sir,</p> <p>This is in reference letter No. SEIAA/GJ/EC/74/256/2009 dt. 8 December 2009 vide which we have been granted the Environmental Clearance for the Revamping of the Existing Jetty located adjacent to the urea ammonia complex on northern bank of Tapi River at Kavas (Thakra), Surat - Gujarat. As per the condition No. 78 of the General Conditions of the said clearance it is required that "The applicant shall inform the public that the project has been accorded environmental clearance by the SEIAA and that the copies of the clearance letter are available with the GPCB and may also be seen at website of SEIAA/ SEAC/ GPCB. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the Gujarati language and the other in English. A copy of the same shall be forwarded to the concerned Regional Office of the Ministry."</p> <p>In compliance to the above condition, please find herewith the attached copies of the said advertisement published by KRIBHCO in two local newspapers (The Times of India & Sandesh of Surat Edition) on 25.12.2009, one in English language and other in Gujarati language respectively.</p> <p>This is for your kind information and records please.</p> <p>Thanking You, Yours faithfully, For Krishak Bharati Co-operative Limited</p> <p> L.L. Mehta CCM (Technical)</p> <p>Encl.: As above.</p> <p></p> <div style="display: flex; justify-content: space-between; font-size: small;"> <div> <p>File Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Head Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Regional Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Approved by (MOEF): Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> </div> <div> <p>File Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Head Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Regional Office: Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> <p>Approved by (MOEF): Mr. Jyoti / 2602/2010 dt. 26.12.2009</p> </div> </div>

		
11.	Any appeal against this Environment Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.	Noted
12.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	A copy of the clearance letter was sent by KRIBHCO to concerned bodies.
13.	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional	Half yearly compliance report of conditions of EC & CRZ is being sent to SEIAA, Gandhinagar with a copy to MoEF-New Delhi, MoEF-Bhopal, Zonal Office

	Office of MoEF, the respective Zonal office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	CPCB-Vadodara and RO-Surat.
14.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Half yearly compliance report of conditions of EC & CRZ is being sent to SEIAA, Gandhinagar and a copy to MoEF-New Delhi, MoEF-Bhopal, Zonal Office CPCB-Vadodara and RO-Surat.
15.	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	The environmental statement for each financial year ending 31 st March in Form-V is being submitted by KRIBHCO to Gujarat Pollution Control Board as prescribed under the Environment (protection) Rules, 1986.

For Krishak Bharati Cooperative Limited