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### **Message from the Chairman, GEC**

I take this opportunity to congratulate Gujarat Ecology Commission for publishing this very informative newsletter 'Saagarika' for the Integrated Coastal Zone Management project.

The co-operation and active involvement of different stakeholders of society is vital to the success of the Integrated Coastal Zone Management project and I am certain that this newsletter is an excellent step in this direction.

I wish Gujarat Ecology Commission all the success in its endeavors towards conserving & rejuvenating our environment.



**Shri. S. K. Nanda IAS**  
Principal Secretary, Forests & Environment  
Department, Government of Gujarat  
Chairman, Gujarat Ecology Commission

### **Message from the Project Director, ICZM Gujarat**

I am pleased to present to you the first issue of Saagarika in the year 2011. I would like to take this opportunity to inform you that the project is progressing at a good pace.

The team here at the Gujarat State Project Management Unit for the ICZM project, constantly endeavors to bring to you the latest news and update of activities related to the project, through this newsletter.

We welcome suggestions and feedback from our readers in order to make this newsletter more relevant to them. I sincerely hope that you find this issue as interesting and informative as the previous one.



**Shri. E. Balagurusamy, IFS**  
Principal Chief Conservator of Forests  
& Member Secretary,  
Gujarat Ecology Commission



## ICZM State Progress Report

In the months of January and February 2011, the ICZM Project progressed in a befitting manner by initiating various ground-level activities as well as major procurement tasks, as per the agreed plan.

### January 2011

The Project Director along with the Head of Operations of SPMU attended a Review Meeting at Lucknow, wherein the Project Director, SPMU, made a presentation about the progress made in the project up to December 2010.

A meeting on the GANDHI Green Memorial Project was held under the Chairmanship of Principal Secretary, Forests & Environment Department, wherein the establishment of land field site under this project was discussed with Gujarat Pollution Control Board and District Officers of Navsari. In the meeting PS, F&ED directed GPCB to find an appropriate place at Dandi.



A meeting was held at New Delhi with the World Bank, to review the progress and finalize the procurement issues, wherein the Project Director, SPMU, made a presentation about various procurement issues faced by SPMU.



A meeting was held at New Delhi, to discuss and finalize revised cost table for the project.

As a part of the communication strategy adopted for the project, the SPMU and GEC launched a Mangrove Yatra towards creating awareness about mangroves and its ecosystems at Rasulnagar village, Jamnagar. The Marine National Park & Sanctuary (MNP&S) was also a partner in this initiative.

The Project Director, SPMU, laid the foundation stone at Rasulnagar, for the first entry-point activity to construct a Livelihood Facility Center for fishermen community. This activity is part of the Socio-economic project of GEC.



A meeting to finalize bid documents for House Networking and Sewage

Connection was organized under the chairmanship of Project Director, SPMU.

A Review Meeting of the ICZM Project was conducted by Principal Secretary, Forests & Environment Department, at Jamnagar, wherein he reviewed all activities as part of the project in Gujarat.

An exposure visit was organized under the Socio-economic project for field workers and social workers in the ICZM the project.

A meeting with Gujarat State Legal Services Authority was held on the 29th of January, 2011, for establishment of a Grievance Redressal Forum for the Gujarat ICZM Project.

### February 2011



As part of ICZM Socio-economic project, a Bhoomi Poojan ceremony was organized for Grass Plot (Fodder Plot) Development by Project Director, SPMU & CCF, Kachchh, in Kukadsar village in Mundra Taluka.



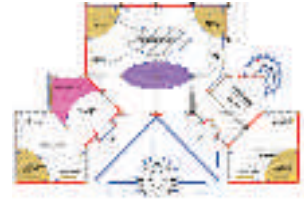
A two-day workshop was organized by SICOM at New Delhi, for the newly recruited staff under ICZM. Gujarat SPMU teams also participated in this workshop.

A high level meeting was organized under the chairmanship of PS, F&ED, to

prepare the action plan for setting up MRCI at Dwarka. In this meeting it was decided that the work be allotted to the Tourism Department through SPMU/MNP and Tourism Dept. would be responsible for the project up to its final execution.

As part of the Livelihood enhancement project, GEC organized an occupational training for 300 villagers of Rajkot, Kachchh and Jamnagar districts, on maintenance of solar adaptation. The training

was held at Gandhidham and Jamnagar.



Design of Marine Interpretation Center at Jamnagar and Mandvi had been finalized along with structural design of Marine Central Laboratory to be established at Jamnagar under GEER Foundation.



*Solar Training imparted to coastal communities as part of the Livelihood Enhancement Project by Gujarat Ecology Commission*

## **Procurement, Advertisements & Bid Invitation**

The financial bid calling for Project Management Consultancy Services for Jamnagar Municipal Corporation (JMC) Sewage Treatment Plant (STP) Project was opened on the 21st January, 2011.

A draft agreement on Project Management Consultancy under JMC STP work was signed.

A pre-bid meeting was organized at Jamnagar, Hyderabad and Chennai, on House Connection Networking documents. The meeting was conducted to motivate and

encourage more prospective bidders to participate and submit their bids for the above said project.

A negotiation meeting was held on the 18th of February, 2011, with the bidder for the Project Management Consultancy Services for the Jamnagar Municipal Corporation Sewerage Treatment Plant Project.

An advertisement for expression of interest for the installation of a Sewage Connection Networking System for Jamnagar Municipal

Corporation was published on the 16th of February, 2011 in Gujarat Samachar and on the 17th February, 2011 in The Times of India, The Hindu and Deccan.

The financial bid opening was held on the 29th January, 2011 for Internal Auditing Services for SPMU, Gujarat.

An invitation of bid (IFB) was announced in leading newspapers for the House Connection Networking under JMCSTP Project.



## ***GANDHI Project Update***

A pre-feasibility assignment was allotted for the evaluation of home-stay and eco-tourism in the four project villages. A draft report on the study has been submitted by the consultant, Ms. Purvi Vyas. After study of the report, the consultant has been instructed to collect details regarding the infrastructural requirements and include the same in the final report.



The study for pre-feasibility study for adoption of solar energy based technologies and solar desalination plant in project villages has been completed.

Preparation of Detailed Project Report (DPR) for the implementation of Solar based desalination plant will be initiated soon.

Baseline data collection under the GANDHI Green Memorial Project was carried out by CEPT University.

As directed by the Ministry of Environment &

Forests, Gramsabhas were conducted in the four project villages from 30<sup>th</sup> December, 2010 to 1<sup>st</sup> January, 2011. The suggestions of the villagers and other stakeholders have been noted down and communicated to the Ministry.

An Expression of Interest for preparation of master plan for the project, was announced by the Gujarat SPMU.

## ***Western Reef Heron: A Coastal Forager***

The Western Reef Heron, *Egretta gularis*, also known as the Western Reef Egret, is a medium-sized heron. It occurs mainly on the coasts in tropical west Africa, the Red Sea, the Persian Gulf and east to India.

The Western Reef Heron comes under Order: Ciconiiformes; Family: Ardeidae, Genus: Egretta. It attains the height of about 63cm. The Western Reef Egret or Heron has a slightly longer beak and has bright yellow feet, which helps distinguish it from some other dark herons. It also has a distinctive single, wispy plume erupting from the back of the head.

**Habitat:** The species shows a preference for rocky or sandy shores and reefs, but are also frequent in other coastal habitats such as estuaries, mudflats, salt-marshes, mangroves, tidal creeks and lagoons.



**Diet:** The diet of this species consists mainly of fish, crustaceans and molluscs, but crickets, grubs and earthworms are also taken. The species is a

solitary feeder, although it is occasionally found in small groups.

**Breeding site:** The species nests in solitary pairs or small colonies on the ground, or in reed beds, bushes and mangrove trees up to 20 m high, as well as on ledges or boulders, the nest being a platform of twigs and seaweed.

**Breeding season:** It breeds between April and July or in October usually in small colonies or in solitary pairs.



## ***Sedimentation - An Inevitable Coastal Process***

Sedimentation, in simple words is the deposition of particulate matter carried by a fluid flow. Sediment deposition is a natural phenomenon predominantly seen along the river banks, uplands, fringes and coastline. Manmade structures like dams, barriers, walls etc. are good spots to sight sediment deposition. In case of such manmade structures the term siltation is meaningfully used. Siltation is an undesired increase in transport and sedimentation of suspended material which is a major source of pollution in waterways in some parts of the world.

Sediments from catchment areas are carried to the river by natural drainages that eventually settle down at different junctures based on their characteristics and prevailing hydrodynamics. The sediment drainages from rivers as well as coasts is amplified due to increasing pressure from

coastal development or catchment activities and development, such as farming, subdivision and vegetation clearance. Similarly in natural scenarios, riverine banks or coastlines are eroded due to the water current/wave energy and the same sediments eventually get deposited at an alternate site proving erosion and deposition as mutual processes. In open coasts, the landward moving waves carry the sediments that settle on the beach depending on the wave energy and the particle characteristic giving a mosaic pattern of sediment distribution on the beach.

Coastal sedimentation has become a critical issue for some of the beaches and marine intertidal biodiversity. A high rate of sedimentation covers the intertidal fauna and flora hindering their growth and sustainable processes. Corals, an important part of the reef

ecosystem are adversely affected by the process of sedimentation. Moreover, the diversity of coastal benthic animals decreases due to the heavy load of silt and clay which causes clogging in their filtering apparatus and poor availability of food.

Another term related to the coastal sedimentation process refers to the forces that erode, transport and deposit sediment along shorelines. The coastal environment consists of constantly changing conditions, caused by the forces of wind, waves, currents and tides. Beaches are composed of sediments of various sizes, from large boulders to fine sand or mud. Erosion occurs when sediment is removed from a particular location (e.g. by wind, rain or waves); deposition occurs where sediment is added to a location.



## ICZM: Events & Activities

### Progress in Mangrove Plantation under ICZM

Mangrove plantation activity is one of the components for the State Project Management Unit. Plantation activity has been undertaken by

- Gujarat Ecology Commission
- Forest Development Agency-Kachchh.

### Activity by GEC Planning

For the mangrove plantation activity, site selection and CBO formation activities have been completed and a total of 500 ha of mangrove plantation has been carried out by GEC till date. Truna, which falls Under the Dayapar block of Kachchh District has been selected as the site for plantation

### Techniques used for plantation

Two techniques being used here for mangrove plantation are:

- Nursery-based plantation covering an area of 150 ha
- Bio-diversity plantation covering an area of 350 ha.

### Species Selection

The following species have been selected for the different plantation techniques:

- *Avicennia marina* for Nursery-based plantation
- *Rhizophora spp.* & *Ceriops spp.* for bio-diversity plantation



### Achievement till date

Out of the total area of 500 ha earmarked for mangrove plantation, seedlings have already been planted in 150 ha. 2000 seedlings/ha of *Avicennia marina* have been raised under

the nursery-based plantation technique and seedlings have been planted.

### Activity by FDA - Kachchh

#### Planning

An MoU has been signed between SPMU - Gujarat and the Forest Development Agency (FDA), Kachchh circle for mangrove plantation. A total of 1000 ha plantation target has been decided for the year 2010-11. The site selection and CBO formation activities have already been completed.

The FDA has chosen Lakki & Bhutav as the site for plantation. This site falls under the Dayapar block of Kachchh District. Out of 1000 ha, 500 ha plantation carried out by the FDA, Kachchh circle.



### Techniques

The FDA has identified two primary techniques for mangrove plantation namely:

- Direct Dibbling
- Fish Bone Canal Making

### Species Selection

The following species have been selected by the FDA for plantation:

- *Avicennia marina* is selected for Direct Dibbling
- *Rhizophora spp.* and *Ceriops spp.* Are selected for the Fish Bone Canal Making technique

### Achievement till date

Total 500 ha of plantation activity allotted to the FDA, Kachchh circle has been completed by Direct Dibbling method.

The remaining 500 ha of mangrove plantation that remains will be completed by the two blocks using the Fish Bone Canal technique. The process of canal making has already been completed in Lakki and Bhutav.

### Workshops, Seminars & Training

#### Workshop on GIS & Remote Sensing



A one-day technical workshop on GIS and Remote sensing was conducted in the 21st of January, 2011, by Bhaska-racharya Institute for Space Application and Geoinformatics for all nodal

officers and technical staff of Gujarat State Project Management Unit.

### Solar Training Workshop

A two-day solar training workshop was conducted on understanding, repair maintenance and servicing of simple solar equipment such as solar street lights, home lights, solar fans, solar panels, solar batteries etc. for the local community representatives. This workshop was conducted by GEC on the 6th & 7th of February, 2011 at Gandhidham.

A similar workshop was also conducted in Jamnagar on the 17th & 18th of February 2011 and at Naliya on the 19th of February, 2011.

### ICZM Orientation Workshop by the World Bank

An ICZM Orientation workshop was organized by the World Bank which saw the presence of Project Management Staff from the three states of West Bengal, Orissa and Gujarat which are the three states where ICZM is being implemented on a pilot basis. This workshop was conducted on the 11th & 12th of February in New Delhi.

### Events & Activities

#### Mangrove Yatra

A Mangrove Yatra was organized by GEC to generate awareness about the importance of mangroves and the need for their restoration and conservation. The Yatra was inaugurated by Mr. E. Balagurusamy, IFS, Project

Director (Gujarat), ICZMP and Member Secretary, GEC on the 5<sup>th</sup> of February, 2011. The Yatra began from Kukadsar village of the Mundra block and moved to the Bachau and Lakhpat blocks of Kachchh district. The Yatra covered a total of 99 villages over a period of 1 month. The Yatra also engaged the villagers through different IEC activities such as street plays, exhibitions, puppet shows, etc.



### Launch of Entry-point Activities

An Entry-point activity was launched in the Rasulnagar village of the Jamnagar district. The Entry-point Activity in this case entails the building of a Livelihood Facilitation Center for the fishermen community. The foundation stone for the same was laid by Mr. E. Balagurusamy on the 5th January, 2011 as part of the ICZM Project.

Another Entry-point Activity was also launched in the Kukadsar village of Mundhra block in Kachchh district. This particular entry-point activity entails the establishment of a fodder plot for the local stakeholders. The foundation stone for this activity too was laid by Mr. E. Balagurusamy as part of the ICZM Project.



## Strain Your Brain

Rearrange the jumbled letters to make a familiar word with the aid of the clue given.  
(You might want to refer to this and previous issues of this newsletter for clues)

<b>GBIRTH WOLLEY</b>	Color of the Western Reef Heron's feet
<b>CREDIT BILBDING</b>	A Mangrove plantation technique
<b>POSON MOWRS</b>	Bonnellid worms are also called...
<b>VIVOVIASOUPOR</b>	Mode of reproduction in Whale Sharks
<b>RIPOCTAL</b>	Coral reefs are found in such waters
<b>MADANAN AND BARINCO</b>	Islands with the highest coral diversity in India
<b>ASE OWC</b>	What is the Dugong commonly referred to as?
<b>PICTOR OF CREANC</b>	Which geographical circle of latitude passes through Gujarat?
<b>HELAW KRASH</b>	Largest living fish species...
<b>CRABLEAKHET RUTTLE</b>	Largest living turtle species...
<b>AGRET NIDAIN DARSTUB</b>	... is an endangered bird species native to India which is listed on the IUCN Red List of Threatened Species. Locally referred to as <i>ghorad</i> in Gujarat.

## Did You Know?



The Bonellid Worms are popularly known as 'Spoon Worms'. They are found in reef environments throughout the world. The worms practice a mysterious manner of sex determination of larvae. Unlike other organisms, sex determination in these worms is based on environmental factors rather than genetic information. If the developing larva comes in contact with an adult female, it develops as a male; or else it continues developing as a female.

The Gulf of Kachchh is the only home to *Acanthobonellia pirotanensis*, a species of bonellid worm. Initially it was thought that the species was endemic to Pirotan Island in Gulf of Kachchh from which its name is derived. But recent studies have revealed its presence from other reef areas of Gulf of Kachchh as well. Being detritus feeders, these worms forage on sediments and move sediments away at a micro level.



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