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FROM THE PROJECT DIRECTOR’S DESK

I present before you, the second issue of our bi-monthly ICZM Newsletter. It gives me great pleasure to inform you that the project work is progressing at a good pace. This newsletter brings to you the latest information, updates and activities that have been undertaken under the ICZM project in the last quarter of 2010.

Enclosed in this newsletter is a **‘SPECIAL FEATURE’** on the Green Action for National Dandi Heritage

Initiative (GANDHI) Project. Apart from that, as the last issue we have tried to keep the newsletter relevant to our various stakeholders.

In keeping with our endeavor to reach out to a large and varied audiences, we have also included a section called **‘BUDDING ENVIRONMENTALISTS’** to rope in the interest and enthusiasm of kids and increase their knowledge about their environment. I sincerely hope you find this

issue as enlightening and engrossing as the last one.



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

CORAL TRANSPLANTATION WORK TO BE UNDERTAKEN IN GUJARAT

A high level committee has been formed by the Gujarat State Project Management Unit (SPMU) to carry forward coral transplantation work. This committee is headed by the Project Director, ICZM, Mr. E. Balagurusamy. The committee members include Dr. Edward Patterson, consultant to the SPMU, Director GEER Foundation, WTI and Marine National Park and Sanctuary.

There are no established or proven methods for coral transplantation. Coral formation is a very slow activity resulting from deposition of calcium carbonate by polyps. It is therefore, difficult to regenerate corals through artificial methods.

It is for the first time, as part of the ICZM project, that coral transplantation activities are being undertaken in

Gujarat. The main idea behind this project is to develop scientific techniques, methods and models for coral transplantation and regeneration.

Successful formations of such models or techniques will prove to be of great assistance to the scientific community working in the area of coral conservation and regeneration.

New CRZ Notification

The Ministry of Environment & Forest, Government of India issued a new and modified Coastal Zone Regulation Notification in the year 2010. This Notification, issued on the 13th September, 2010 imposes fresh restrictions on development activity within 500 meters of the Indian coastline. The new CRZ notification will be applicable from the 7th January, 2011.

THE GANDHI GREEN MEMORIAL PROJECT

The Society for Integrated Coastal Management, Government of India and the World Bank, under the Integrated Coastal Zone Management project has undertaken an extension of the project to develop a 'Green Action for National Dandi Heritage Initiative' (GANDHI) Memorial Project at village Dandi and the surrounding three villages, namely, Sampore, Onjal and Matwad of Jalalpure Taluka, District Navsari. Currently, these coastal villages are facing severe environmental problems such as, salinity intrusion, drinking water scarcity, coastal erosion, lack of sanitation, etc. Under this programme the thrust areas include not only environmental conservation in Dandi and the surrounding villages but also livelihood enhancement of the local communities based on Gandhian values of Environmental Conservation.

The project is being implemented through the Society of Integrated Coastal Management (SICOM), Ministry of Environment & Forests, Govt. of India. Gujarat Ecology Commission (GEC) and Gujarat Vidyapith will act as Project Executing Agencies (PEAs) for this project and will be responsible for overall execution, supervision and monitoring of the project activities. SICOM has earmarked a fund of Rs. 25 Crores for this project to be implemented over the next two years. The entire project area is part of the Coastal Regulation Zone Category III area and it is now declared as the 'Eco-sensitive' Zone as per

the draft notification published by the MoEF S.O. 2566 (E) on 13th October 2010. A Conceptual Plan for the project has been prepared by GEC and approved by SICOM.

BEACH CLEANING ACTIVITY



As a first step towards developmental initiatives in the villages, a Gramsabha was conducted on the 7th of October, 2010, wherein it was decided to take up 'beach-cleaning' as the first activity to be implemented by the Community-based organizations (CBOs) in the villages. Participatory Rural Appraisal (PRA) activities were carried out in all the four project villages from October 25 to October 30, 2010. The PRA activities helped in mapping the socio-economic structure of the villages, primary issues faced and needs of the people.

ADOPTION OF RENEWABLE ENERGY SOURCES



As per the need assessment conducted during PRA, the villagers demanded for Street lights in all the four villages. The first phase of installation of solar energy

based street lights has been completed successfully with 10 street lamps being fitted in the village of Dandi. GEC intends to install another 25 street lamps in the villages of Dandi and the surrounding villages of Samapar, Onjal and Matwad. Recently the Commission has entered into an agreement with TRA International, New Delhi to carry out pre-feasibility study for the adoption of solar energy based solutions in the villages.

MANGROVE PLANTATION

Mangrove plantation activity in an area of 100 ha. has been initiated at the Purna estuarine area with the help of local CBOs. A total of 25 hectares of mangrove plantation was already completed in the last quarter of 2010 and another 75 hectares of mangrove plantation will be completed by the end of March, 2011.

DEVELOPMENT OF HOME-STAY PROGRAMME

To boost the livelihood opportunities of the villagers it has been decided to develop a home-stay programme in the project villages. For this, GEC has allotted a pre-feasibility assignment for the evaluation of home-stay and tourism potential in project villages. The existing CBO, 'Radhakrishna Mandal', registered under Mumbai Charity Act 1860, has been identified as a focal point to implement the project activities in project villages. This Mandal has been active in these villages since the last 15 years and hence this decision was welcomed by the villagers.



ICZM - State Progress Report

The last quarter of 2010 saw the establishment of adequate infrastructure arrangements through collaborations and partnering with organizations with diverse capabilities. With this objective in mind, a number of activities were undertaken primarily in the area of procurement.



In the month of October 2010, bid documents were published for procurement of consultants under ICZM Project. A Bid Evaluation Committee was formed at Gujarat State Project Management Unit (henceforth SPMU), consisting of the Additional Project Director, Finance Advisor and Head of Operations.

Monthly appraisal meetings with the Project Executing Agencies were held in to review the progress of the project and for preparation of a future plan of action. These meetings were held at the SPMU office in Gandhinagar under the chairmanship of the Project Director.



The Gujarat SPMU has launched a dedicated toll free number (1800-233-7960) in the month of November 2010 for attending to queries, complaints and grievances related to the ICZM Project.

A committee under the Chairmanship of Project Director had a brief meet-

ing for finalization of procurement of a boat for Marine National Park & Sanctuary and GEER Foundation during the month of November 2010.

As part of coral transplantation initiative, Gujarat SPMU identified Dr. J.K. Edward Patterson as a technical consultant to help Gujarat SPMU and the Project Executing Agencies - GEER Foundation and Marine National Park & Sanctuary to carry out coral transplantation under ICZM Project. In this regard, Dr. Patterson visited Gujarat in the month of December 2010. During his visit, the areas of Pirotan, Narora and Poshitra were explored to identify feasible sites for coral transplantation activity.

A Steering Committee Meeting of the project was organized during the month of December 2010 under the Chairmanship of Dr. S.K. Nanda, IAS, Principal Secretary, Forest & Environment Dept., Govt of Gujarat.

The Bid Evaluation Committee visited the World Bank office to finalize bid evaluation report for the Jamnagar underground sewage drainage work during the month of December 2010.

A high level committee consisting of the Principal

Secretary, Forest & Environment Dept., Project Director, Head of Operations and Head of two Project Executing Agencies visited Lakshadweep to explore the possibility of coral transplantation during the month of December 2010.

A team consisting of Project Director and Head of Operations visited Tutucorin and SDMRI Institute to explore the possibility for coral conservation in the Gulf of Kachchh and borrow technical expertise and procedural details from the Tamil Nadu Forest Department.

Community mobilization activities were carried out in 52 out of 160 selected villages. As an outcome of this, more than 30 CBOs and 50 SHGs have been formed in the various project villages.

As part of the project activity, Marine National Park & Sanctuary completed 700 ha. of mangrove plantation over the last quarter of 2010.

Under the socio-economic component, Participatory Rural Appraisal activities for 22 villages were carried out in the districts of Kachchh and Jamnagar.

MANGROVE ATLAS OF GUJARAT

The Mangrove vegetation, despite its multifarious role in conserving the coastal and marine waterfront, has remained a subject of inadequate priority. Gujarat Ecology Commission has initiated a community based mangrove regeneration program with financial support from the India Canada Environment Facility (ICEF). Of late, GEC has been able to enlist the support from the corporates under Public Private Partnership (PPP) model for this noble cause.

A need was therefore felt, to have a document for a systematic long term planning of raising mangrove plantations.

Gujarat Ecology Commission has, in this direction, made an humble attempt to publish Mangrove Atlas of the State with technical inputs from the Bhaskaracharya Institute for Space Applications and Geo-Informatics (BISAG). Probably for the first time, such a comprehensive document is prepared by Gujarat among all the Coastal States in Western India.

The contents in this document are intended to give comprehensive information with respect to the coastal talukas and districts of the Gujarat coast including existing mangroves as well as the potential areas fit for brining the blank and sparse patches under future regeneration activity.



ECONOMIC VALUATION OF CORAL REEF SYSTEMS IN THE GULF OF KACHCHH

An economic valuation of coral reef systems in the Gulf of Kachchh attempted to measure economic values of various goods and services of coral reef systems that are found along the southern lip of Gulf of Kachchh. The discussions in this book outline various goods and services provided by the coral reef systems in Gulf of Kachchh.

Based on the existing knowledge, available socio-economic information and designed field surveys, the study estimates the economic values of five services—three provisioning and two regulatory—of coral reefs in GoK. The estimated values of above services of coral reef systems in the GoK are :

Goods & Services	Annual Value (million Rs.)
Fisheries	1284.00
Tourism & Recreation	17.80
Protection against Salinity Ingress	10.34
Protection against Coastal Erosion	799.31
Maintenance of Bio-diversity	88.79
Total	2200.24

Accordingly, in terms of above goods & services, coral reefs in GoK provide an **annual benefit of approximately Rs. 2200 million. In other words, the estimated value of one sq. km. area of coral reefs in GoK was to the tune of about Rs. 7.95 millions.**

Thus, any decline in the 'coral health' of this area would essentially entail a decline in the societal well-being of this area. It is also important to mention that while this study presents the different values of coral reefs as stand-alone values, in reality many of them are closely interrelated and thus influence the values of each others.



MANGROVE YATRA TO BE ORGANIZED BY GEC

A Coastal Belt Mangrove Yatra has been planned to increase awareness about the importance and uses of mangroves amongst the coastal communities of Gujarat. The inauguration of this Yatra will be done on the 7th of January, 2011 by Mr. E. Balagurusamy, IFS, Project Director & Member Secretary, Gujarat Ecology Commission. The Yatra intends to cover a total of 50 villages over a period of 1 month.



Along with the tableau that will move from one place to another as part of the Yatra, there will be a number of interactive activities such as street plays, exhibitions, puppet shows, etc. for the benefit of the villagers. Thus this Yatra

intends to employ various creative methods for spreading the message of mangrove conservation.

The Yatra is being conducted by GEC in association with Action Group—a Kachchh based NGO. GEC intends to reach out to at least 10,000 people in due course of this Yatra over a period of 1 month. The Yatra will also see participation from a number of village level politicians and local leaders.

WORKSHOPS, SEMINARS & FIELD VISITS

A 2-day workshop on Participatory Development Communication was conducted for all the field workers and program coordinators in the month of October, 2010.

A procurement training workshop was conducted in the month of November, 2010 to appraise all the implementing agencies about the method-

ology involved in procurement under ICZM.



A 1-day procurement training workshop was also conducted by GEC in West Bengal in the month of November to appraise the agencies involved in ICZM

about the procurement procedure

A Meeting of the Steering Committee was conducted in the month of November to discuss the progress of ICZM and the issues and concerns therein.

NEWS, NOTICES & PROCUREMENT DETAILS

Following financial bid openings will be carried out during January – February 2011:

Project Management Consultancy

Financial bid opening for financial procurement management for Gujarat SPMU

Internal Auditor

Procurement of an internal auditor for the Gujarat SPMU

Technical Evaluation Consultancy

Technical evaluation for the preparation of Master Plan

under Gandhi Green Memorial Project

Materials Procurement

Invitation for materials procurements will be invited for procurement of sophisticated scientific instruments by using international bidding during the month of January.

Works

- Re-tendering for the underground sewage system and house connection will be announced during the month of January 2011.

- Invitation for bid will be announced for the construction of sewage treatment plant (STP) for Jamnagar Urban Development Project.

- Invitation for bid will be announced for the construction of marine interpretation centre to be constructed at Mandvi and Narara (Jamnagar)

CORALS: OUR NATURAL COAST GUARDS

Coral reefs, the most diverse marine ecosystems, are the biodiversity hotspots of marine regimes. The coral reefs are found in tropical waters across the worlds. However, 91.9% of coral reefs are confined to the Indo-Pacific region only owing to their narrow tolerance to temperature variations. They thrive optimally at 28°C of water temperature.

Corals are a prime source of livelihood to the coastal communities. Corals not only support the coastal communities economically, but also protect the shores from the fury of nature in the form of natural calamities. They also

have a host of other industrial applications - some very well known, some not so. However, rapid alterations in global environment have put these fragile ecosystems on the verge of extinction.



Scientists across the world have taken up reef stud-

ies as a primary consideration to lessen the adverse effects of the changing environment on the coral reefs. Although India holds only 2.04 % of total coral reefs of the world, it harbors some excellent reefs with accountable species diversity.

The reefs of Andaman and Nicobar Islands have the highest coral diversity where as Gulf of Kachchh stands with the least coral diversity. It is important to pursue more research on the very specialized ecology of Indian reefs to better conserve them for future generations.

THE DUGONG: A BIO-DIVERSITY MARVEL

Dugongs, also famous as Sea Cow and Suvarmachli, are herbivorous marine mammals found in tropical and subtropical waters of the Indian and Pacific oceans, from eastern Africa to the coast of Australia. It is the only living representative of the once-diverse family Dugongidae. Today, dugong numbers are reduced to isolated relict populations.

There is a world wide concern for the protection of the dugong and in India today the residual population of this species in the Gulf of Mannar and Palk Bay is the most vulnerable of species facing extinction. Despite being legally protected in many countries, the main causes of population decline remain anthropogenic and include hunting, habitat degradation, and fishing-related fatalities.

Dugongs live in shallow, sheltered coastal waters where they feed upon sea-



grasses and algae. Its daily need has been estimated in 30 kgs. Its diet is based on Phanerogams seagrasses of the families, *Potamogetonaceae*, *Hydrocharitaceae* *Cymodoceaceae*. It normally feeds itself on the whole plant, roots included. Dugongs are

very selective in their diet, preferring high nutrients and highly digestible seagrasses, like *Halodule* rhizomes, rich in nitrogen and poor in fibres, and *Halophila*, easy to digest.

With its long lifespan of 70 years or more, and slow rate of reproduction, Dugongs bear one calf at a time after an approximately 13-month gestation. The calf nurses for two years and reaches sexual maturity between the ages of 8-18. Despite the longevity of the Dugong, which may live for fifty years or more, females give birth only a few times during their life.

KNOW YOUR COAST

In the new millennium development is concentrated in the coastal region, resulting into migration of people towards the coast. It has been estimated that about 60% of population of USA, 25% of Canada, 60% of Netherland, 75% of Australia, 70% of Thailand and over 20% of India live along the coastal belt. These figures speak about the importance of coastal environments in the 21st Century (Singh-2006).

The Indian sub-continent forms a major physical division between the Arabian Sea and Bay of Bengal. Oceanographically, the Bay of Bengal differs from the Arabian Sea in maintaining clockwise circulation of major currents during both north east and south-west monsoon. There is also a major difference in Salinity. In the Arabian Sea, evaporation exceeds precipitation and runoff, leading to the formation of highly saline water masses that flow towards south. Indian coast falls within boundaries of tropics, which includes the west coast, east coast and the Lakshadweep & Andaman coast. Along the Indian coast, currents follow a general clockwise circulation during the south-west monsoon and counter-clockwise circulation during the north-east monsoon.

The coastal area is the place where natural disasters take place. The recent example is Tsunami on Andaman & East coasts which is the one of the most serious and unexpected natural disasters. The entire east coast of India, the Gujarat coast on the west and the islands of Lakshdeep and Andaman & Nicobar are frequently facing 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 tsunami in the south pacific only reiterates the importance of Mangrove protection & regeneration.

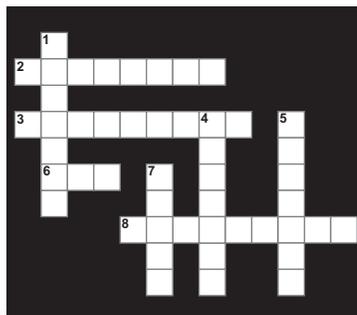
Gujarat is situated on the west coast of India between 20° 2' -24° 41' N and 68° 8' -74° 23' E long. The tropic of Cancer passes through the district of Kachchh & Surendranagar. Gujarat is basically a maritime sector endowed with 1650 km long coastline (Over 21% of the Indian coastline of 7517 km), which makes it strategically serving as natural gateway to India. The coastline of Gujarat has two indentations, the Gulf of Kachchh and Gulf of Khambhat covering about 60% of the state coastline. According to census (1991), about 549 villages with the total population of about one

million are situated along the Gujarat coast. The longest coastline dotted with 41 ports caters to demand & supply of cargo from the nearest maritime countries like Africa, Middle East & Europe. Besides this, the entire northern India and some parts of the central India also serve as hinterland to the ports. Out of total 142 intermediate and minor ports 11 and 28 are situated respectively on Gujarat coast.

The Gujarat coastal wetlands are having Global, National as well as Regional significance for conservation of marine bio-diversity. They also act as a barrier towards storms, cyclones, strong winds etc. Of the total area of wetlands (27,175 sq.km) in the state, 92.3% are coastal wetlands. A Marine National Park and four sanctuaries are part of the Gujarat coastal wetlands. The Gujarat coast has been broadly divided into five regions, 1) The Gulf of Kachchh, 2) The Gulf of Khambhat 3) The Saurashtra Coast. 4) The South Gujarat Coast, 5) The Rann of Kachchh.



BUDDING ENVIRONMENTALISTS



ACROSS:

2. World's largest estuarine mangrove forest
3. Salt-tolerant plants growing along the coast
6. Medicine made from a coral reef
8. Death of corals

DOWN:

1. State with second largest mangrove cover
4. Transition zone between river and marine environment
5. Corals are primarily made out of this element
7. A single coral



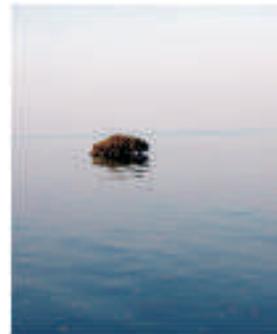
WORD FINDER

A	N	E	M	O	N	E	S	O
C	D	V	H	N	J	Y	D	C
L	O	O	K	M	E	T	W	T
R	E	R	B	D	A	H	H	O
T	G	G	A	O	A	D	J	P
Y	U	N	V	L	N	N	W	U
V	C	A	E	P	S	R	Z	S
B	W	M	E	H	H	K	H	W
L	K	N	E	I	E	H	J	R
D	U	G	O	N	G	D	D	R

- CORALS:** Corals are marine organisms that typically live in compact colonies and secrete calcium carbonate to form a hard skeleton
- DOLPHIN:** Dolphins are among the most intelligent animals and their often friendly appearance and seemingly playful attitude have made them popular in human culture.
- DUGONG:** Dugong is a large marine mammal also called the sea cow
- OCTOPUS:** Octopuses are among the most intelligent and behaviorally flexible of all invertebrates.
- MANGROVE:** Mangroves are salt-tolerant plants found along the coastal areas
- WHALE:** For centuries, whales have been hunted for meat and as a source of raw materials
- ANEMONES:** The sea anemones derive their name from the anemone - a terrestrial flower. Sea anemones are closely related to corals, jelly-fish, tube-dwelling anemones and hydra.

USES OF MANGROVES

- The thick root network of mangroves proves to be an excellent biodiversity habitat for varied marine animals.
- The intricate root network of mangroves holds on to the soil tightly and effectively prevents soil erosion. Since mangroves are located along the coast they also greatly con-



tribute in curbing coastal erosion.

- Mangroves also protect the coastal areas from

natural calamities such as cyclones, hurricanes, etc. by acting as barriers along the shoreline

- Mangroves provide firewood to the coastal communities.
- Mangroves, with their thick root network also prevent salinity ingress by preventing ingress of coastal waters into the underground waters of the adjacent land.

DID YOU KNOW?

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