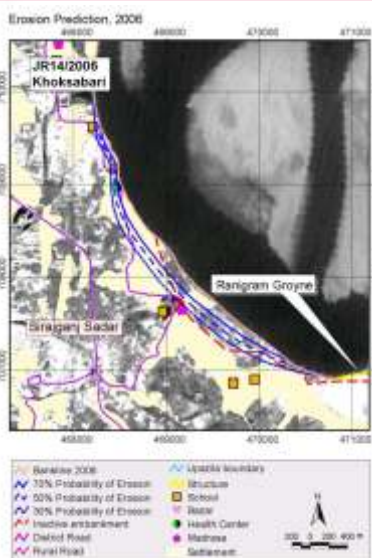


Issue 8
July 2006

the CEGIS NEWSLETTER

Bi-annual bulletin of the
Center for Environmental and
Geographic Information Services (CEGIS)



Erosion Prediction 2006
(see page 5 for details)

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CIDA-CEGIS joint sponsorship of regional training course on EMIN - Mir Abdul Matin



Participants seen with Syed Mohammad Zobaer, Secretary MoWR (seated third from left). Also seen seated, Mr Shahdev Singh, Programme Director, AIT (extreme left), Mr. Sharif Rafiqul Islam, DG BWDB (second from left), Mr H.S. Mozaddad Faruque, DG WARPO (fourth from left), and Mr. Giasuddin Ahmed Choudhury, ED CEGIS (extreme right).

A regional training course was held at the Asian Institute of technology (AIT), Bangkok during June 5-9, 2006 to enhance the capacity for understanding the technology used in the EMIN project. CIDA sponsored 12 and CEGIS sponsored six of the 18 participants comprising mainly junior and mid level officers from government organizations.

The objective of the training was to provide a basic understanding to the trainees about GIS and Remote Sensing and their application in water and environmental management. The Director General BWDB, Director General WARPO and Executive Director of CEGIS attended the course as resource persons. Syed Mohammad Zobaer, Secretary, Ministry of Water Resources also attended the seminar to present a session on "Institutionalisation of EMIN Achievements".

Cont'd overleaf...

CEGIS provides support to Short course on Water and Flood Management for Journalists - Dr. Rezaur Rahman

CEGIS sponsored and helped organize a "Short course on Water and Flood Management for Journalists". The course was jointly organized by the Press Institute of Bangladesh (PIB) and the Institute of Water and Flood Management (IWFM) of BUET with support from the Institute of Water Modelling (IWM) and CEGIS. The course was held at PIB during 27-29 March, 2006. In total, 27 journalists took part in the course.



Seen in photo: (third from left) Mr. Md. Abdus Salam Pintu, Deputy Minister, Ministry of Information at the closing ceremony of the course. On the Deputy Minister's left is Dr. Rezwana Hossain Siddiqui, Director General, Press Institute of Bangladesh (PIB), on his right is Barrister M. Hyder Ali, Secretary, Ministry of Information, and (extreme right) Mr. Giasuddin Ahmed Choudhury, Executive Director CEGIS.

Cont'd overleaf...

Regional Training course Cont'd

The topics of the training included both classroom lectures and visits to various organizations to see the practical applications of technology in water and environmental management. The classroom lectures included:

- ◆ Introduction to GIS and remote sensing and their applications in Environmental Management
- ◆ Information networking and Management
- ◆ Use of appropriate technology

In order to see the practical applications of GeoInformatics in Water and Environmental Management, the participants also visited some agencies, the Hydro and Agro Information Institute, Bangkok (HAI), Geo Information and Space Technology Development Agency (GISTDA), Bangkok Metropolitan Administration (BMA), Nakhon Ratchasima provincial Agriculture office, and the Lam Takhong Hydro Power Station.

Seventy-eight Projects in One Year

CEGIS is taking up the challenge of handling as many as 78 projects the coming financial year (June 2006-June 2007). The projects include those that are on going, upcoming, and proposed.

Contracts of about 20 upcoming projects are expected to be signed during the financial year.

Short course on Water Cont'd

The objective of the course was to enhance the reporting capability of the journalists in covering water and flood management issues in Bangladesh. Besides providing partial financial support, CEGIS also provided resource persons for the course. The Executive Director, Mr. Giasuddin Ahmed Choudhury delivered a lecture on 'Water sector infrastructures' and Mr. Mollah Md. Awlad Hossain delivered a lecture on 'Dissemination of flood information'. The lectures were well received by the participants. In general, the course was appreciated by the attending journalists.

CEGIS celebrates World Environment Day 2006 - Anjuman Ara Baby

On 5th June, CEGIS joined with the rest of the world in saying 'Don't Desert Drylands!' which was the slogan of this year's World Environment Day. The slogan of the 2006 theme Deserts and Desertification, emphasized the importance of protecting drylands, which cover more than 40% of the planet's surface.

Cont'd on page 7....



CEGIS at Conference on Water Financing

The Global Water Partnership South East Asia (GWPSEA) together with the Philippine Water Partnership (PWP) hosted a two-day Regional Conference on Water Financing on 30-31 May 2006 at Manila, Philippines. The theme of the conference was "Addressing Financing Challenges through Good Governance". The Asian Development Bank (ADB) was the principal sponsor for the conference. The GWP SA nominated and the Philippines Water Partnership sponsored the Executive Director of CEGIS, Mr. Giasuddin Ahmed Choudhury's participation in the conference.



Seen in photo: (from left) Mr. Ir. Keizrul Abdullah, Chairman, GWP Southeast Asia Steering Committee, Mrs. Margaret Catley-Carson, Chairman, GWP, Dr. Apichart Anukularmphai, Ms. Mercy Titikio Wachmeister, and Mr. Giasuddin Ahmed Choudhury, Executive Director, CEGIS.

The conference brought together various stakeholders in the water sector to discuss critical and pressing financing issues in that sector within the regional context. Eleven technical sessions spread over two days offered the participants an opportunity to present many case studies ranging from Innovative Financing Mechanisms to Lenders' Programs and Perspectives as well as different current solutions and models. About 40 speakers from varying disciplines and more than 200 participants from the Philippines and abroad representing both the public and private sectors participated in the event.

ADB's future plan for financing the water sector was outlined at the conference. ADB has formulated a "Water Financing Program" incorporating its decade-long experiences in water financing, reforms and capacity building. There is a plan to double its investments during 2006-2010 with a contribution of more than US\$2 billion per annum. These increased investments will focus on three main areas: rural and urban water services and management of water in the river basin. The program seeks to provide 200 million people with access to safe and affordable drinking water, 100 million people with sanitation and 40 million rural dwellers with improved irrigation services for their livelihoods. The program will also reduce flood risks for 100 million people and introduce integrated water resources management in 25 river basins in the Asia-Pacific region.

The DRAS Model: optimizing agricultural production with minimum irrigation

- Abu Mohammed Ibrahim

CEGIS has developed a computational framework for drought assessment (DRAS) in cooperation with BARC. DRAS consists of two models, the Water Availability Assessment Model and the Crop Water Demand and Yield Reduction Model.

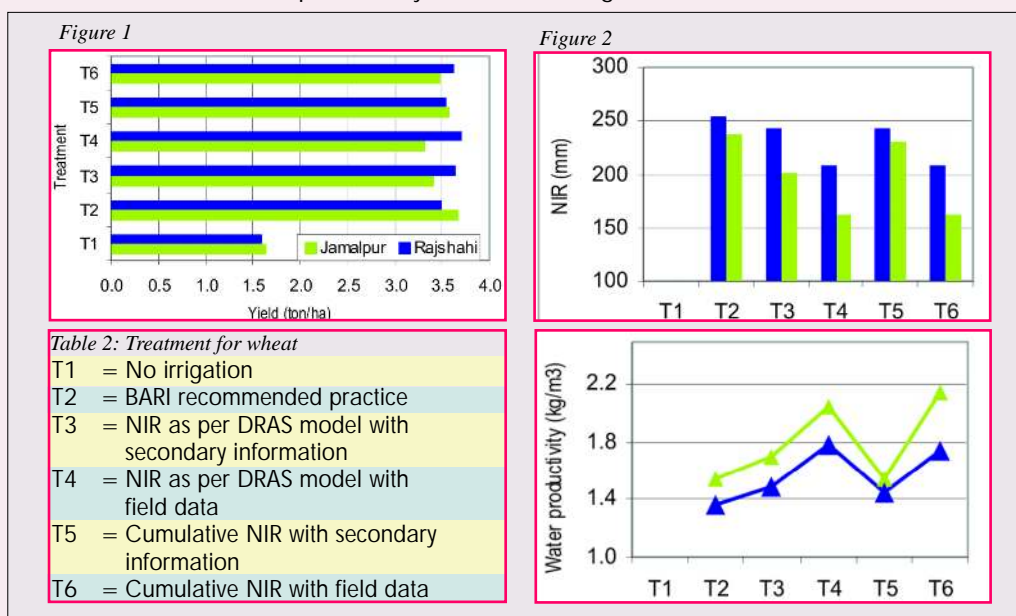
The DRAS models are being validated at the two agricultural research institutes, the Bangladesh Rice Research Institute (BRI) and the Bangladesh Agriculture Research Institute (BARI). The validation results are very hopeful in optimizing production with minimum Net Irrigation Requirement (NIR). In the experimental field of BRI, the model's NIR prescription has given the yield of 8 tons/ha of Boro crop this year, whereas the national average yield is about 5 tons/ha. The model recommended an NIR dose range between 639 to 868 mm (Table 1), while farmers in the fields apply about 1200 mm on the same soil.

Table 1: Treatment for Boro crop

Treatments	NIR (mm)	Yield (ton/ha)
T1. BRR recommendation	695	7.8
T2. NIR application with avg. rainfall and 5% allowable depletion (AD)	819	8.3
T3. NIR application using current data with 5% AD	783	7.4
T4. T2 treatment but levee protected	658	7.2
T5. T3 treatment but levee protected	639	6.6
T6. T2 but considering 20% AD	868	8.1
T7. T3 but considering 20% AD	735	8



Similarly, for wheat crop in the Barind soils, the DRAS models have given 3.7 ton/ha this year with a minimum NIR of 162 mm. The experiment was conducted jointly by CEGIS and BARI in Rajshahi. If the experiment is favored with a cool temperature, the yield would be about 5 tons/ha. The water productivity is shown in the figures below.



Training on Project Management

CEGIS recently organized a three-day training program on "Introduction to Project Management and Proposal Writing". Held over the period 30-31 April and 2nd May, the training was conducted by Ms. Nilmini Wijayakoon from MDA GEOSPATIAL SERVICES, Canada.

A total of 21 professionals actively participated in the training. The course covered topics such as how to plan projects considering risks and managing them as per cost as well as organizational structure and demand. The participants received training on a structured framework for effective execution of project management in terms of software application for designing, monitoring and tracking progress of projects.



A training session on project management

Workshop News

Final Workshop on Impact of Sea Level Rise on Land Use Suitability and Adaptation Options

CEGIS has completed a study titled: "Impacts of Sea Level Rise on Land Use Suitability and Adaptation Options" in three southwestern districts of Bangladesh. The study was carried out under the Sustainable Environmental Management Programme (SEMP), of the Ministry of Environment and Forest with support from the United Nations Development Programme (UNDP). The final workshop of the study was held at RDEC (Rural Development Engineering Centre) Bhaban of LGED on 13th April, 2006.



Mr. Jafar Ahmed Chowdhury, Hon'ble Secretary, Ministry of Environment and Forest, Government of Bangladesh, and Chief Guest at the inaugural session, is seen in the photo (third from left). Also seen (extreme left) Mr. Giasuddin Ahmed Choudhury, Executive Director, CEGIS, chairing the inaugural session, and Mr. Khandaker Rashedul Haque, Director General, Department of Environment (second from left) and Ms. Shireen Kamal Sayeed, Assistant Resident Representative, UNDP (extreme right).

Three papers were presented at the technical session, which was chaired by Dr. Ainun Nishat, Country Representative, IUCN. The papers were on the Impact of Sea Level Rise on the Water Resources System, Landuse Suitability, and Forest Suitability. They were presented by Mollah Mohammad Awlad Hossain, Iffat Huque, and Ahmadul Hassan respectively.

The study has developed an unique framework for assessment of sea level rise impacts on landuse suitability, hydraulic modelling for assessment of impact of sea level rise, the Sundarbans and forest suitability. The results of the study include recommendations for adaption options that would help reduce the climate change induced vulnerabilities, and develop an updated scientific understanding of the possible impacts of sea level rise in the southwestern parts of Bangladesh.

A cross section of about 100 professionals were present at the workshop. They appreciated the methods developed and the results generated, some of which have been quantified for the first time in Bangladesh under this study.

Workshop on Irrigation Water Management

The following Press Release came out in The Bangladesh Observer on 26th November, 2005.

A day-long workshop on 'Application of DRAS for drought vulnerability assessment and irrigation water management' was held at the Bangladesh Agricultural Research Council (BARC) in Dhaka on Thursday, reports BSS.

The inaugural session was welcomed by Mr. Giasuddin Ahmed Choudhury, Executive Director, CEGIS, a non-profit scientific Trust. Earlier, an expert from CEGIS Mr. A.M. Ibrahim and Dr. M.A. Sattar of BRRI gave presentations on the background of the development of tools for DRAS.



At the inaugural of the workshop: (from left): Mr. Giasuddin Ahmed Choudhury, Executive Director, CEGIS, Dr. Muslemuddin Miyan, Acting Executive Chairman of BRC, and Mr. Khan M. Ibrahim Hossain, Director General, DoE.

Meeting & Seminar on Erosion Monitoring and Prediction 2006

Under the framework of the EMIN project of WARPO, CEGIS has predicted bank erosion at 29 locations along both banks of the Jamuna River.

Mr. Maminul Haque Sarker, Head, Morphology Division, CEGIS made a presentation on "Erosion Prediction along the Jamuna River for 2006" on 22nd May 2006 in a meeting held at the Ministry of Food and Disaster Management. The meeting was chaired by Mr. Md. Abdur Rashid Sarker, Secretary, Ministry of Food and Disaster Management. Also present at the meeting were Director General, Department of Relief and Rehabilitation, Director General, Disaster Management Bureau and officials of the Ministry.

Mr. Giasuddin Ahmed Choudhury, Executive Director, CEGIS; Mr. Sultan Ahmed, Head, Business Development Division, CEGIS and Mr. Mir Abdul Matin, Head, GIS Division, CEGIS, attended the meeting as well.

The participants highly appreciated the prediction results and committed to utilize it in the disaster management of the country. The Hon'ble Secretary, Ministry of Food and

Disaster Management, recommended using the prediction in the Comprehensive Disaster Management Program (CDMP). The Secretary also expressed keen interest at the meeting in becoming a member of the CEGIS Board of Trustees.

On 30th May the prediction of bank erosion along the Jamuna River for the year 2006 was disseminated at a seminar at CEGIS organized jointly by WARPO and CEGIS. Mr. Maminul Haque Sarker, Head, Morphology Division of CEGIS presented the results of erosion monitoring and prediction.



From left: Mr. H. S. Mozaddad Faruque, DG, WARPO who chaired the seminar, Syed Mohammad Zobaer, Secretary, MoWR, Chief Guest, and Mr. Sharif Rafiqul Islam, DG, BWDB, Special Guest.

Prediction of Vulnerability to Erosion - Maminul Haque Sarker

Flood embankments at 5 locations and 21 educational institutions are vulnerable to erosion.

Since 2002, CEGIS has been making predictions of morphological changes and bank erosion for the main rivers of Bangladesh under various projects of BWDB and WARPO. Last year, CEGIS made predictions along both banks of the Jamuna and Padma rivers under the Environmental Monitoring & Information Network for Water Resources (EMIN) Project of WARPO and the Jamuna-Meghna River Erosion Mitigation (JMREM) Project of BWDB. The prediction of 2005 and occurrences are shown in the table below:

Table 3: Prediction of 2005 erosion

Features	Vulnerable	Occurrences
Land (ha)	1437	1790
Settlement (ha)	326	351
Location of Flood		
Embankment (-)	8	6
Length of Flood		
Embankment (m)	4590	5635
Educational Institutions (-)	16	12
Hat/Bazaar (-)	7	5
Health Center (-)	3	2
Government Office (-)	1	1

In 2006, CEGIS made predictions for both banks of the Jamuna River under the EMIN project. According to CEGIS' prediction for 2006, erosion would occur at 29 locations along the banks of the Jamuna River within the next one year (16 locations along the west bank and 13 locations along the east bank), the lateral extension of which would be higher than 100 m. About 1,382 ha of land would be eroded away at these locations. The flood embankment might breach at 5 locations. About 2,970m long active embankment is vulnerable to erosion, and about 6,760 m long district, upazila and rural roads, and 21 educational institutions, 3 hat/bazaars, 2 health complexes and one government office are currently vulnerable to erosion.

The flood embankment is one of the important features that give protection against floods along the right bank of the Jamuna River. BWDB needs to pay due attention to those vulnerable locations and especially to the locations of the vulnerable embankment. RHD and LGED should take necessary steps to mitigate the envisaged loss of roads. The Ministry of Education and NGOs need to look into the matter of the predicted losses of educational institutions. Other relevant organizations should also pay attention to the issue of erosion.

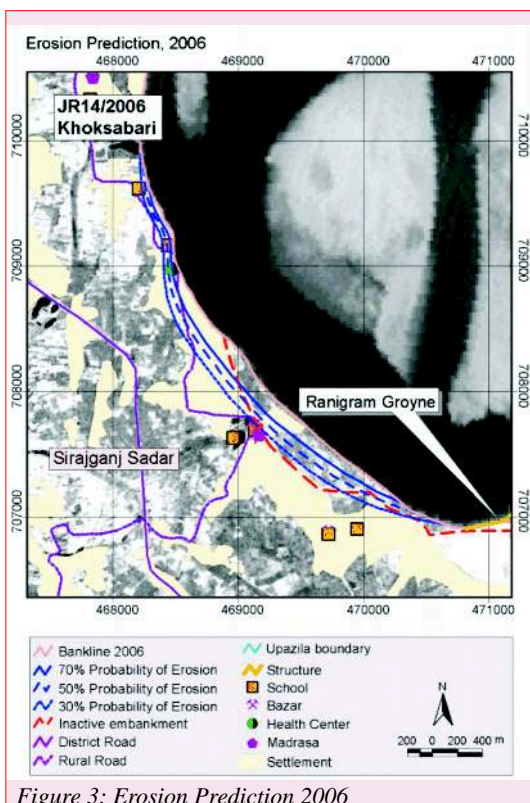


Figure 3: Erosion Prediction 2006

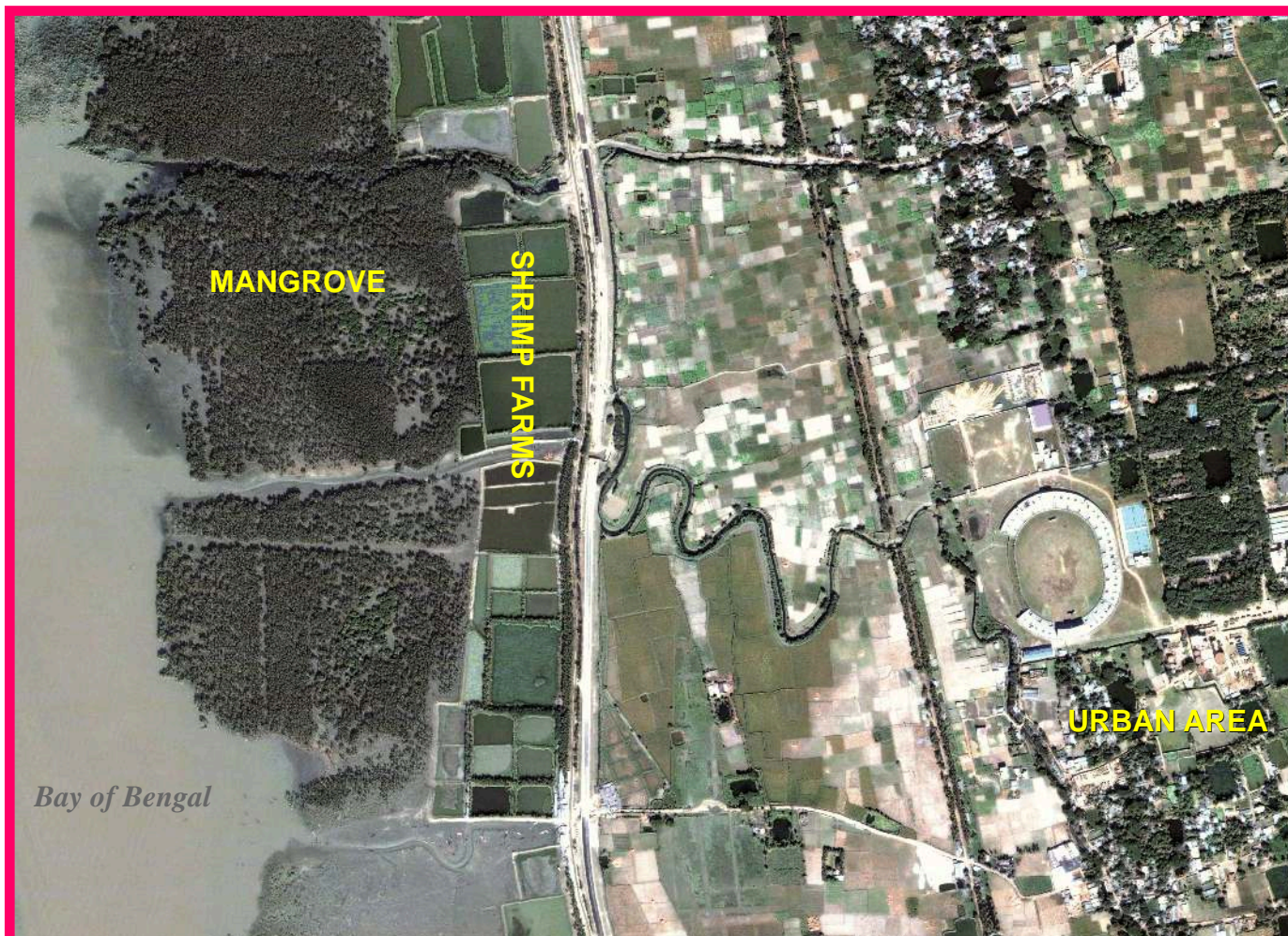
Election of staff representative to the CEGIS BoT



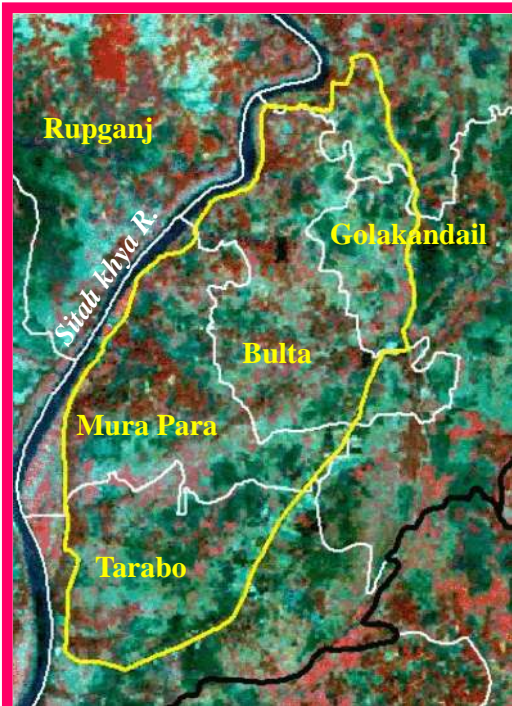
CEGIS staff counting the ballots.

On 8th May, the CEGIS staff elected Mollah Md. Awlad Hossain, Principal Specialist Database and IT, to be their representative to the CEGIS Board of Trustees (BoT). During the two-year appointment as staff representative, Mr. Awlad will attend BoT meetings, apprise the BoT members of issues relating to the interest of the staff, and disseminate to the staff issues discussed in the meetings that are relevant to them.

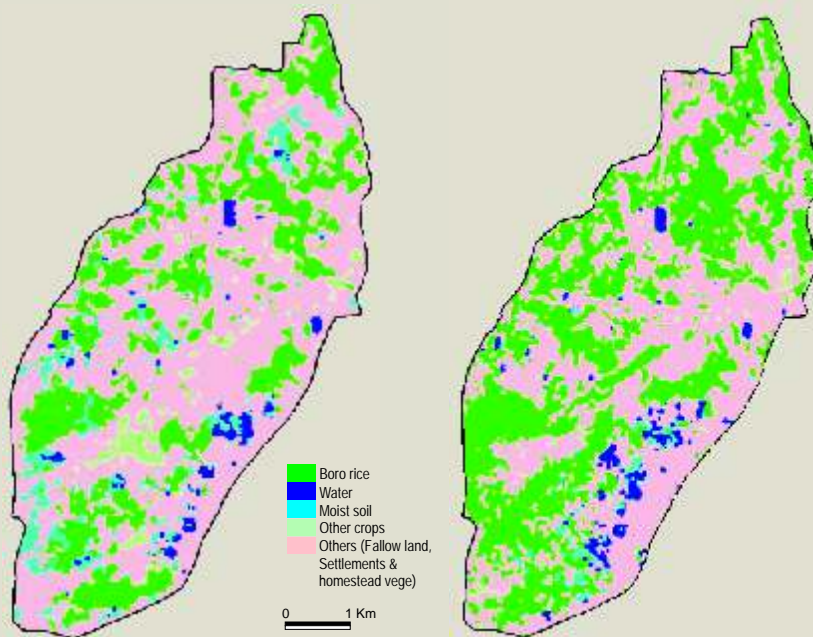
Satellite Images Processed by CEGIS



Natural color composite of Quick Bird Image, 12 December 2005 of Paurashava, Pahartali, Chittagong, processed for Cairn Energy Companies in Bangladesh.



Study area under Rupganj Upazila



Boro Rice area 750 Ha, derived from Landsat ETM, 24th March 2003

Boro Rice area 1231 Ha, derived from IRS P6 LISS III, 4th April 2005

Performance evaluation of irrigation project "Participatory Water Management Project (BUET-DUT Linkage Project)" (funded by Govt of the Netherlands and CICAT) using satellite technology

World Environment Day Cont'd

CEGIS also participated in a 3-day fair, held at the China-Bangladesh Friendship Conference and inaugurated by the Hon'ble Prime Minister, Begum Khaleda Zia. The CEGIS stall displayed various GIS and RS products.

Seminars were organized during the event. The seminar topics ranged from river management, water preservation and desertification to livelihood adaptation in drought prone regions and agriculture and environment.



CEGIS participated in a rally that was held to mark the occasion.

CEGIS at the Civil Engineering Software Exhibition - Hafizur Rahman Liton

CEGIS participated at the Civil Engineering Software Exhibition held at the Bangladesh University of Engineering and Technology (BUET) during 29-31 March 2006.

At the fair, CEGIS exhibited the different software applied in different fields of Civil Engineering, their capabilities and tools and models.



A view of the CEGIS stall at the exhibition.

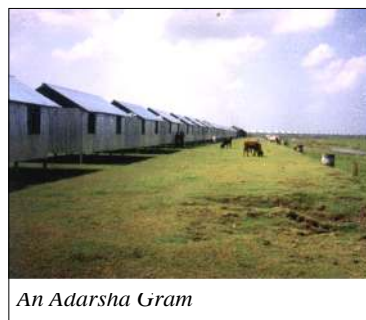
GIS Database and Maps of the Adarsha Gram - Md. Motaleb Hossain Sarker

CEGIS is currently engaged in developing a GIS Database and mapping Adarsha Gram (i.e., cluster village) locations for the Adarsha Gram Project-II of the Ministry of Land.

The Adarsha Gram Project-II is an important component of the poverty alleviation program of the Government of Bangladesh. This project is providing the ultra poor people with homesteads along with skill, knowledge, and capacity development to help them become self-sufficient.

Using up-to-date modern GIS and satellite technology, CEGIS will prepare a database and maps to assist the Ministry of Land in their ongoing and future planning activities related to Adarsha Gram as well as other sectors. The GIS and attribute database will be well organized so that it can be associated with other attribute data and thus play a vital role in planning, monitoring and other activities of the Adarsha Gram project.

High-resolution satellite images will be used to delineate the locations of the Adarsha Gram. Furthermore, upazila and union wise location maps will be developed for the Adarsha Gram showing the access routes to these villages as well as other important information. The database is also expected to help in the assessment of vulnerability of these villages to erosion and arsenic contamination of water.



An Adarsha Gram

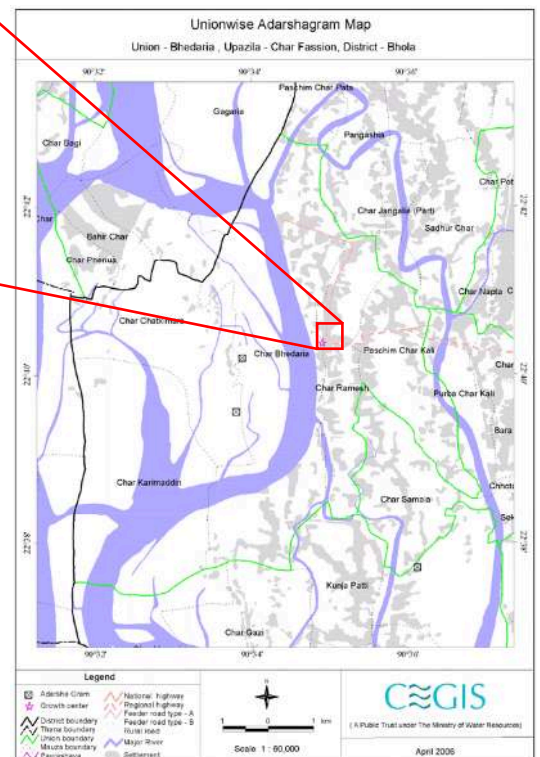


Figure 4: Map of Adarsha Gram Location

District Development Plans: CEGIS takes on the challenge

- Farhana Ahmed & Malik Fida Abdullah

Assigned by the Water Resources Planning Organization (WARPO), CEGIS in association with the Center for Natural Resource Studies (CNRS) has developed District Development Plans (DDP) for the districts of Bhola and Cox's Bazaar. The DDP is a concerted effort of WARPO under the Ministry of Water Resources, Government of the People's Republic of Bangladesh.



District level workshop on the DDP at Bhola

The DDP is the first attempt ever to develop plans for districts in a participatory approach with involvement of all levels of stakeholders including local people, government institutions, NGOs etc. The DDP will facilitate implementation of the Coastal Zone Policy and Coastal Development Strategy (CDS) developed under the Integrated Coastal Zone Management Plan (ICZMP). It will also facilitate fulfillment of the policy agenda of the Poverty Reduction Strategy Paper (PRSP).

The goal of the ICZMP project of WARPO is to create conditions in which the development of sustainable livelihoods and integration of the coastal zone into national processes can take place. To achieve this goal, district development plans are being prepared.

The DDP is envisaged as a short-term action plan containing development activities or interventions proposed to be implemented in the coastal districts over the next five-year plan period. It also comprises information relevant to the methodology and processes of plan development.

Framework of the DDP

Participatory Action Plan Development (PAPD) tools were used in the preparation of the DDP. PAPD is a participatory Natural Resources Management (NRM) planning method, which allows communities and relevant stakeholders to plan how to manage their natural resources under multiple use regimes. A District Steering Committee (DSC) was formed for the preparation, endorsement and implementation of the DDP. The DSC comprised government, non-government officials, peoples' representatives, teachers, and civil society representatives to assist and provide necessary guidelines in the development of the DDP.

The outcomes of the PAPD and plenary workshops conducted at three levels (grass roots, upazila and district) were compiled in the draft DDP. The extent of natural resources related problems and the cause-effect analysis of each of the prioritized problems/problem clusters are addressed in the document. The document also includes recommended solutions by stakeholder groups including gender-disaggregated information at the grass roots level. Projects are prioritized based on both national and local priorities. For the DDP, the priorities mentioned in the MDG, PRSP, Coastal Zone Policy, and Coastal Development Strategy have been taken into consideration and their relevance to the DDP has been established.

At the outcome level the DDP includes sector-based schemes (e.g., health, education, agriculture, fisheries, livestock, etc.) containing proposed interventions by stakeholder groups at upazila and district levels for the next five years, relevant GIS based maps and summary recommendations.



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