Year 16: Issue 51
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the CEGIS NEWSLETTER

Quarterly Newsletter of the Center for Environmental and Geographic Information Services (CEGIS)

Upcoming Events

- Dissemination Seminar on Riverbank Erosion Prediction
- Consultation Workshop on Improvement of Report Quality
- Visit to the Abdus Salam International Centre for Theoretical Physics (ICTP)
- Training of Trainers (ToT) Course on Concept and Practice of Integrated Water Resources Management

Inside

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Regional Workshop on South Asia Drought Monitoring System

Engr. Md. Waji Ullah, Executive Director of CEGIS, is presenting country paper in the regional workshop on South Asia Drought Monitoring System at New Delhi

A regional workshop on South Asia Drought Monitoring System (SADMS) was held on 30-31 January, 2017 at New Delhi with an aim to promoting the implementation of the well-established warning systems based on various drought indices considering the socio-economic impact of the impending drought. In this regard, the International Water Management Institute (IWMI), World Meteorological Organization (WMO), and Global Water Partnership (GWP) have developed a monitoring system namely "South Asia Drought Monitoring System (SADMS)". Various issues related to the present drought situation were addressed in the workshop, covering all targets of efficient drought assessment and monitoring systems. The workshop focused on functionalization of the developed SADMS to the member countries to assess and monitor the drought by the respective member countries. The overall objective of the workshop is to explore the possibility to functionalize the SADMS in different member countries of the South Asian Region for monitoring and assessment of drought risks to take proper mitigation measures. Well experienced and expert team from Bangladesh has participated in the workshop. Various light-house initiatives were undertaken by the member countries like Sri-Lanka, Nepal, India and Bangladesh. On behalf of Bangladesh, the Executive Director of CEGIS, Engr. Md. Waji Ullah presented the country paper titled "Functionalization of South Asia Drought Management and Monitoring System (SADMS)". The paper covered different aspects of drought monitoring, management and mitigation as well as roadmaps for functionalization of SADMS in Bangladesh. Furthermore, a number of country papers from Sri-Lanka, Nepal and India were also presented in the workshop highlighting and focusing on the drought assessment, effective initiatives for drought monitoring, mitigation process and their potential activities regarding their respective countries. The leading outcomes of this workshop was to enhance and articulate the drought management, drought monitoring and use the tools of SADMS to implement in different member countries. These tools can also be used in regular monitoring of soil moisture and water stress condition under the different degrees of drought severity during Rabi, Pre-Kharif and Kharif seasons.

Biodiversity study at the Ramna Park, Dhaka

Md Sharif Hossain Sourav, Ecology, Forestry and Biodiversity Division

Environment of Dhaka city has become unfavourable living condition due to over population and unplanned development. To make the city more resilient and environment friendly, the bio-diversity of the parks or green space has to be enhanced and conserved. Parks provide intrinsic environmental, aesthetic, and recreational benefits to our cities. Generally a city park contains some open spaces that improves our physical and psychological health, strengthen our communities, and make our cities and neighborhoods more attractive to live and work. It is an essential city function that provides immense value to our

Eminent Botanist Professor Dwijen Sharma and PWD officials cheking the renage finder for tree height measurement

citizens. The Ramna Park is such a park located at the heart of Dhaka, the capital city of Bangladesh. This small sized park is one of the most beautiful areas in Dhaka with lots of trees, shrubs, herbs and wildlife with a lake along the western edge of the park. According to a recent study, a total of 400 species of plants, 60 species of birds, 9 species of mammals, 6 species of reptiles, 3 species of frogs and 32 species of butterflies are living in the park (Sourav MSH, 2015).

Once, just a few decades back, Dhaka used to be a beautiful green city. Due to infrastructure and building construction by felling trees, and unplanned plantation to at least partially replenish that, the green patches of Dhaka city have almost disappeared. Dhaka is now a city of concrete structures; apartment buildings, offices, garments factories, schools, colleges, universities, and shopping malls and market places, without adequate water bodies, green space. All this attribute to demerit human health condition as well as the environment. The greenery started declining from both surroundings and inner parts of the city conspicuously from 1980s. Only the DU and the BUET campus, and Ramna Park could survive the onslaught as yet.

Due to human interference and unplanned plantations, the Ramna Park is going to lose its beauty and natural attraction. The plantations at the Ramna Park has now been limited on monoculture with timber and fruit yielding trees. It is hard to save the beauty of the Ramna Park by imposing massive development of building structures. People now visit the park for regular exercise, and are polluting its environment. The park will lose its heritage and beauty if pollution are not restricted. So, the bio-diversity of this park has to be conserved.

In this regard, Public Works Department (PWD) of People's Republic of Bangladesh formed a committee to conserve the biodiversity, and cultural heritage through developing sustainable plans and program. To implement such plans, PWD has assigned CEGIS to conduct a study on 'Assessment of Bio-diversity of the Ramna Park using Geo-spatial Analysis'.

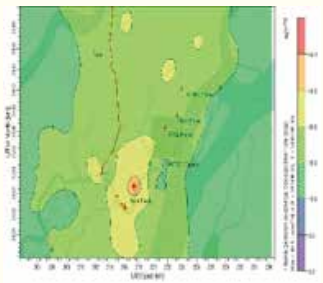
DBH measurement of Aswath Tree (Ficus religioisa), which is popularly known as the Ramna Batomul, a historic place for celebration of Bengali New Year

It is important to assess the biodiversity details scientifically to take further conservation friendly design of the Ramna Park.

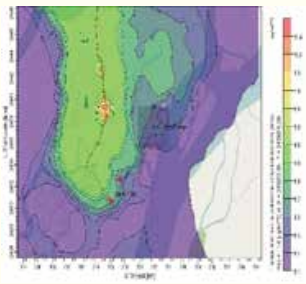
Thus, the study produced a scientific document on biodiversity (vegetation, wildlife) status, different parameters (height, DBH, canopy coverage) of trees, geographical location of trees and physical structures of the Park which will help the decision makers and planners for further development and conservation of the bio-diversity.

EIA of 2x660 MW ... (Cont'd from page 4)

g/s and $PM_{2.5}$ @ 2.4 g/s where water intake will be @ 4639 m^3/hr and discharge @ 2052 m^3/hr. The impact has been evaluated on the basis of its extent, duration, frequency and reversibility for assessing the magnitude of the impacts on the sensitive receptors in the study area. For instance, air quality modeling was carried out through "CALPUFF" dispersion model for assessing the maximum ground level concentration (GLC) of air quality both for Project and cumulative cases scenarios and noise modeling though "SoundPlan" for determining noise level during day and night periods and comply them with the national and international standards. The noise level and the maximum GLC of SO_2 and NOx have been shown in the figure for a particular scenario.



Project –SO2 (24Hr)



Project – NOX (Annual)

An Action Plan for Adaptation in Bangladesh Agriculture under Climate Change

Mohammad Abdur Rashid, Agricultural and Fisheries Division and
Ahmmed Zulfiqar Rahaman, Climate Change and Disaster Management Division

The food demand in Bangladesh is increasing rapidly due to high population growth, rising income and changing diet. It is likely that crop production will decrease due to shrinkage of agricultural land and also climate change poses a threat to aggravate the situation. Presently, the most used agricultural technologies are not enough to meet the current as well as future food demand. Therefore, an action plan is prepared to formulate a sound and implementable adaptation strategy for Bangladesh crop agriculture in the context of climate change for the coming years. Some of the findings and recommendations of this action plan are as followings:

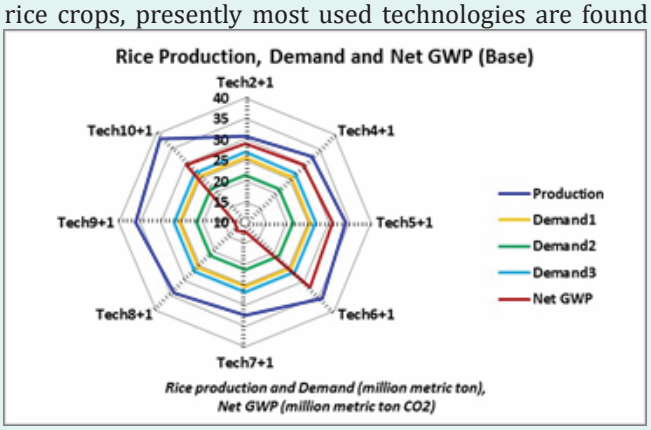
Climate Change and Socio-economic Scenarios

Both maximum and minimum temperatures may annually increase by 0.7°C and 1.7°C respectively for both time slices (2030s and 2050s) under one of the scenario (called RCP 4.5), while an increase of 0.7°C and 2.2°C may occur under the other global scenario (RCP 8.5). In case of rainfall, 3%-4% change may occur under RCP 4.5 and 4%-6% may occur under RCP 8.5 for both time slices annually.

In parallel to that, socio-economic scenarios with respect to crop agriculture reveals that, demand for food, particularly non-cereal crops, will increase over time while nutrient quality of food may fall due to climate change. This may ensure food security but inadequate nutritional value of food may become a major concern.

Performance Evaluation of Agricultural Technologies

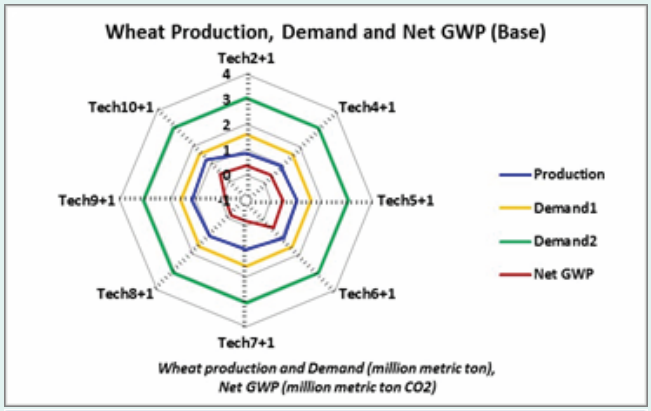
Performance of different agricultural technologies is evaluated under changed climate condition using CCAFS developed toolkit (Aggarwal et al., 2001). Ten different technologies for three time-slices, two RCPs and both rice and non-rice crops are included for prioritization. For rice crops, presently most used technologies are found



Rice

Tech	Base			Near Century			Mid Century		
	Demand	Return	Emission	Demand	Return	Emission	Demand	Return	Emission
Tech2+1	Y			N			N		
Tech4+1	Y	M	I	N	M	I	N	M	I
Tech5+1	Y	L	I	N	L	I	N	L	I
Tech6+1	Y	L	I	Y	L	I	N	L	I
Tech7+1	Y	M	D	N	M	D	N	M	D
Tech8+1	Y	L	D	N	L	D	N	L	D
Tech9+1	Y	L	D	Y	M	D	N	M	D
Tech10+1	Y	M	I	Y	M	I	Y	M	I

Demand: Y-Surplus, N-Deficit,
Return: M-More, L-Less compare to baseline
Emission: I-Increase, D-Decrease compare to Baseline



Wheat

Tech	Base			Near Century			Mid Century		
	Demand	Return	Emission	Demand	Return	Emission	Demand	Return	Emission
Tech2+1	N			N			N		
Tech4+1	N	M	I	N	M	I	N	M	I
Tech5+1	N	M	I	N	M	I	N	M	I
Tech6+1	N	M	I	N	M	I	N	M	I
Tech7+1	N	M	D	N	M	D	N	M	D
Tech8+1	N	M	D	N	M	D	N	M	D
Tech9+1	N	M	D	N	M	D	N	M	D
Tech10+1	N	M	I	N	M	I	N	M	I

Demand: Y-Surplus, N-Deficit,
Return: M-More, L-Less compare to baseline
Emission: I-Increase, D-Decrease compare to Baseline

adequate to meet the current demand. But these technologies will not be sufficient in most cases by 2030 and definitely by 2050, to meet the demand based on HIES, 2010 except those based on dietary requirements. None of the technologies are found sufficient to meet the present as well as future domestic wheat demand. In case of potato, current technologies are found adequate to meet the present demand based on HIES, 2010 but not DDP, 2013. However, these are not found adequate to meet the future demand based on both HIES, 2010 and DDP, 2013. Therefore, recommendations have been made to increase wheat area and replace current technologies with very high climate smart technologies. Recommendations for suitable technological interventions are made on the basis that can enhance productivity and reduce greenhouse gas emissions.

Research and Skill Development Needs

A non-exhaustive list for research and skill development needs have been outlined as following:

- Development and evaluation of various Climate Smart Technologies for various crops particularly wheat, oilseed and pulses apart from rice
- Data generation on climate change impact on major crops of Bangladesh through field experimentations
- Creation of a district-wise database on required data for running dynamic crop models and socio-economic and trade-off/ optimization models
- Identification of appropriate Global/Regional Climate Models and generation of representative data for Bangladesh

(Cont'd next page)

An action plan ... ... (Con't from page 3)

⊙ Development of skills for conducting prioritization/optimization experiments

Institutional Issues

The current institutional framework can and should be (if necessary) restructured or rather given new impetus for gearing up its activities particularly in agriculture. In the short term, not much restructuring may be needed but for longer term, adaptation preparedness requires new ways of thinking. An 'Institutional Adaptive Capacity Framework' (IAC) to reorganize and to build capacity which can evaluate national institutions' performance of several key functions critical to adaptation i.e. prioritization, coordination, information/knowledge management, and climate risk management is proposed in the plan. It is also mentioned that much institutional effort needs to be devoted to training the extension agents for adopting new technologies.

Financing Mechanism

A broad allocation rule, not simply for the prioritized technologies but in general for the additional activities, have been discussed in the plan such as, normal budgets of the GoB may be sufficient for additional resources to be made available right away. However, more problematic would be the cost of additional research and extension as new technologies would be needed in future. Although, Green Climate Fund (GCF) seems to be the best yet for financing development of technology and extension services, procedures are found quite rigorous and complex. The best immediate option so far seems to be to seek funding through multilateral development organization including UN agencies like FAO and UNITAR may be approached for such funding in near future.

Programme of Actions

The action plan finally outlines 9 programs including 42 clustered AEZ specific actions for short term (2016-2030), medium term (2031-2050) and long term (beyond 2050) with indicative costs and their respective implementation agencies. The programs which only directly affect on-farm water use and associated supply issues have been considered here under the proposed programme of actions which would require around 2,820 million USD to implement.

Proposed Programme of Actions

1	Increase water use efficiency
2	Surface water augmentation
3	Increase fertilizer use efficiency
4	Research and development for Climate Smart Agriculture
5	Crop diversification for resources optimization
6	Socio-economic suitability of climate smart technologies
7	Data and knowledge management
8	Human resources development
9	Strengthen policies and institutions

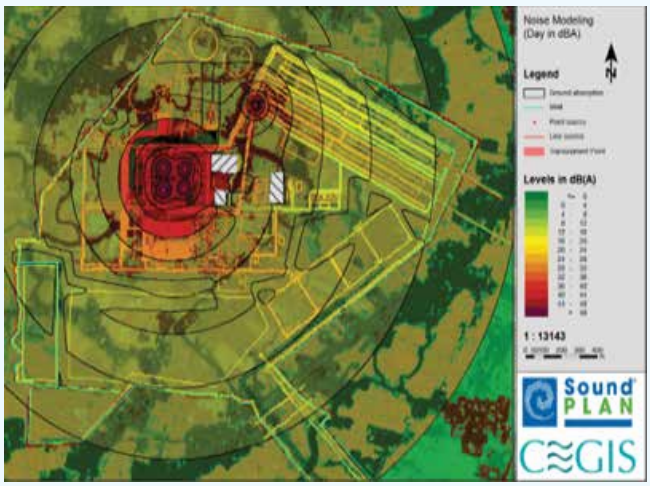
As a whole, this action plan tries to prioritize adaptation options considering expert scrutiny of stakeholders, which basically leads to promoting precision in agriculture and commercialization of crop agriculture with strong institutional and financial footing to tackle climate change.

EIA of 2x660 MW ... (Cont'd from page 5)

1997), multi cylinder design condensing type steam turbine directly coupled with hydrogen cooled generator suitable for indoor installation. The generated power at 24KV of the proposed Power Plant after being stepped up to 400KV will be connected to the Plant switch-yard and then to the proposed 400 KV GIS substation of Power Grid Company of Bangladesh (PGCB) at Kalapara Upazila.

The total area of the Project is around 916 acres of land with mostly agricultural land; agricultural land - around 779 acres, waterbodies - around 55 acres, and homestead area of 82 acres. To initiate the Project, around 121 numbers of households containing 560 numbers of people have to be evacuated from the project boundary. To resettle the Project affected people, RPCL is going to acquire 25 acres of land. The Project area falls under two bio-ecological zones which are Coastal Marine Water and Ganges Floodplain. Nearly 80% rainfall takes place in monsoon in the study area where annual average rainfall was recorded as 2519 mm. The Project area is occupied with 522 acres of land for fisheries. The air quality, water quality and noise level have been investigated in the study area in order to identify the cause effect linkage among the sources and ambient environmental quality. The recorded air and water quality are relatively much lower than the standard limit (ECR, 97 and subsequent amendments).

Considering the environmental and social aspects in the study area, the potential environmental and socio-economic impacts have been identified at the sensitive receptors from different stages. Potential impacts on physical setting, air quality, ambient noise, water resources, land and agricultural resources, fisheries, ecosystem resources, and socio-economic environment have been assessed through a modeling, overlay, networking, matrix and expert judgment. Taking the pollution control measures, this Plant will emit of CO @ 34.5 g/s, SO_2 @ 122.8 g/s, NOx @ 313.1 g/s, PM_{10} @ 28.5



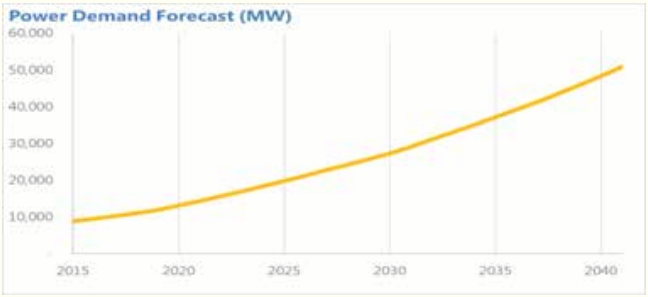
Propagation of noise from the sources (Day time)

(Cont'd on page 2 ...)

EIA of 2x660 MW Coal Based Thermal Power Plant to be constructed at Kalapara, Patuakhali

Pranab Kumar Halder and Halima Akter, Power, Energy & Mineral Resources Division

The Government of the People's Republic of Bangladesh has declared a new policy entitled 'Vision 2041' emphasizing a mega plan to achieve the supply capacity target of 57,238 MW of electricity by 2041 where around 20% of electricity will be generated from coal for sustainable power supply. To fulfill the future demand, GoB has already initiated international cooperation for development of Power Sectors. Based on the future economic growth, fuel, demand and supply, international cooperation, a new Power System Master Plan (PSMP) has been finalized in 2016. PSMP 2016, aims to assist Bangladesh in formulating an extensive energy and power development plan up to the year 2041, covering energy balance, power balance, and tariff strategies. According to PSMP 2016, achieving middle to long term development issues and risks and to formulate a comprehensive and result-oriented aid strategy for the energy sector by examining effective approaches for each issue. As per the PSMP 2016, the forecasted power demand in response to the desired economic growth of the country will reach around 12545 MW in 2020, 27434 MW in 2030 and 52034 MW in 2041.



Load curve 2015-2041 (PSMP 2016)

In this connection, the Rural Power Company Limited (RPCL) has decided to construct a 2×660 MW Coal Fired Thermal Power Plant at Kalapara, Patuakhali. CEGIS has been entrusted by RPCL, the proponent to conduct Site selection, Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) studies for Environmental Clearance Certificate (ECC) as the Project falls under the 'Red' category according to the Environmental Conservation Rules, 1997 (ECR,1997). The proposed Project is a sub-bituminous coal based Thermal Power Plant that consists of ultra-supercritical boiler, balanced draft, Advanced Dry Low NOx burners, Electrostatic Precipitators (ESP), Flue Gas Desulphurization (FGD), Cooling Tower, suitable for outdoor installation with a stack of 275 meter high (ECR,

(Cont'd on page 4 ...)

National Dissemination Seminar on Environmental Impact Assessment under Package-2 of CEIP-1

A dissemination seminar on the "Environmental Impact Assessment (EIA) under Package-2 of CEIP-1" was held at Spectra Convention Centre, Gulshan-1, Dhaka on 25 January 2017. Mr. Anisul Islam Mahmud, M.P, Hon'ble Minister, Ministry of Water Resources, Government of the People's Republic of Bangladesh graced the occasion as Chief Guest and Mr. Muhammad Nazrul Islam, Bir Protik, psc, M.P, Hon'ble State Minister, Ministry of Water Resources, Government of the People's Republic of Bangladesh was present as Guest of Honour. Dr. Zafar Ahmed Khan, Senior Secretary, Ministry of Water Resources, Government of the People's Republic of Bangladesh and Engr. Md. Waji Ullah, Executive Director, CEGIS were the special guests in the seminar. The meeting was chaired by Mr. Md. Mahfuzur Rahman, Additional Director General (West region), BWDB.

Mr. Malik Fida Abdullah Khan, DED, Operation, CEGIS is presenting a keynote of the study where Engr. Md. Waji Ullah, Executive Director, CEGIS, Mr. Muhammad Nazrul Islam, Bir Protik, psc, MP, Hon'bl State Minister, Mr. Anisul Islam Mahmud, Hon'bl Minister, Dr. Zafar Ahmed Khan, Senior Secretary, Ministry of Water Resources and Mr. Md. Delwar Hossain, Project Director, CEIP-1, BWDB are seen (from left)

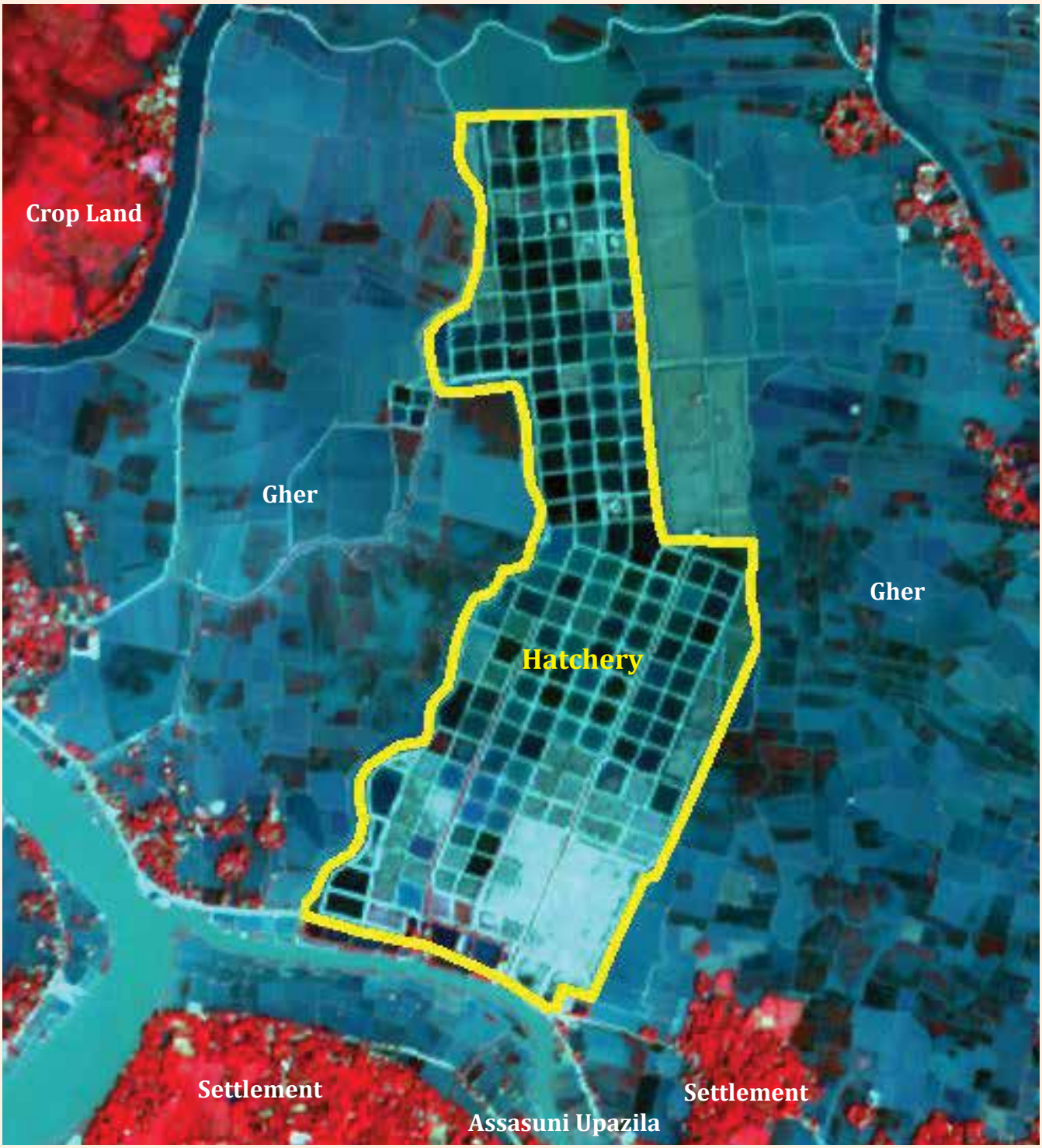
The program started with registration of the participants at 9:30 am. Thereafter, the seminar commenced at 10:00 am through recitation from the holy Quran. Mr. Md. Delwar Hossain, Project Director, CEIP-1, BWDB delivered the welcome speech. After that Mr. Malik Fida Abdullah Khan, Deputy Executive Director (Operation), CEGIS presented the findings of the Environmental Impact Assessment (EIA) study of six polders under package-2 of CEIP-1.

About 100 National Experts from multi-disciplinary fields such as Engineers, Agriculturists, Economists, Environmentalist, Sociologists and others as well as local stakeholders were present in the seminar. Besides, three international Environmentalists were present in the seminar. After the presentation, the floor was opened for the participants to give their valuable comments and suggestions on the study. All the valuable comments and suggestions received from the Honourable Chief Guest, Guest of Honour, Special Guests and participants are incorporated in the study report.

Participants at the dissemination seminar on the "Environmental Impact Assessment (EIA) under Package-2 of CEIP-1" was held at Spectra Convention Centre, Gulshan-1, Dhaka

Identification of Fish Hatchery using SPOT-7 Satellite Image

Fish hatcheries are specialized place for artificial breeding, hatching and rearing through the early life stages of fish. Fish hatcheries provide the primary support to the fish aquaculture industry. The aquaculture industry is growing rapidly and has a gross contribution in the global fish production. A controlled expansion is required for ecological sustainability. Satellite image is a great source for monitoring and mapping of these information. The figure below shows a SPOT-7 image of Assasuni Upazila, Satkhira. SPOT-7 provides information in 5 spectral bands in the visible and near infrared spectral range with a spatial resolution of 6 m. A false color composite: Red: Near-Infrared Band (760-890nm); Green: Blue (450-525nm); Blue: Green (530-590nm) has been applied for better visual interpretation and identification of the hatcheries. The spectral information for aquaculture and hatcheries are indistinguishable to a certain extent however, the hatcheries have comparatively smaller size and more standardized regular shape with more salient boundaries. Moreover, the association/proximity of hatcheries and fish aquaculture pond (*Gher*) facilitates the identification further (the association is also observable in the image below):



SPOT-7 Satellite Image (Acquisition date: 10 November 2015)

Training Program on Introduction to Land Acquisition and Resettlement Management

Participants of the Training Program on Introduction to Land Acquisition and Resettlement Management

A three (3) day long training program on 'Introduction to Land Acquisition and Resettlement Management' was conducted by CEGIS for the professionals of different government and non-government organizations. The objective of the training program was to disseminate the importance of land acquisition and resettlement issues in the development projects/programs, and to enhance knowledge and capacity of the officials serving in this sector. Twenty Seven (27) participants from different organizations, namely, Ministry of Water Resources (MoWR), Ministry of Railways, Ministry of Road Transport & Bridges (Road Transport and Highways Division), Bangladesh Land Port Authority, Bangladesh Export

Dr. Zafar Ahmed Khan, Senior Secretary, MoWR, Government of the People's Republic of Bangladesh is delevering speech in the inaugural session

Processing Zone Authority, Bangladesh Economic Zone Authority, Bangladesh Water Development Board, Bangladesh Railway, Bangladesh Bridge Authority, Bangladesh Power Development Board, Titas Gas Transmission & Distribution Company Ltd., Sundarban Gas Company Ltd., Rural Power Company Ltd., Pashchimanchal Gas Company Ltd, North-West Power Generation Company Ltd., Bakrabad Gas Distribution Company Ltd., Gas Transmission Company Ltd., Development Consultant Ltd., Development Design Consultants Ltd., Knowledge Management Consultant Ltd., International Water Association (IWA), Development of Rural Poor (DORP) and CEGIS attended in the training program held during 25-27 February 2017 at CEGIS Conference Room.

The training program covered (i) Concept of Land Acquisition Plan, Resettlement Plan (RP) and Resettlement Framework, (ii) National and Donor (ADB, JICA, WB, etc.) Perspectives of Legal and Policy Issues, (iii) Social Impact Assessment and Gender Action Plan in Resettlement, (iv) Resettlement Eligibility and Entitlements, (v) Planning of Surveys/Census and Stakeholders Consultations in Resettlement Study, (vi) Costs Assessment and Budget Preparation for RP, (vii) Institutional Arrangements for RP Implementation, and (viii) Resettlement Experiences in Bangladesh etc. Adequate hands-on exercises were carried out in respective sessions. A pool of Land Acquisition and Resettlement Experts from different organizations concerned such as, Ministry of Land, Bangladesh Bridge Authority, University of Dhaka, World Bank, Asian Development Bank, Knowledge Management Consultant, DevConsultants Limited etc along with the CEGIS Experts conducted the training.

Mr. Khairul Matin, Resettlement Expert is conducting a session

Dr. Zafar Ahmed Khan, Senior Secretary, MoWR, Government of the People's Republic of Bangladesh attended both the inaugural and closing sessions as the Chief Guest and Engr. Md Waji Ullah, Executive Director of CEGIS chaired both the sessions. The participants were awarded certificates after completion of their training course, and Dr. Zafar Ahmed Khan graced the certificate giving ceremony on 27th February 2017.

Dr. Zafar Ahmed Khan, Senior Secretary, MoWR, Government of the People's Republic of Bangladesh along with CEGIS Management is awarding certificates among the participants

Contract Agreements

CEGIS is dedicated and firmly committed to recommending the best options and solutions to a project analyzing with GIS and RS applications and using modern and latest scientific tools and techniques in preparing especially IEE, EIA, SIA, ESIA, EMP, Feasibility Study reports. For its fairness, dedication and commitment many organizations relied on and trusted CEGIS and is giving their project study works to CEGIS.

Engr. A. K. M. Fazlullah, Managing Director , CWASA and Engr. Md. Waji Ullah, Executive Director, CEGIS and other officials from CWASA and CEGIS are seen is the contract signing ceremony

CEGIS has signed ten number of contracts with different organizations and clients to carry out different studies within the period of January to March 2017. The titles of these contacts are i) Consultancy services for "Environmental Impact Assessment and Social Impact Assessment of Shibpur Flood Control, Drainage and Irrigation Project under Shibpur upazila in Narshindi District" with BWDB; ii) Consultancy services for "Environmental and Social Impact Assessment for Re-Excavation of the Bhairab River flowing through Meherpur and Chauadanga Districts" with BWDB; iii) Consultancy services for "Optimizing the Dredging in the Padma, Megna, Jamuna, Tentulia, Kirtonkhola, Arialkha, Kumar, and Madhumati Rivers and Monitoring the Activity for Volume Calculation & GIS Application Software for Navigation Route Using Touch Table for the year 2016-2017" with Geoden B.V; iv) Consultancy services for "Biodiversity and Physical Structure Survey of Ramna Park' with M/S Bashar Traders; v) GIS Mapping for Gender Responsive Climate Adaptive Livelihood Study with Practical Action; vi) Revision of National SLCP Planning Document and Development of a Monitoring and Evaluation Plan with Department of Environment; vii) Initial Environmental Examination and Environmental Impact Assessment of BhandalJuri Water Supply Project with Chittagong WASA; viii) GIS Support for the Land Requisition and Compensation Process of the Padma Multi-purpose Bridge River Training Works Project of the PMBP of BBA with Sinohydro Corporation Ltd.; ix) Topographic Survey of 6.35 sq km Area at Southern Part of Barapukuria and Development of DEM for Barapukuria Coal Mining Company Ltd. with Mazumdar Enterprise; and x) Morphology Trend Study Work of Detail Feasibility Study for Bangabandhu Sheikh Mujib International Airport Project with Nippon Koei co. Ltd.

New Faces

Sarwat Tazrian has joined CEGIS in January, 2017 as Research Consultant under Ecology, Forestry and Biodiversity Division. She has completed her B.Sc. and M. Sc. in Genetic Engineering and Biotechnology from the University of Rajshahi. She has achieved outstanding results in the university level and has been awarded a University Merit Scholarship in B.Sc and Bangabandhu National Science and Technology (NST) Fellowship for the M.Sc course. She has also participated in several trainings, seminars, symposiums and workshops on biotechnology, environment and biodiversity.

Gazi Md. Riasat Amin has joined CEGIS as Junior Consultant under Climate Change and Disaster Management Division in March, 2017. He completed his graduation in Civil and Environmental Engineering from Shahjalal University of Science and Technology, Sylhet. He is currently pursuing his M.Sc (Engg.) degree in Environmental Engineering (Civil) from Bangladesh University of Engineering and Technology (BUET). Previously he worked as a Research Associate at the Institute of Water and Flood Management (IWFM), BUET. His working experience includes research and studies using hydrology, hydrodynamic and morphological modeling using SWAT, Delft3D-Flow, Delft3D-Wave, Delft3D-FM, HEC-RAS, HEC-HMS. He was also involved in data analysis and processing using Excel and R, Landsat/Sentinel-1A/Sentinel-2A image analysis and mapping using ArcGIS, QGIS, ArcView, ERDAS Imagine and SNAP (for microwave data). His main fields of interest are statistical analysis, GIS, remote sensing, 2D/3D hydrodynamic modelling and climate change.

Syeda Tasneem Binta Haider has started her career with CEGIS form 13th February, 2017 as Research Consultant under Remote Sensing Division. She has completed her Bachelor of Science (B.Sc) from the University of Dhaka in Geography and Environment and pursued her Masters of Science (M.Sc) in Environmental Science from Universität Trier, Germany.

Mohammad Ifrad Bin Munir has joined CEGIS in February, 2017 as a Research Consultant under Water Resources Management Division. He has completed his Bachelors of Science (B.Sc) in Civil Engineering degree from Chittagong University of Engineering & Technology (CUET). He worked in the field of construction as a Project Engineer for four years before joining CEGIS.