Year 19: Issue 64
April-June 2020

Buddha-Narikel Tree

Upcoming

- Preparation of Climate Resilient Flood Management Plan for the Paro Dzongkhag, Bhutan
- EIA of Shiliguri, India to Parbatipur, Bangladesh Oil Pipeline
- Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) Guidelines for Haor Areas

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the CEGIS NEWSLETTER

Safeguarding Environment for Future

CEGIS Protocols to Operate Office during COVID-19 Situations

CEGIS took a number of initiatives against spreading out of the Novel Corona virus, such as working from home for physically vulnerable professionals, not allowing public transports, keeping every corner of the office clean and disinfecting time to time, wearing mask, disinfecting vehicles and so on. The first reported case was found with a Support Staff Mr. David Ghorami, who was immediately sent home for isolation and treatment. He got well in around two weeks. There have been few cases of COVID-19 among CEGIS employees, and as per standing instruction, they take isolotation in the event of any symptom.

The steps which have been implemented to operate the office during COVID-19 situations are:

Measurement of temperature at the entry point of the office is made mandatory for all. Forehead temperatures with less than 37 degrees Celsius are allowed to entire into the office.

Hand sanitizer are made available in the office vehicles, office rooms and the entry points of the offices and all entering in the vehicles as well as into the office are to use them properly.

CEGIS has introduced disinfection carpets at the entry points of the offices where everybody have to wipe their shoes properly.

A mobile sanitizer machine has also been installed in CEGIS for disinfecting its vehicles and office rooms once daily. As per recommendation of a chemist Virol-Oxy is used in it considering the health hazard.

Floors and washrooms of the office are cleaned with Savlon for at least thrice a day. The door handles, telephone sets, keyboards and mouse are also cleaned at every two-hour interval. Liquid bleaching powder is sprayed for at least three times a day in the garage and wheels of the vehicles. The towels have been removed from all wash rooms instead of which hand towel tissues and liquid hand wash are provided. Wastes from each individual bin are collected and dumped in the covered bin placed outside the office premises at least thrice a day.

Only 35-40% of the total professionals are allowed to attend the office with complete restrictions to the guests and vendors. Two peons are dedicated to stay in the office premises for 24 hours to support the professionals, working from home. Restriction is provided to all coming from vulnerable or red zone areas.

CEGIS internal canteen and supply of morning snacks from outside have temporarily been stopped as there are chances for contamination. Only covered cookies are allowed as snacks for the professionals who attend the office. The lift service is also temporarily been stopped.

An orientation course was arranged on April 05, 2020 for all support staff (Drivers, Peons, Cleaners and Guards) regarding their responsibilities during COVID situation. All assignments are been strongly monitored by the administration of CEGIS using different monitoring tools.

Cont'd on page 2

Environmental and Social Safeguard Monitoring for Electricity Distribution Projects of DESCO

Amith Dutta, Socio-Economic and Institutional Division

The term "Environmental and Social Safeguards" is used to refer to policies, standards and operational procedures by development institutions, international treaties and agencies to avoid, mitigate and minimize adverse environmental and social impacts of the projects.

Environmental and Social Safeguard Monitoring is a process to monitor the standard set by borrower, and EMP suggested in the IEE/EIA reports. The monitoring report is important document for the borrower which is prepared following the national and international guidelines and standards.

Lobors are working in the sites following health safety during the COVID 19 pandemic

CEGIS has been entrusted by DESCO since 2017 to monitor 2 (two) ADB financed projects for the environmental and social safeguard compliance monitoring. This environmental and social Safeguard compliance monitoring is carrying out to explore the EMP compliance status on Augmentation and Rehabilitation of Distribution System in DESCO Area and Construction of five 132/33/11kV Sub-stations in DESCO Area projects. This monitoring is ongoing following by the ADB safeguard policy and conditions provided in the loan covenant between ADB and Bangladesh. Additionally, EMP suggested in the EIA report is also considered during the monitoring of two projects of DESCO.

The multidisciplinary monitoring team (i.e. environmental engineer, social safeguard expert and ecologist) visits physical, biological and social environmental status of the construction site based on prepared checklist which is approved by ADB Bangladesh and PMU of DESCO.

The labors, site manager, HSE manager, and relevant stakeholders were interviewed to explore the environmental issues (i.e. air quality, ambient noise, waste management) and the social issues (i.e. involuntary resettlement, impact on indigenous people, impact on livelihoods and working condition) during the construction phase of the project. CEGIS use Dust Track Aerosol Monitor (model 8533EP) to test the ambient air quality of that project sites. The parameters PM1, PM2.5, PM10 are tested to measure the air quality of the project sites. Physical observation and other tools for data collection are used for collecting data from the project sites. The monitoring team of CEGIS conducts monthly monitoring field visit and prepare semi-annual monitoring reports based on the monthly monitoring results for consecutive six months.

The study team assesses all indicators and observes compliance and non-compliance issues related to the environmental and social safeguard standards. Finally, Corrective Action Plan (CAP) and recommendations are suggested by the CEGIS study team to address noncompliance issues for completing project activities smoothly.

CEGIS Protocols to Operate Office ... (Cont'd from page 1)

About 60-65% of the professionals of CEGIS is working from home and CEGIS is providing them all necessary IT support which resulted the professionals to work beyond the office hours too. 20% of the personal computers have so far been shifted to their residences.

Professionals more than 4 and 2 are not allowed at a time in a microbus and a private car respectively. Drivers always clean the door handles (inside and outside), steering wheels, and dashboards, inside door buttons, seatbelts, gear shifters and touch screens before driving. They also encourage the professionals to sanitize their hands with sanitizer. Considering area wise lockdown situation three numbers of vehicles have been shifted in three different places to provide support to the professionals for official and personal emergency.

Professionals use face masks in the office while support staff use face masks as well as hand gloves in the office premises. PPEs have been distributed among the support staff and instructed to come to the office wearing the PPE Gowns as they come from vulnerable areas and remove them immediately after entering the office.

The professionals at every sphere work in the office maintain at least 3 feet distance from each other. All types of meetings and gatherings in the office are temporally stopped. No Carpets and prayer mat are allowed in the Mosque. At least 3 feet distance are maintained from each other and maximum 8 persons perform prayer at a time.

The field activities of studies are managed through limited numbers of field visits. During each field visit the followings are strictly maintained:

It is mandatory for all to use PPEs (face masks, hand gloves, sunglasses and gowns) while their movements in the vehicles and fields. They also keep hand sanitizers along with them during field visits.

Night halts are avoided as much as possible. Accommodation in the circuit houses or the rest houses of the government and non-government offices are to ascertain for night halts if essential during field visits.

The Professionals (about 95%) are contributing in their respective studies from home through online while the rests from the office (as and when required). The studies are regularly monitored through weekly Divisional meetings and monthly meetings of the Management Coordination Team (MCT) on Skype or Zoom.

All the above protocols are still followed for performing the official activities in CEGIS. But at present the number of professionals attending the office have been increased as per requirement but they are to follow the rotation of their presence as scheduled by the Directors of the respective Division.

Contract Signing for Different Studies

During second quarter of the year 2020 (April-June), CEGIS has signed 6 (Six) contracts with different organizations and clients. The contract titles with date of signing are given below:

i) "Flood Risk Study and Flood Control Design & Environmental Impact Assessment for Conservation of Flood Flow Zone of Turag River and Compact Township Development Project & The Waterfront Smart City, Keraniganj, Dhaka" with China Road and Bridge Corporation (CRBC) on 12th April, 2020 ii) "Delineation of Enumeration Area, Extracting Settlement Information for Urban and Rural Area and mapping using GIS and Remote Sensing Technology to support Population Census 2021" with Bangladesh Bureau of Statistics (BBS) on 5th May 2020 iii) "Online Integrated Census Management System Platform with GIS Integration for Population & Housing Census 2021" with Bangladesh Bureau of Statistics (BBS) on 5th May 2020 iv) Hydrology, Hydrogeology, Meteorological, Aero-Meteorological, Demography and Anthropogenic Data collection and Analysis for "Technical Study Project to Establish High Power Research Reactor in Bangladesh at the site of Atomic Energy Research Establishment, Ganakbari, Savar, Dhaka" with Bangladesh Atomic Energy Commission (BAEC) on 31st May 2020". v) "Consultancy Service for IEE study of Infrastructure Development for Power Evacuation Facilities of Rooppur Nuclear Plant" with Power Grid Company of Bangladesh Ltd. (PGCB) on 7th June 2020 vi) "Upgrading, Operation and Maintenance of GIS Database & GIS Portal of LGED" with Local Government Engineering Department (LGED) on 16th June 2020.

Contract Signing betweem BBS and CEGIS

CEGIS Environmental ... (Cont'd from page 5)

weighting is mandated to be used for the protection of workers against noise-induced hearing loss. A frequency weighting is the only weighting mandated by the international standard, the frequency weightings C and Z being optional fitments. A frequency weighting is only now mandated for all levels for measuring quiet sounds. C frequency weighting is however still used in the measurement of the peak value of a noise in some legislation. For all civil aircraft noise measurements, A frequency weighting is used as is mandated by the ISO standards. Three time weightings for standard sound level meter have been internationally standardized "S" (1s), originally called slow, "F" (1ms) originally called Fast and "I '(35ms) originally called impulse.

Basic Working Principle

Sound level meters have a pointy stick at the top, which is the microphone that samples and measures the sound. The stick keeps the microphone away from the body of the instrument, cutting out reflections, and giving a more accurate measurement using a wind screen at the end of the stick which prevents the extra wind noise. The microphone is the condenser microphone, which combines precision with stability and reliability. The diaphragm, a flexible membrane of microphone responds to change in air pressure caused by sound waves when sound wave hits it. Due to movement of diaphragm, sound pressure deviation is converted into an (AC) electrical signal that is a precise electronic picture of sound waves. Those AC signals are converted to DC by a Root-Mean Square RMS detector circuit. The output of RMS circuit is linear in voltage and is passed through a logarithmic circuit to give a read out linear in decibels (dB). Due to best type microphone sensitivity, the instrument is able to convert electrical signal back to sound pressure and display the resulting sound pressure level decibels (dB).

In CEGIS, this meter is used in different study projects like Rampal Power Plant Project and others for measuring sound level for several periods. This instrument can be used in different machinery noise verification or fire alarms or noise level checking in offices or any establishments for environmental impact assessment and monitoring.

Developing Operational Shadow Prices for Water to Support Informed Policy and Investment Decision Making Processes

Sarazina Mumu, Water Resources Management Division

Valuing water and estimation of its shadow price for allocation is a prerequisite for ensuring equitable and efficient allocation. In Bangladesh so far, value of water or its shadow price has not been considered in investment decisions. To remedy the situation in the face of developing scarcity of water, the Government of Bangladesh has decided to conduct a study through the Ministry of Water Resources to estimate the value of water and respective shadow prices. CEGIS has been assigned by the Water Resources Planning Organization (WARPO) to develop an operational shadow price of water. Shadow prices will be calculated for four major water intense sectors such as Agriculture, Industry, Urban Water use and Ecosystem Services considering several hotspots which are identified in Bangladesh Delta Plan 2100. The overall objective of this study is to improve the allocation of resources and thus enabling sustainable socio-economic development. The estimated shadow price will be used for operational purposes of revised guidelines for DPPs so that the value of water can be considered in all policy, project and investment decisions in the public and private sectors. The project has started in October 2019 and will be completed in June 2021.

Study on Online Processing and Tracking of Water Resources Project Clearance and No Objection Certificates for Groundwater Abstraction

K. H. Razimul Karim, Geographic Information System Division

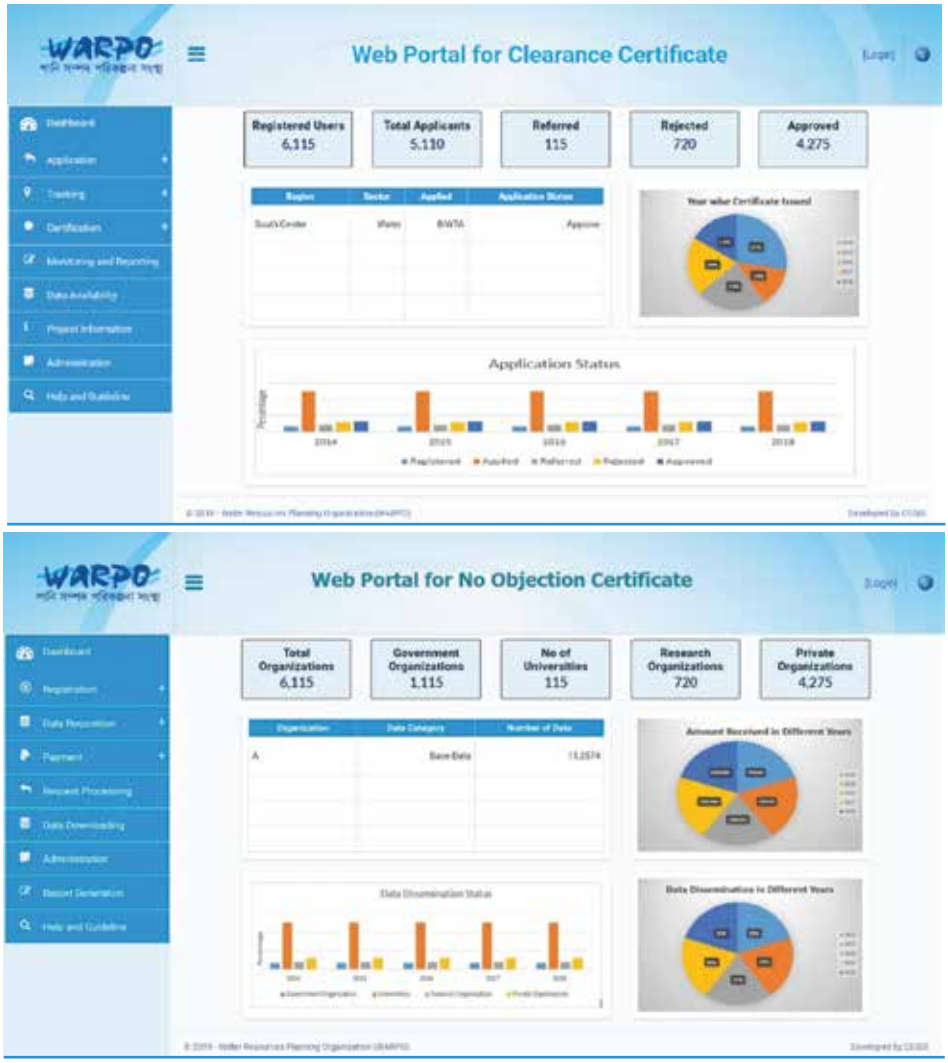
Water Resources Planning Organization (WARPO) was established under the Water Resources Planning Act 1992 and mandated by the National Water Policy 1999 and the Bangladesh Water Act 2013 and its 2018 Rules. As per 2018 Rules, it is essential for WARPO to implement two of the highest priority measures, one is to have clearance for water resources project and the other to have no objection certificate for force-mode groundwater abstraction, and also to ensure that all necessary information for application of these rules can be disseminated to all those, responsible for their implementation. Again, a particular feature of Sub-rule 47(6) under the Bangladesh Water Rules 2018 empowers WARPO to introduce digital processes where it deems appropriate. In order to fulfill the requirement, WARPO has taken the study and engaged CEGIS to develop to required online system.

The main objective of the study is to develop web-based system for issuing Clearance Certificate for water resources related projects and No Objection Certificate for force-mode groundwater abstraction and On-line Data Dissemination Tool for disseminating existing data of WARPO.

According to Bangladesh Water Rules 2018, number of water resources development related projects need to have Clearance Certificate from respective Committee based on the estimated cost. A web based interactive system has been developed for applying, processing and tracking water sector Project Clearance Certificates. The portal will allow users to make and register applications, track progress and get certificates. It will allow WARPO to process and evaluate the application with respect to predefined criteria and provide certificate.

According to Rules 2018, all water resources development related projects involved in abstraction of ground water by force-mode deep tube wells need to have No Objection Certificate (NOC) from WARPO. A web portal is being developed for applying, processing and tracking these No Objection Certificates as described in Chapter 10 of Bangladesh Water Rules 2018. The portal will allow users to get NOC through online.

Online Data Dissemination Tool has been developed to disseminate existing data from NWRD, ICRD, and other sub-sets of NWRD such as Char Development and Settlement Project (CDSP), Coastal Embankment Rehabilitation Project (CERP) and others to line agencies, Government and private agencies, and registered researchers and students. The system will disseminate data following the Data Dissemination Policy of WARPO.



Home Pages of Proposed Web Portal

English Report Writing ... (Cont'd from page 8)

(e) short sentence making instead of complex sentence, f) Fundamentals of report writing skill and g) Linkage between paragraphs.

Based on the identified topics, British Council conducted level test for all the participants – using their Standard Placement Test. On the basis of its results, the participants (79) were grouped in 5 (five) batches with 16 officials in each batch. Training Modules and the lectures were designed for each batch, considering the results of the Placement test. The training period for each batch was 32 hours @ 6.5 hours (+/-) per day.

After complition of the training program, participants were evaluated for their attitude and contribution in class, team work, understanding of grammar, writing up, report writing, technical report writing, use of grammar and verb forms etc. The training has improved the confidence of their writing skills and communication capacity. CEGIS can

CEGIS Environmental Lab: Sound Level Meter

Rafiqul Alam, Water Resources Management Division

Sound Level Meter measures the sound that travels through air i.e. it is used for acoustic measurements in air. It has multiple applications in different studies for verification of different kinds of noise exposure such as fire alarms or noise level checking of different establishments, environmental noise, mining and air craft noise. This meter is developed to keep comfortable sound equivalent as well as safe and healthy life for people, both to be realized by the evaluation of environmental noise such as traffic noise or industrial equipment noise or by better understanding of the labor health environment at offices, factories etc. CEGIS has five different types of sound level meters. KANOMAX 4431 is one of them and manufactured in Japan. It covers wide measurement range from 20dB-130dB. It allows data processing from PC and realized by in built memory or memory card. It is a highly efficient and reliable precession sound level meter. Visibility and easy on eye display is possible.

This sound level meter specifies and covers most measurands corresponding to ISO, JIS and IEC current international standard criteria. Measurement of most measurands, such as Equivalent continuous A weighted sound pressure level (LAeq), A weighted maximum sound pressure level (LA max), A weighted minimum sound pressure level (LA min) and C weighted peak sound pressure level (Lc) etc. are possible by this meter. Calibration of the instrument is needed before taking measurement. Measurement mode and measurement time should be selected by using their keys. Measurement time and display data can be seen on the display screen with start/stop key. Rec blinks when measurement starts and Stp is blinks when measurement terminates. It complies with the type 2 ANSI standard and has an innovative, unique 0-dB feature that eliminates the self noise of the

Sound Level Meter

microphone and A, C and Z weighting modes. Labels used to describe sound and noise level values are defined in the IEC Standard. For labels, the first letter is always an L. This simply stands for Level. The second letter indicates the frequency weighting. 'Pattern Approved' sound level meters offer noise measurements with A, C and Z frequency weighting.

Z-Weighting represents the actual sound produced. A Weighting, with less lower and higher frequencies, and a slight boost in the mid-range, represents what humans are capable of hearing. C Weighting is more sensitive to the lower frequencies, represents what humans hear when the sound is loud (over 100 dB). The IEC mandates the inclusion of an A frequency weighting filter in all sound level meters, and also describes C and Z frequency weightings. In almost all countries, the use of A frequency

Cont'd on page 3

Nature: Buddha-Narikel: A forest Coconut Tree

Uzzal Kumar Saha, Ecology, Forestry and Biodiversity Division

Fruits of Buddha-Narikel

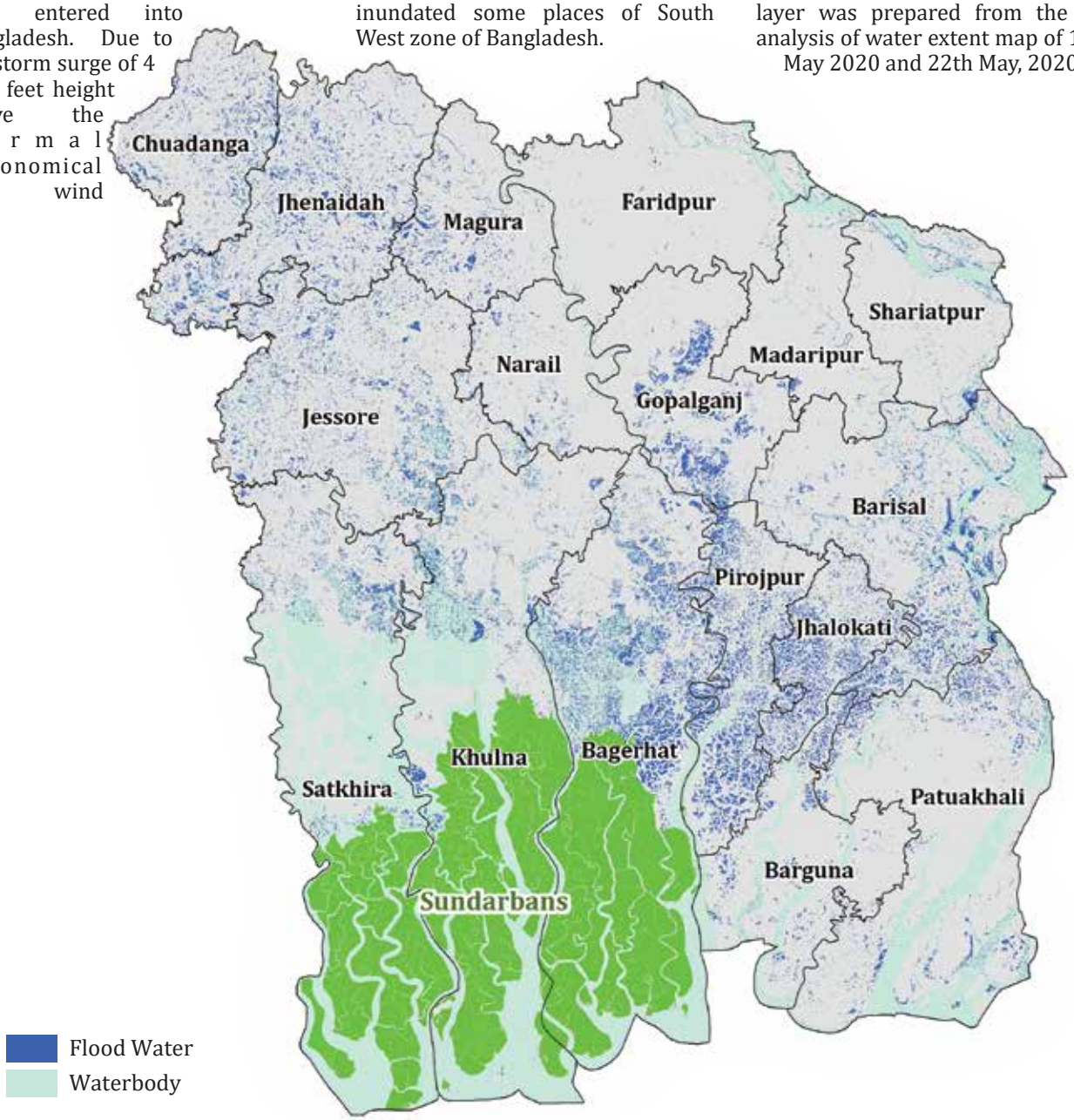
The Buddha-Narikel (*Pterygota alata*) is an evergreen and semi deciduous tree that is originated from Sterculiaceae family. It is native to India and found variously in South-east Asia especially within the South India, Sikkim and Andaman Islands. This tree is much branched, grown up to 40-50 meter with narrow conical crown and horizontal branches. Trunk is grown with more than one meter of diameter having greyish-brown barks. Leaves are simple, usually crowed at the end of branch lets, broadly ovate, wavy, smooth, pointed or tapering. Flowers are small brownish yellow. Fruit is woody ball-shaped comprising of cavities. Fruit pulp tastes almost like Coconut and hence this is called a "Buddha Narikel" in Indian subcontinents. In Bangladesh, this tree occurs in the forests of Chattogram Hill Tracts, Cox's Bazar and Sylhet Districts. The tree has medicinal, fruit and timber values. Seeds are eaten and used as oil/biofuel source in Indian subcontinents. The wood is whitish in color, fibrous and can be used in making pulp for paper, furniture, boxes, sticks, toys, handicrafts, and in fabrication of the plywood. It propagates by seed. Pterygota alata have an ornamental characteristics due to luxuriant foliage. So, the tree is planted as a shade tree in parks and gardens and as road tree in the tropical, subtropical and marginally temperate warms climate regions. In Bangladesh, it is planted in Ramna Park, TSC of Dhaka University, Botanical Gardens, Rangpur City Area as an ornamental purpose. The Chattogram University (The Institute of Forestry and Environmental Science) and the Arannyk Foundation have taken initiatives to conserve sixty more endangered trees species including this plant.

Flood Water Extent in South West Zone of Bangladesh by Cyclone Amphan

Md. Nasrat Jahan, Remote Sensing Division

On 20 May 2020, the cyclone Amphan slammed into the coastal districts of West Bengal, India and then entered into Bangladesh. Due to the storm surge of 4 to 5 feet height above the normal astronomical tide, wind speed up to 140 to 160kmph in gusts/squalls with heavy to very heavy falls during passage of storm inundated some places of South West zone of Bangladesh.

The flood extent map was prepared from the microwave Sentinel-1 (10 meter) images. The flood extent layer was prepared from the GIS analysis of water extent map of 16th May 2020 and 22th May, 2020.



The flood extent map of 16th May 2020 and 22th May, 2020 analysed from Sentinel-1 (10 meter) images.

District	Area (hectare)	District	Area (hectare)
1. Barguna	5677	10. Bagerhat	31700
2. Barishal	20962	11. Chuadanga	8126
3. Jhalokati	12876	12. Jashore	17139
4. Patuakhali	11695	13. Jhenaidah	16196
5. Pirojpur	21129	14. Khulna	10108
6. Faridpur	1517	15. Magura	5634
7. Gopalganj	12333	16. Narail	2550
8. Madaripur	1452	17. Satkhira	8799
9. Shariatpur	3241		

(Source: Sentinel-1 images of 16th and 22th May 2020)

River Management in the Khulna Division

Jakia Akter and Maisha Mashiat, River, Delta and Coastal Morphology Division

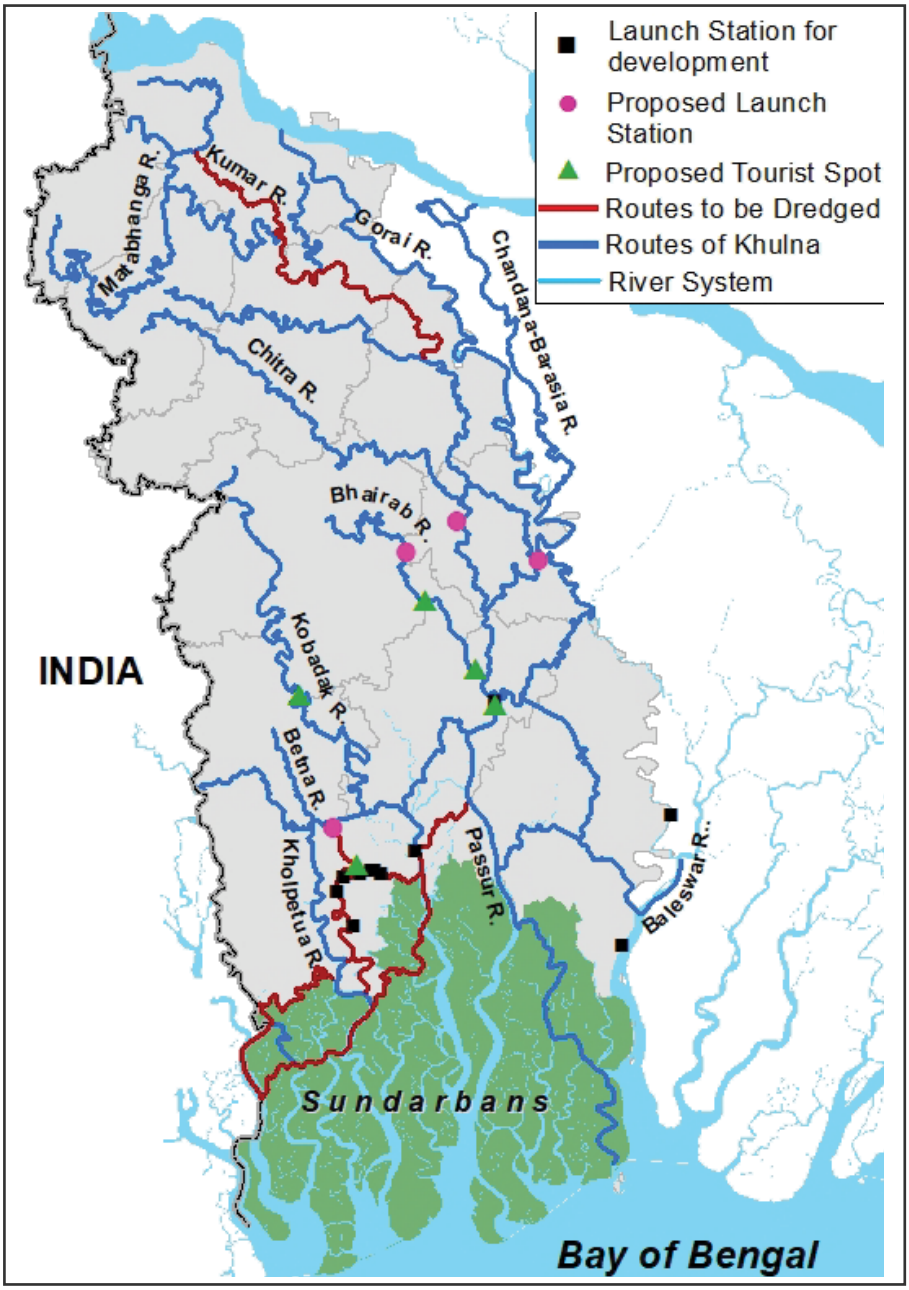
With the increasing demand of Mongla Port, Khulna has become a vital regional industrial center in Bangladesh. Smooth navigable routes connecting Khulna with other parts of the country throughout the year will certainly contribute to the overall socio-economic growth on a large scale. However, during the post Farakka period, the Ganges water has been diverted towards India causing a substantial dearth of freshwater in the southwest region of Bangladesh. This diversion of freshwater, as well as siltation at the Gorai offtake, has contributed in decreasing the length of the navigable waterways. Under such circumstances, the Government of Bangladesh has given the responsibility to BIWTA to improve and restore the navigation routes in the southwest region of Bangladesh associated with rivers such as Gorai, Madhumati, Chitra, Nabaganga, Kobadak, Passur, Sibsa, Kholpetua, Rupsa, Malancha, Raimangal, etc. CEGIS, as a consulting organization upon discussing with BIWTA, has selected twenty-nine routes on priority basis for improving the navigability by dredging for ensuring smooth and safe plying of cargo and passenger vessels as well as enhancing the tourism, wetland ecosystem, irrigation facilities and minimizing the drainage congestion.

The morphology of the rivers in this region has unique characteristics especially at the upstream. Most of the rivers in the upstream part of this region are morphologically inactive as they have little or no connection with their parent rivers and dried up significantly elevating their bed levels. The morphological conditions of the rivers in the downstream, located at the tidal zone, are quite different as the rivers are more dynamic and active here. Riverbank erosion and shifting of the river course through cut-off are very common phenomena and the frequency of the occurrences mainly depends on the sediment input into the rivers from downstream triggered by tidal asymmetry.

After scrutinizing the current morphological and bed level condition of the selected rivers in the southwest region, six routes have been selected and appropriate dredging alignment has been provided to perform capital dredging. Tentative disposal locations have been selected through discussion with the local people in presence of the union chairman. In addition to this, maintenance dredging has been suggested in these routes to ensure long term navigability in this region.

A total of eleven launch stations have been proposed for development and four sites for the establishment of new launch stations based on connectivity, local demand, and traffic analysis. Five potential spots with tourism value have been proposed for developing as Tourist Spot. Basic features such as pontoon, gangway, jetty, stair, waiting room, toilet, etc. have been considered for all the selected landing stations.

Successful implementation of the proposed activities will improve navigability and wetland ecosystem, mitigate drainage congestion, enhance irrigation and landing facilities in the Khulna Division for Supporting M-G Canals. According to this feasibility study, this project can thus be treated as technically feasible, economically viable, socially acceptable, and environmentally sustainable.



Map showing selected routes to be developed

Preparation of Stormwater Management Plan for Thimphu Thromde

Ahmmed Zulfiqar Rahaman, Climate Change and Disaster Management Division

CEGIS in association with APECS Consultancy, Bhutan has been entrusted by the Department of Engineering Services (DES) under the Ministry of Works and Human Settlement of the Royal Government of Bhutan for the study titled "Preparation of Stormwater Management Plan for Thimphu Thromde".

Thimphu, the capital city of Bhutan is an economic development hub of the country that contributes to 45% of the country's GNP. Since inception of this metropolis in 1960, urban development activities have been rapidly increasing in this city. Thimphu Thromde is expanding at a very high rate compared to the other parts of the country, thus increasing manifold problems. Among them, stormwater drainage problem is one of the prominent ones. Inadequate coverage of drainage network, loss of connectivity, inadequate capacity, poor quality workmanship, lack of O&M work, poor planning and ad hoc construction, lack of awareness in waste management and dumping of waste etc. are major causes behind this problem. Climate Change impact and its uncertainties on rainfall pattern is aggravating the situation.

In this regard, CEGIS-APECS JV is preparing an integrated and sustainable stormwater management plan which will meet future demands of Thimphu Thromde (2020-2030) through assessment of adequacy of existing drainage system doing SWMM Modeling and recommending possible solutions to provide sufficient infrastructure capacity including sustainable stormwater management program incorporating Low Impact Development (LID) techniques are physically, economically and practically possible. This ISWMP would be the guiding tool for thromde engineers to prioritize investments aiming the alleviation of the urban drainage problems and maintaining the sustainable stormwater management system for the Thimphu Thromde.

Professionals of CEGIS along with APECS Consultancy and Ministry of Works and Human Settlement of the Royal Government of Bhutan

English Report Writing Skill Training

As a continuous strive for capacity development, CEGIS organized a need-based training program on "English Report Writing Skills" for its professionals. The training was conducted by the British Council, Dhaka. Seventy-nine officials from different divisions attended the training, which was organized between January and March, 2020, in the CEGIS Training Room, well equipped with all training facilities.

CEGIS Professionals along with the British Council Trainer

Towards preparation of the training program, a questionnaire survey was conducted among all professionals within P1 to P3 level to assess their need and expectations from the proposed training. Their responses were summarized and 7 topics were identified; viz. a) Grammatical skill, b) Phonetics, linguistic norms and articulations c) English language skill,

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