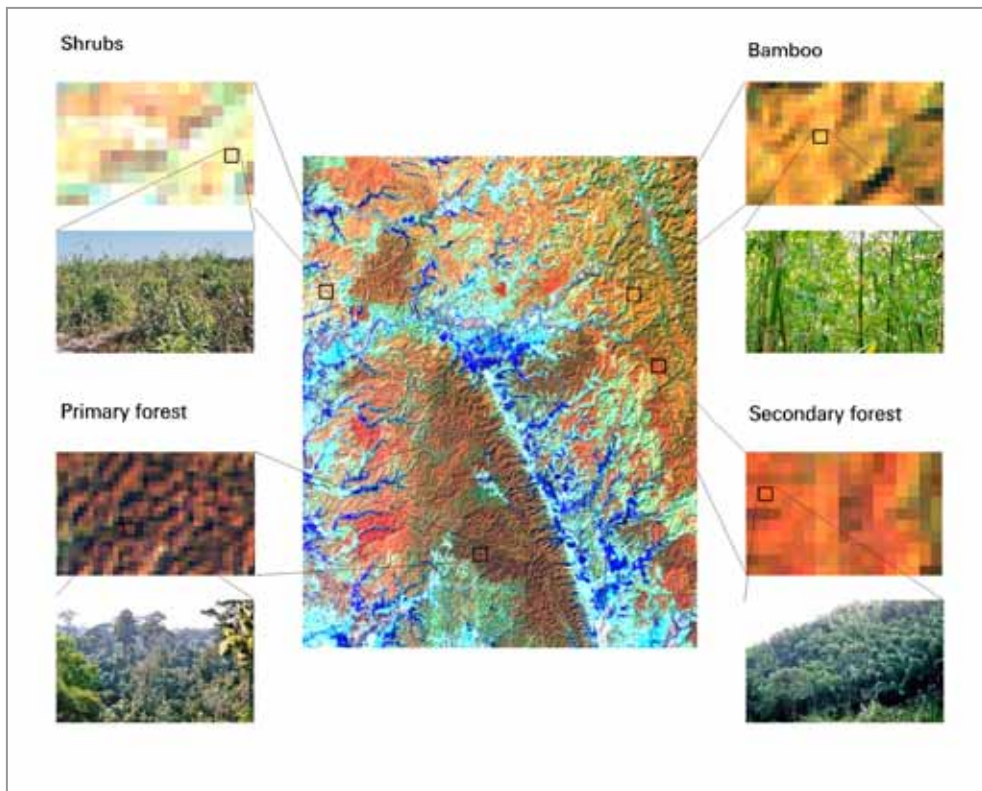


Research Activities

**Tropical Vegetation Mapping from Landsat ETM+ Imagery**



*Fig.1: Natural vegetation map of southeastern Bangladesh using Landsat ETM+ imagery*

Monitoring of tropical forest is important as it plays a vital role in the conservation of global biodiversity and terrestrial carbon dynamics. Remote sensing is an effective tool for monitoring of the tropical vegetation. However, an interpretation key for monitoring of the tropical forest in Bangladesh has not yet been developed. Therefore, the current study aimed to generate an interpretation key for the forests of south-eastern Bangladesh. The study used Landsat ETM+ imagery. Geometrically corrected image was obtained from USGS and

later adjusted in the field using GPS. Atmospheric correction was done by modified dark object subtraction method. Eight different vegetation types were identified on the satellite image. The study has developed an interpretation

key, which can be effectively used for monitoring of tropical vegetation. The result of the study will be useful for interpretation and monitoring of tropical forests in similar ecosystems.

**Monitoring of Southwest Monsoon Depression over Bay of Bengal**

Bangladesh is situated in the active zone of southwest monsoon region. Here most of the precipitation (about 80%) is experienced during the rainy season which is influenced by the southwest monsoon.

During June to September (southwest monsoon season) tropical depressions and storms are formed over the Bay of Bengal, and they generally move to the northwest and north towards India and Bangladesh coasts respectively. When these depressions and storms move toward inland they are usually accompanied by torrential rains and thunderstorms.

The depression of 19 September, 2005 in the Bay of Bengal was detected at the very initial stage from the images of NOAA-16 and NOAA-17 of 16 September 2005. The massing up of cloud was formed at the low-pressure system on

17 September, 2005 around 23°N 88°E at 10:10 BST.

The formation was monitored by SPARRSO from NOAA-AVHRR data. The intensified depression started to move slowly towards northwest direction and later crossed the coast of Orissa in the early morning of 19 September 2005. As a result, the coastal districts and their adjoining offshore islands and ‘chars’ experienced moderate to heavy rainfall.

This storm was followed by a tidal surge of about 1 to 2 meter high, which inundated the low lying cultivable land along the coastal area.

### **Impacts of Shrimp Farming on Agricultural Land in the South-western Coastal Region of Bangladesh**

The coastal area of Bangladesh is enriched with natural resources and potential tidal area for fisheries, especially for shrimp farming. The high productivity and availability of large number of cultivable species of shrimp, prawn and fishes in the region offer an opportunity for shrimp farm development. Shrimp farming is therefore becoming a lucrative activity in the region. In the recent years, the areas of shrimp farming have been increasing rapidly due to continuous high demand of export of shrimp in international markets. Apart from its achievement of economic benefit, shrimp cultural activities in the coastal region has been creating environmental hazard.

A study is therefore being carried out using remote sensing techniques to identify the agricultural lands, converted to shrimp farming and the consequent impacts on the coastal environment. The study was supported by the Ministry of Science and Information & Communication Technology, Government of the People’s Republic of Bangladesh. Landsat MSS data of 1975-77, TM data of 1989-90, 2000 and 2004; and RADARSAT data of 2000 & 2004 are

being used in the study. Finally, GIS technique has been used to estimate the impacts of shrimp farming on the agricultural land of the coastal region in Bangladesh.

### **SPARRSO’s Participation in NAPAs**

SPARRSO is participating in the National Adaptation Programmes of Actions (NAPAs). It is financed by the Global Environment Facility (GEF) and the Government of the United States of America through the United Nations Environment Programme (UNEP). It is executed by the Ministry of Environment and Forest, Government of the People’s Republic of Bangladesh through the following working groups:

<b>Sector</b>	<b>Co-ordinator</b>	<b>Sectoral Working Group Members</b>
Agriculture, Fisheries & Livestock	BARC	DAE, DoF, BRRI,BMD,DOL
Forestry, Biodiversity and Landuse	IUCN	DoF, BMDA, DoE, SRDI
Water, Costal Area, Natural Disaster and Health	WARPO	BWDV, DMB, NIPSOM, SPARRSO, BMD, BCAS, CSD
Livelihood, Gender, Local Governance and Food Security	BIDS	DU (Soil & Env.), BUP, FEJB, GBS
Industry and Infrastructure	DoE	BOI, BUET, (Civil),BCAS, LGED,
Institutional and Policy Issues	BCAS	IUCN, BCAS, North South University

NAPA will communicate the priority activities addressing the urgent and immediate needs and concerns of the Least Developed Countries (LDCs), relating to adaptation to the adverse effects of climate change. Identification of

priority activities will be the main goal of the NAPA. Strategies to cope with current climate variability and extremes exist at the community level. Hence, one of the function of the NAPA is to identify urgent action needed to expand the current coping range and enhance resilience in a way that would promote the capacity to adapt to current climate variability and extremes, and consequently to future climate change.

### **SPARRSO's Participation in IOGOOS Activities**

SPARRSO is actively participating in Indian Ocean Global Ocean Observing System (IOGOOS) activities by attending meetings, conferences and workshops organized by the international body. IOGOOS is the regional group of Global Ocean Observing System (GOOS). GOOS is an internationally coordinated system for systematic oceanographic data collection, analysis, products, and technology development and transfer. The main objective of IOGOOS is to collaborate and work together with GOOS in the Indian Ocean for promoting activities of common interest for the development of operational oceanography in the Indian Ocean region.

IOGOOS has been initiated a multi-directional study approach relating to oceanography in the Indian Ocean region. They are: (i) the development of monitoring and management systems for the penaeid prawn resources in the Indian Ocean, (ii) monitoring and predicting coastal shoreline change and (iii) multi-scale monitoring and mapping of keystone coastal ecosystems through remote sensing and participatory approach. SPARRSO is keen to participate in the programmes for the interest of its vast territorial water share in the Bay and to promote its oceanographic research capabilities.

### **Obituary**

A condolence meeting was held at SPARRSO prayer room on the 4<sup>th</sup> August, 2005 to mourn the untimely death of Mr. Alamgir Mir, Driver of SPARRSO. Mr. Alamgir Mir passed away on the 22<sup>nd</sup> July 2005. He joined SPARRSO on the 3<sup>rd</sup> February, 1985. He left behind three daughters, the widow and a host of friends and colleagues. The meeting expressed deep shock at the death of the employee. The meeting also extended a message of condolence to the bereaved family and prayed for the eternal peace of the departed soul.



*Late Alamgir Mir*

### **Seminar Talk at SPARRSO**

Mr. A.Z.Md. Zahedul Islam, Senior Scientific Officer, SPARRSO presented a seminar talk on - "Image Map of Coastal Area of Bangladesh, River Course Monitoring and Change Detection Study Map and Digital Thematic Map of Maulavi Bazar and Block-12 Area" at SPARRSO Auditorium on 21 July 2005.

Mr. Abdus Salam, Scientific Officer, SPARRSO presented a seminar talk on - "Modelling Approach for Estimation of Rice Yield Reduction Due to Drought in Laos" at SPARRSO Auditorium on 21 July 2005. This research work was done at the University of

Queensland, Brisbane, Australia under a MS programme.

Mr. Abdul M. Ismail, Owner and Chief Engineer, Inter Planetary Expeditions, U.K. presented a seminar talk on - “Bangladesh National Space Policy & Space Strategy Act, 2005 and Introduction to Space Technology and Potential Benefits for Bangladesh” at SPARRSO Committee Room on 25 August 2005. Mr. Abdul Halim Howlader, Chairman (In-charge), SPARRSO presided over the Seminars. Scientists, Engineers and other officials were present in the seminars.

#### Participation in Training/ Seminar/ Conference

Mr. Ahmed Sayeed, PSO and Mr. Mozammel Hoque Sarker, SE attended a training course on “Satellite Technology and Space Craft Project Management” at Beijing, China from 19 June to 3 July 2005. The training programme was organized and supported by APSCO.

Mr. Fazlul Haque, SSO, Mrs. Afroza Nasreen Ahmed, SSO and Mr. Nasar Ahmed, Senior Assistant Secretary, Ministry of Defence have successfully completed a short training course on “Remote Sensing Technology and GIS”, - organized by ISNET, Karachi, Pakistan from 01 – 05 August, 2005.

Mr. Abdul Awal, Librarian, participated in the seminar on “Information and Communication Technology for Poverty Reduction in Bangladesh”, - organized by Bangladesh National Scientific and Technical Documentation Centre (BANSDOC), Dhaka on 25 August, 2005.

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Mr. Sukumar Dutta, AE, has successfully completed an international training course on “Geo-Informatics for Sustainable Agriculture”, organized by CSSTE-AP, Dehradun, India from 16 August – 9 September, 2005.

Mr. Abu Taleb Pramanik, SO, has successfully completed a training course on “Remote Sensing and GIS”, organized by National Coordinating Agency for Mapping and Surveying (BAKOSURTANAL) and the University of Gadjah Mada (UGM), Indonesia from 18 July – 15 September, 2005.

#### Research Publications, Reports, Popular Articles

**Rahman, M. M. and Csaplovics, E.** – Estimation of Carbon Release from Tropical Deforestation using High-resolution Satellite Data. *International Symposium on Remote Sensing of Environment*, Saint Petersburg, Russia, 20-24 June 2005.

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SPARRSO Newsletter is published quarterly. Comments, questions and suggestions from our honourable readers are welcome.