Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

ETE 451 Case Presented By
Shaurov Dhar
072772044

North South University
Establishment of SPARRSO

- SPARRSO was established in November 1980 under Science and Technology Division, Cabinet Ministry. Initially the organization was administered and guided by the rules and regulations of Atomic Energy Commission.
- SPARRSO was transferred to the Ministry of Defense on 14 August 1985 by an order No. 4/10/83- Rules/146.
- It was founded as an autonomous organization by the Act no. 29 of 1991 called “Mahakash Gobeshona O Dur Anudhaban Protisthan”.
- SPARRSO has been involved in various research and development activities using remote sensing technology in different geo-disciplinary areas.
Establishment of SPARRSO

Bangladesh Atomic Energy Commission

Bangladesh Earth Resources Technology Satellite (ERTS) Program - 1972

Space and Atmospheric Research Center – SARC - 1972

ERTS Program Renamed as Bangladesh Landsat Program - BLP

SPARRSO 1980
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Application of Space Technology

Agriculture
• Estimation of Aman and Boro rice area and yields

Fisheries
• Fisheries resource survey (water body mapping)
• Delineation of potential fishing zone
• Mapping of suitable site for shrimp farming

Water Resources & Hydrology
• River course monitoring
• Coastal zone dynamics
• Monitoring of water-logging
• Kaptai Lake study
• Estimation of chlorophyll content
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Application of Space Technology

Forestry & Environment
- Forest cover mapping
- Monitoring of mangrove forestation
- Assessments of deforestation and carbon emission
- Timber volume inventory
- Climate change impact studies

Agro & Hydro Meteorology
- Weather & drought monitoring

Natural Calamities & Disaster Management
- Cyclone monitoring
- Flood mapping
- Post-disaster damage assessments
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Application of Space Technology

Cartography
- Thematic map generation
- Digital cadastral mapping
- Mapping of tea gardens
- Drainage pattern mapping

Land use & Land cover
- Coastal land zoning
- Land use and land cover mapping

Oceanography
- Delineation of maritime boundary

Urban Studies
- Urban area mapping
- Urban growth studies
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Monitoring of Rice Yield

Estimation of Aman Rice Area/Yield 2006 using NOAA AVHRR Data – A routinely contribution of SPARRSO for national interest

Legends
- Blue: Water
- Red: Aman coverage: ≥ 75%
- Yellow: Aman coverage: 40-75%
- Light Blue: Aman coverage: < 40%
- Green: Forest
- Orange: Others

Bay of Bengal
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Irrigation Coverage of Boro Rice in North-Western Bangladesh
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Cyclone Monitoring

CYCLONE-SIDR FROM NOAA SATELLITE NOV 14 2007, 9:35 BDT

CYCLONE-SIDR FROM FY2C SATELLITE NOV 15 2007, 12:00 BDT
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Flood Monitoring

Flood Image of September 1988. The image had been acquired at the NOAA AVHRR Ground Station of SPARRSO. Application of Microwave RADARSAT Image for Monitoring Flood 1998 in Bangladesh. Flood map 2007 prepared from NOAA AVHRR data acquired by the ground receiving station of SPARRSO.
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Mangrove Deforestation Study

- 1974: Chokoria Sunderbans Forest
- 1980: Deforestation started at the northeastern part
- 1989: Chokoria Sunderbans was replaced by the shrimp beds
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Country Level Forest Cover Mapping

Forest Cover Map 2006

- The work was jointly done with Bangladesh Forest Department
- It was financed by FAO
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

**SPARRSO Facilities and Services**

**Satellite Ground Station**
- NOAA AVHRR Ground Station
- FY-2E Satellite Ground Station

**Laboratories**
- Digital Image Processing Laboratory
- GIS Laboratory
- Cartographic & Photographic Laboratory

**User Service Unit**

**Web Based Information Dissemination**

**Publications**
- Peer-reviewed Journals
- Newsletter
- Annual Report

**Library**
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Contributions of SPARRSO towards Society and the People

• SPARRSO assists the risk reduction, damage to life and property caused by the disasters through early warning system, preparedness and post disaster relief and rehabilitation and aftercare system.
• Helping the agricultural production, informing the farmers and farming through early forecasting about droughts, rainfall, holocausts.
• Assisting the dissemination of information, education and research about space technology and use of RS in diversified fields of knowledge.
• Helping the spread of science and technology among the public, students and the society.
• Assisting the poverty alleviation and socio-economic development.
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Regional/ International Co-operation & Collaboration

Financial Assistance
• Agro-Climatic Environmental Monitoring Program (ACEMP, USAID)
• Environment, Disaster and Resource Monitoring System (EDREMSOSJDCF)

Members of the following organization:
• Asia-Pacific Space Co-operation (APSCO)
• Inter Islamic Network on Space Sciences and Technology (ISNET)
• Asia Pacific Regional Space Agency Forum (APRSAF)
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Technological Advancement in ICT

• NOAA and FY-2E satellite ground stations have already been established.

• To provide necessary information to the people, SPARRSO’s own website has been installed at http://www.sparrso.gov.bd

• A mail server has been set up at SPARRSO for electronic communication.

• Fiber optic broadband internet connection has been established and all the computers of the Organization have been connected by LAN and to the Internet.

• All departments of the Organization have been provided with computers, printers, scanners, UPS, etc.
Future Missions: A Communication Satellite for Bangladesh

In 2008, the Bangladesh Telegraph and Telephone Board (BTTB) and the Better Business Forum proposed that Bangladesh should take up immediate measures to launch a communications satellite into space as it was essential for the development of the country's ICT sector. In April 2009, Prime Minister Sheikh Hasina revealed her government's intentions to have Bangladesh's first satellite in orbit by 2014. In November 2009, Bangladesh's government officially announced that in line with its vision of a "Digital Bangladesh", the country is planning to launch a telecommunications satellite into space by 2014 with assistance from other countries.
An Immediate Need

SPARRSO should gear up the country’s proposed communication satellite project. Till now the plan remained in papers. Bangladesh which is depending on satellites of other countries for space research, weather, television broadcasting and telecommunication and so on should have a dedicated satellite. Otherwise we have to pay huge amount of money for these services.
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Go for Small Satellites

Thinks are going to change in the field of satellite technology in coming years because of Mini, Micro or Nano Satellites, all this are small satellites. Reason for miniaturizing satellites is to reduce the cost, heavier satellites require larger rockets of greater cost to finance; smaller and lighter satellites require smaller and cheaper launch vehicles and can sometimes be launched in multiples. They can also be launched 'piggyback', using excess capacity on larger launch vehicles. Most of these small satellites are design and developed in University Labs by Students. SPARRSO should give financial and technological supports are needed for the development of technology, technical works, training etc to undergraduate and graduate students those who interested to satellite technology.
Bangladesh Space Research & Remote Sensing Organization (SPARRSO)

Conclusion

Space Technology can’t be mastered in a short period of time. We may need minimum 15-20 years to develop our own satellite. Now this is the time to decide how the country’s future space program will go. Do we want to depend on other countries or should we go for our own program for what will our need of satellite applications after 30 years from now.
Thanks 😊