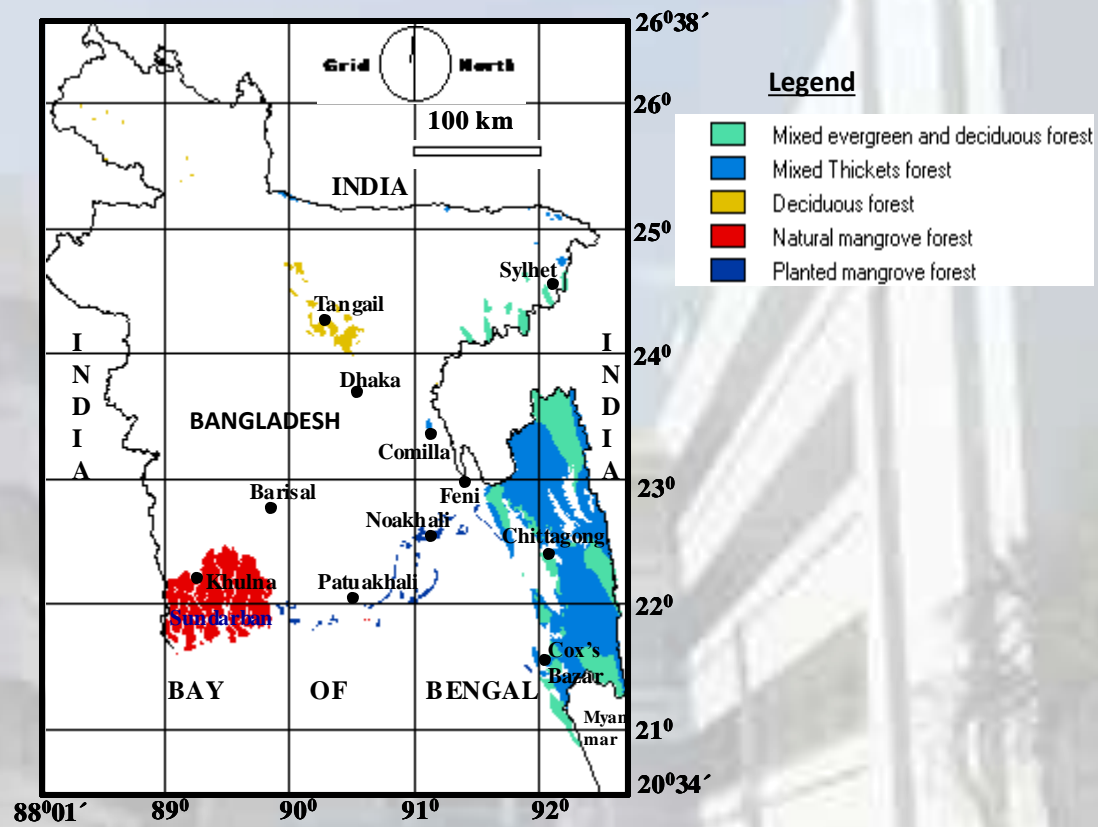




Collaborations in forestry education: resource sharing, course mutual recognition and student mobility, between universities of developed economies and Bangladesh

**Dr. M. Al Amin
Professor**

**Institute of Forestry and Environmental Sciences
University of Chittagong, Bangladesh**



Map 1. Forest cover in Bangladesh (Al-Amin, 2011)

Land uses of Bangladesh

Land Use Category	Area (M Ha)	Percent
Agriculture	9.57	64.9
<u>State Forest</u>		
Classified	1.52	10.3
Unclassified	0.73	5.0
<u>Private Forest</u>		
Homestead	0.27	1.8
Tea/Rubber Garden	0.07	0.5
<u>Urban and others</u>		
Urban	1.16	7.9
Water	0.94	6.4
Other	0.49	3.2
Total	14.75	100

Ecologically forest Lands of Bangladesh

Types of Forest	Area (m ha)	Percentage
Natural Mangrove Forest and Plantation	0.73	4.95
Tropical evergreen and semi- evergreen Forest	0.67	4.54
Tropical moist deciduous Forest	0.12	0.81
Total	1.52	10.3

From 1971 - 1975

Forestry education emphasised on:

Forest Botany

Silviculture

Inventory and Management

Economics and forest valuation

Engineering

Utilization and Processing

Forest Policy and Law

Forestry Education In Bangladesh

1977-88

Professional: B. Sc with honours and M. Sc. (IN IFESCU)

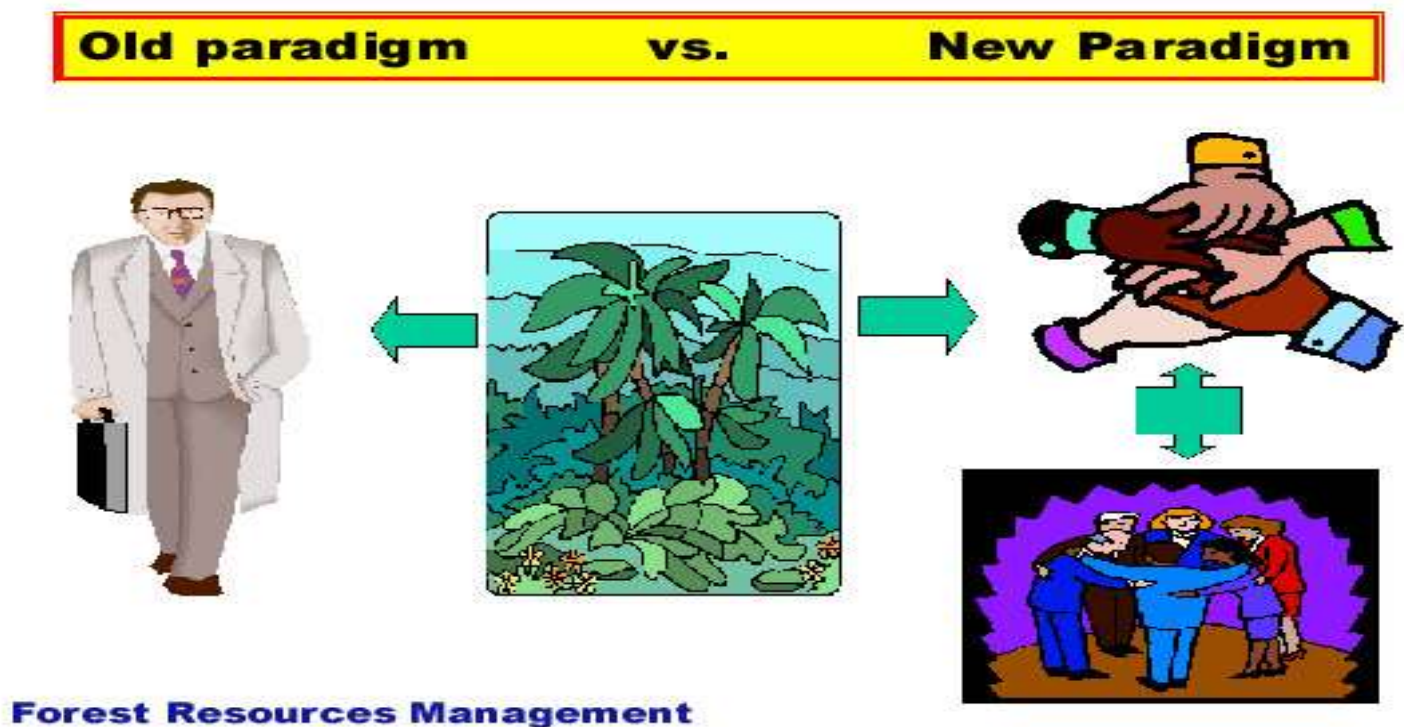
Sub Professional: B. Sc. Forestry (2 yrs course after 12 years of schooling)

Diploma in Forestry: 2-3 years course after 10 years of schooling

Vocational: after 8 years of schooling

Forestry Education

Then real paradigm shift appears in our forestry sector came in 1990.....



Forest Resources Management

In Education curriculum integrated

.....Peoples forestry.....**Social forestry**....

Bangladesh also started but very slowly.....

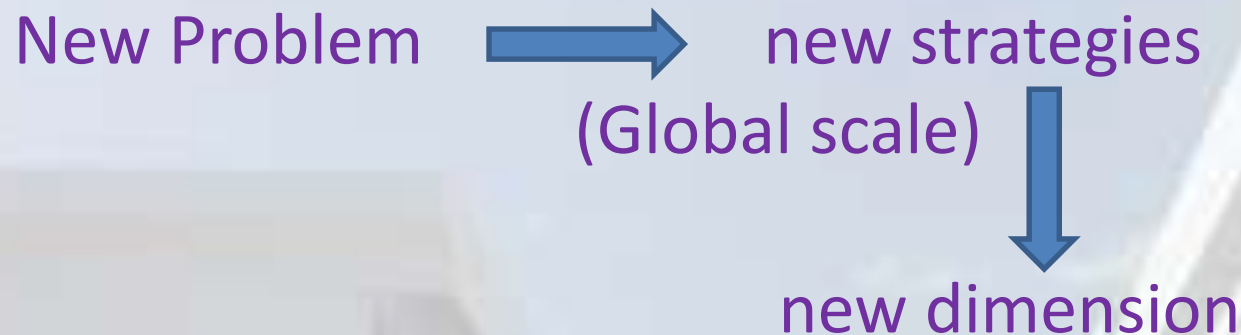
Forestry education in Bangladesh: at IFESCU

Students enrolled	Degree	Students			
		Male	Female	Foreign	Total
Graduates	B.Sc. (Hons.)	772	74	16	862
	M.Sc.	361	38	04	403
	M.Phil	03	01	-	04
	Ph.D	07	02	-	09
	Subtotal	1143	115	20	1278
Current students (Annual intake B.Sc (Hons)- 40; M. Sc - 40	B.Sc. (Hons.)	111	42	-	153
	M.Sc.	25	01	-	26
	M.Phil/PhD	15	02	-	17
	Subtotal	151	45	-	196
Total		1294	160	20	1474

Forestry education in Bangladesh: at SUST, KU and Sub professional level

Students enrolled	Degree	Graduate Students	Current annual intake
		Total	Total
Department of Forestry and Environmental Sciences at Sylhet Science and Technology University	B.Sc. (Hons.)	279	58
	M.Sc.	158	58
	M.Phil	-	-
	Ph.D	-	-
	Subtotal	437	116
Forestry and Wood Science discipline at Khulna University	B.Sc. (Hons.)	?	48
	M.Sc.	?	48
	M.Phil/PhD	-	-
	Subtotal	-	96
Sub professional level Diploma in Forestry	Diploma	535	50

Forestry Education



❖ After 1990, real break through is Information communication Technology (ICT) in knowledge base development

Blending ICT in forestry curriculum enrich and invite other dimensions of human in scientific management of forests.

ANY CHANGE NEEDS.....

**NEW KNOWLEDGE BASE
WITH PEOPLE'S PERCEPTIONS WITH NEW ANGLE**



Collaborations with developed economies



- Institutions with new curriculum..**
- New generation for knowledge expedition**
 - Technology Intervention**
- Of course, on old authentic knowledge base**

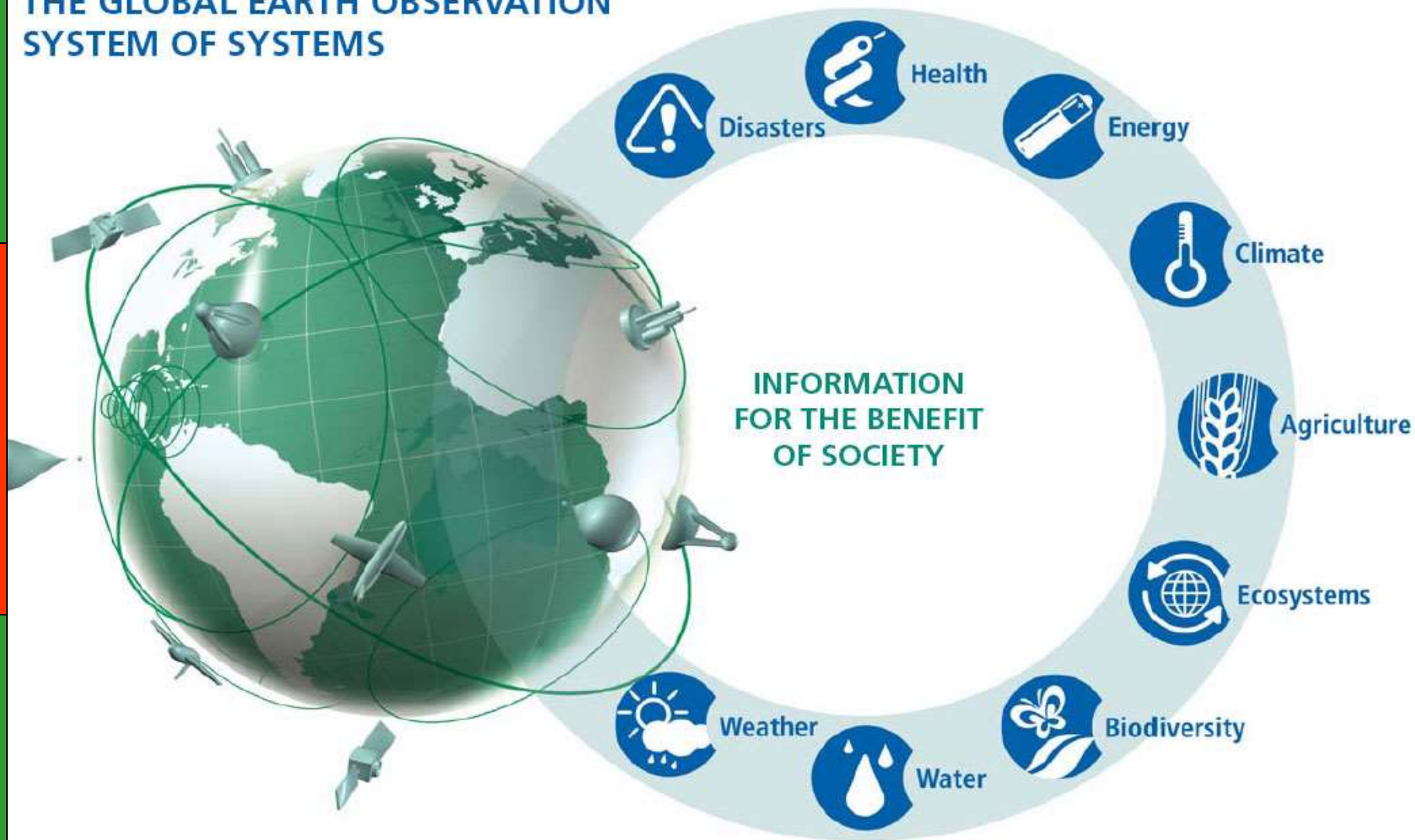


**Government Perception
Policy alteration...change towards scientific study**



- Development of the forest sector and GDP**
- Societal Change**

THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS



Forestry Education

Beyond 2000 new knowledge base demands...

Practical experiences sharing from developing to developed economies and vice-versa

❖ **GLOBAL CLIMATE CHANGE**

❖ **VILLAGE COMMON FOREST MANAGEMENT**

❖ **FOREST - PEOPLE CONFLICT MANAGEMENT**

❖ **LIVELIHOOD MANAGEMENT OF FOREST DEPENDENT**

❖ **GEOGRAPHICAL INFORMATION SCIENCE**

❖ **CARBON MANAGEMENT**

❖ **FOREST INVASIVE SPECIES MANAGEMENT**

Sketching Future Semi Evergreen Forest of Bangladesh Considering Climate Change Scenarios and Adaptation

M. Al-Amin** and Chand Khanam

Institute of Forestry and Environmental Sciences, Chittagong University, Bangladesh

Conclusion

The research provides the methodologies regarding the germination techniques of seeds and nursery practices by means of experimentations for adopting climate change for future and also suggested the choice of species for future need to use spatial data integration on a GIS platform.

Introduction

Adaptive nature of forest species in changing climate plays a positive role in the sustainable forest management. The germination and initial growth performances of economically important tree species of the forest were experimented in plant growth chambers and temperature regulated growth rooms using different climate change scenarios predicted by IPCC for Bangladesh.

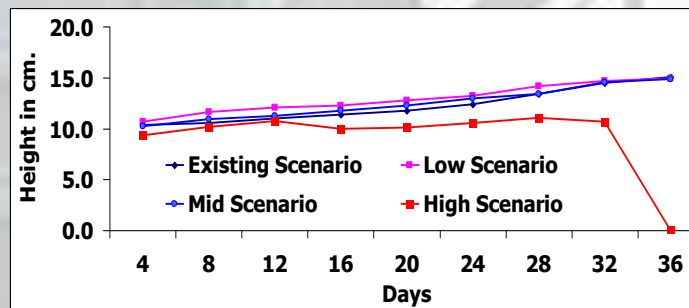
Methods

Germination of seeds was studied in both natural condition and at growth chamber where temperature & humidity were controlled. IPCC projected high scenario of temperature and humidity for Bangladesh (from 28.2°C to 39.6°C with a ramping of 0.01°C/minute & humidity 68% to 78% with a ramping of 0.1%/minute) were maintained at growth chamber.

Findings

Germination (%) at existing and high scenarios

Name of the Species	Existing	High Scenario
<i>Artocarpus chaplasha</i>	46	40
<i>Albizia lebbek</i>	38	30
<i>Albizia procera</i>	18	15
<i>Gmelina arborea</i>	53	40
<i>Switenia mahagoni</i>	85	46
<i>Terminalia arjuna</i>	57	90
<i>Terminalia belerica</i>	80	88



Initial growth (height) of *A. chaplasha*



A. chaplasha in existing scenario



A. chaplasha in high scenario

Implication

The initial growth of the *A. chaplasha* seedlings showed alarming results, depicted that species might not withstand with the high scenario of the climate change. This means Bangladesh may lose a high potential species (for railway sleepers, furniture and construction) at semi evergreen forest in future.

Acknowledgement

This poster is a venture of USDA funded (on going) research project at IFESCU. The authors are expressing their deepest gratitude to IFESCU, USDA authority and project personnel for their positive attitude to conduct the research.

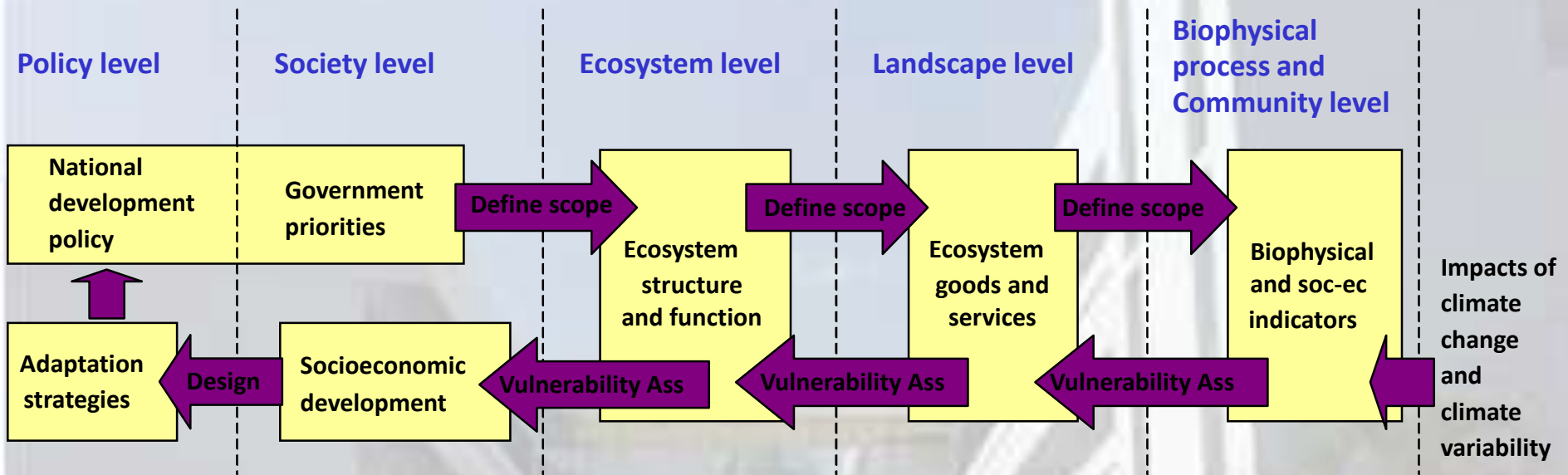


Figure illustrates vulnerability assessment for climate change from policy to community

GLOBAL CLIMATE CHANGE



❖ **Forest - people conflict management**



Fuel for curing tobacco leaves



Tobacco kiln



Growing ship breaking industry: conflict with planted mangrove

The research revealed that the area of existing coastal plantation is measured approximately 490 hectare and the area of ship breaking yard are measured 310 hectare. This is a 20 years old plantation and total organic carbon (tree: 128.74 tonne/hectare; litter:0.01 tonne/hectare; soil; 24.07 tonne/hectare) stock in the plantations are 152.82 tonne/ha. The tree organic carbon stock per hectare plantation are found in 128.74 tonne. So, from 310 hectare in ship yard area approximately 40,000 metric tonne tree organic carbon are loss due to the ship breaking activities and other purposes.



Figure: Kattoli coastal plantation area and ship breaking area

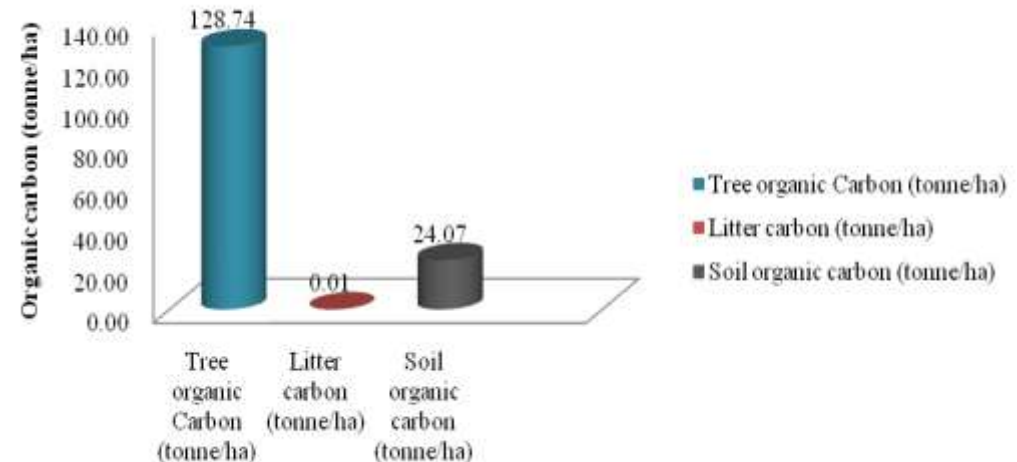



Figure: Total carbon stock (tonne/ha) in the study site

Experiences of International Collaborations on Forestry Education and Research

International organizations rendered their kind help and assistance to build Forestry Education (building up IFESCU) in Bangladesh

- World Bank**
- Asian Development Bank (ADB)**
- Food and Agricultural Organization (FAO)**
- United Nations Development Program (UNDP)**
- Forests, Trees and People Programs (FTPP)**
- Forest Research Institute of India (FRI, India)**
- FRIM (Malaysia)**
- Asia Pacific Association of Forestry Research Institution (APAFRI)**
- Regional Community Forestry Training Centre (RECOFTC, Thailand)**
- World Bank (WB)**
- University Putra Malaysia (UPM)**
- University of the Philippines at Los Banos (Philippines)**



These organizations rendered their support in following major sectors:

❖ Infrastructure development

❖ Curriculum development

❖ Expatriate teachers

❖ Providing fund to building up capacity of the teachers

However, this institute got the followings:

- **Technical expertise (international recruited professors) in Rural Sociology and Forest Extension, Silviculture, Agroforestry and Forest Ecology, Forest Inventory, Remote Sensing and GIS, Forest Resource Management and Forest Economics, Forest Engineering & Logging, Forest Products and Wood Utilization.**
- **Fellowships for IFESCU academic staff to pursue higher degrees in prestigious institutions abroad in various fields of forestry.**
- **Teaching materials (lecture notes prepared by expatriate Professors), books, scientific journals, and other references for Institute library.**
- **Various equipments for teaching and research**

Collaborations between IFESCU and Universities of Japan

□ GRADUATE SCHOOL OF AGRICULTURE AND LIFE SCIENCES, UNIVERSITY OF TOKYO, JAPAN.

- Signatory of this program:

Prof. Dr. Shin-ichi SHOGENJI

□ FACULTY OF AGRICULTURE, SHINSHU UNIVERSITY, JAPAN

- Signatory of this program

Dr. Soichiro NAKAMURA

Collaborations between IFESCU and Universities of Japan

□ NARA WOMEN'S UNIVERSITY, Japan

- Signatory of this program

Professor Fugo Takasu

□ KWANSEI GAKUIN UNIVERSITY, Japan

- Signatories of this program

Professor Dr Keisaku Higashida

Dr Kenta Tanaka, Associate Professor at Mushashi University

Dr Yuki Higuichi, Assistant Professor at Nagoya City University

Collaboration Programs Deliverables

Schedule to achieve

- Exchange of faculty members and other researchers
- Exchange of undergraduate and graduate students

Achievements made

- All the collaborative programs successfully delivered this item
- Few number of graduate students went to Japan to conduct MS program and later they got scholarships from Government of Japan for PhD.

Collaboration Programs Deliverables

Schedule to achieve

- **Joint Publications in academic journal**
- **Holding lectures, symposia and workshops**

Achievements made

- **Joint publications were made.**
- **IFESCU provide professors to Japanese universities for lecture on the parties requested for six months to eight months. However, professor from Japan disseminated their knowledge to the respective student group applying group discussion and holding seminar and workshops.**

Collaboration Programs Deliverables

Schedule to achieve

- **Exchange of academic information and publication**

Achievements made

- **Main aim of these program is exchange of views and knowledge is of course, successful and pave a way to go forward.**

Performances of Collaborations

STRENGTH

- These collaboration programs facilitate students and teachers of Forestry of IFESCU acquainted with recent developments in forestry science.
- Modern laboratory facilities and data collection tools and methods are available to learn

WEAKNESS

- The question remains, are the facilities only for research students or for everybody of that year or semester?
- Sometimes students knew the techniques but the facilities also moved after the research conducted or data collection

Performances of Collaboration

STRENGTH

- Research collaborations provided fund for the field experiments and published scientific outcomes in the reputed journals;
- Exchange of faculties between the institutions provide opportunities not only to facilitate to work in the laboratories of the developing economies and hence, reduce the gap of science education and may be a trained student for future research with the lab also.

WEAKNESS

- Sometimes agreement was delayed for administrative reasons, so the project may delayed for few days
- These are only available for the better to best students of IFESCU not for all students. Research should be in generic nature

**Agreement on Academic Exchange
Between
University of Chittagong
And
Graduate School of Agricultural and Life Sciences, The University of Tokyo**

This Agreement on Academic Exchange is intended to facilitate collaboration between **University of Chittagong** (hereinafter CU), People's Republic of Bangladesh and **Graduate School of Agricultural and Life Sciences, The University of Tokyo** (hereinafter GSALS-UT), Japan, both organizations being convinced that academic exchange and cooperation will promote the development of research and other academic activities in the respective organizations.

Article 1. CU and GALS-UT agree to promote cooperation between the two universities in the fields of rural development and environmental conservation including sustainable use and management of natural resources and related areas through appropriate means as follows:

1. Exchange of faculty members and other researchers
2. Exchange of undergraduate and graduate students
3. Execution of joint research for publication in academic journals
4. Holding lectures, symposia, workshops
5. Exchange of academic information and publications
6. Other feasible and relevant educational activities

Article 2. In each specific case, CU and GSALS-UT shall prepare a detailed program concerning specific steps and measures for implementing Article 1 by mutual deliberation. Especially, the general principle of Item 2 of Article 1 is prescribed in the appended memorandum.

Article 3. In the case that research results impacting upon matters of intellectual property rights are expected to arise in the course of collaborative projects carried out under the terms of Article 1 above, the parties shall discuss in good faith and agree in a separate document the conditions regarding the treatment of intellectual property rights so arising, prior to the start of the collaborative project in question and in accordance with the policies of each party.

Article 4. CU and GSALS-UT shall put in every effort to raise funds from various sources to make programs for cooperation feasible. Any program formulated under Article 1, will commence only after the funds have been appropriated for it.

Article 5. This Agreement shall be effective from the later date of signing for a period of five (5) years, and thereafter may be subject to extension by mutual consent. This Agreement can be terminated by either of the parties by giving six (6) month's notice.

Article 6. This Agreement may be amended by agreement of both the parties.


Article 7. Concrete annual plan shall be discussed and adjusted by executive bodies of both parties: Institute of Forestry and Environmental Sciences, CU as counterpart and Department of Global Agricultural Sciences of GSALS-UT as counterpart.


Article 8. This Agreement is executed in duplicate, both in Japanese and in English, either of which shall be deemed as original.

The parties hereto establish this Agreement by duly signing it, as on the respective dates written below.

University of Chittagong

**Graduate School of Agricultural and
Life Sciences, The University of Tokyo**


Prof. Dr. Abu Yusuf
Vice-Chancellor


Prof. Dr. Shin-ichi SHOGENJI
Dean

Date: August 7, 2010

Date: July 21, 2010

AGREEMENT
for
ACADEMIC COOPERATION AND EXCHANGE
between
INSTITUTE OF FORESTRY AND ENVIRONMENTAL SCIENCES,
UNIVERSITY OF CHITTAGONG, BANGLADESH
and
FACULTY OF AGRICULTURE, SHINSHU UNIVERSITY, JAPAN

Institute of Forestry and Environmental Sciences, University of Chittagong in Bangladesh and the Faculty of Agriculture, Shinshu University in Japan ("the Parties") agree to make an agreement for the academic cooperation and exchange with an expectation that the cooperation and exchange in academic areas of mutual interests would bring fruitful results for the advancement of research, education and international understanding between the Parties.

1. The Parties shall jointly develop some or all of the following academic activities based on their academic, educational and technical needs:
 - a. Exchange of academic scholars.
 - b. Exchange of students.
 - c. Planning and execution of joint research programs.
 - d. Planning and execution of academic activities such as conferences and seminars.
 - e. Exchange of academic materials, publications and information.
 - f. Other cooperation which is deemed appropriate by the Parties.
2. Terms and conditions for the cooperation and exchange in research shall be negotiated and agreed by the Parties and shall be stipulated in a separate memorandum.
3. Terms and conditions for the student exchange shall be negotiated and agreed by the Parties and shall be stipulated in a separate memorandum.
4. In carrying out this agreement, the full autonomy of each party shall never be restricted, and neither party shall impose any constraints or financial obligations upon the other.

This agreement is valid for five years starting from its signing date. At the beginning of the fourth year, the Parties shall review the results of the activities carried out under this agreement and discuss whether this agreement shall be continued. Even while this agreement is valid, it may be amended or corrected by a written consent of the Parties. Each Party may terminate this agreement by giving a written notice to the other Party and such termination shall take effect six months after the date of such written notice; provided, however, that any exchange activity then ongoing shall be continued until its stated term ends. Nothing in this agreement shall be construed as creating a legal relationship between the Parties. This agreement is signed in two copies in English. Each Party to the agreement shall retain one copy.

Date January 04, 2011

For University of Chittagong,
Bangladesh



(Dr. Md. ALAUDDIN)
Vice-Chancellor
University of Chittagong



(Dr. Mohammed JASHIMUDDIN)
Director
Institute of Forestry and Environmental Sciences,
University of Chittagong

Date December 28, 2010

For Faculty of Agriculture, Shinshu University,
Japan



(Dr. Soichiro NAKAMURA)
Dean
Faculty of Agriculture, Shinshu University

Acknowledgements

Heartfelt gratitude to Hon' able Vice Chancellor, University of Chittagong for his kind permission, organising committee of AP-FECM for inviting and APFNet for sponsoring me .



**MANY THANKS
FOR YOUR KIND
ATTENTION**