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Sketching future forestry education for Bangladesh in Covid19 pandemic and post pandemic situation

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Abstract

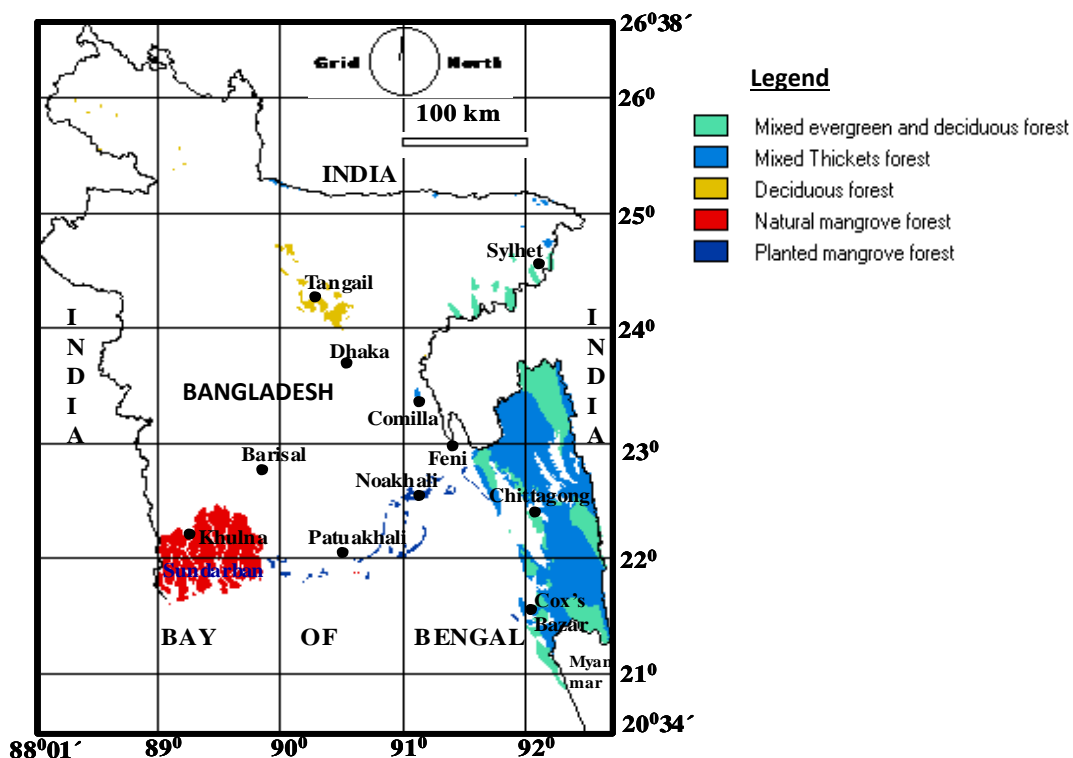
British colonial approach is still in core of forest management of South East Asia (SEA). However, recent policies of management of forest are incorporating social aspects and considering diverse dimensions of human with various international commitments by conventions and treaties, lead the paradigm shift in forest management of SEA. This study examined century long forestry practices, forest policies, conventions and treaties on forestry, recent job markets, corporate mechanisms and blending knowledge protocols and found a demand existed to refurbish the current curricula of forestry education of SEA. Examining forestry education of Bangladesh as case study focused from its inception to date particularly to expedite the demand of new arena of knowledge on science, social science, indigenous technologies to put forward the students with the current arena of world forestry science to meet the demand of the country. Moreover, knowledge on global change, biodiversity conservation, forest-people conflict management, landscape level restoration rather forest restoration, technological interventions in forest resource monitoring and assessment, invasive species management, carbon management and trading, panel wood and wood processing were found worth for sustainable forest management. Inclusion of stated new knowledge arena for forest science may facilitate readiness of future graduates for sustainable forest management. Due to COVID19 pandemic and post pandemic on line platforms and learning systems for developing nations are crucial and need integrated developed courses for all, may widen the knowledge platform for future. This study also discussed with a view from a developing nation and put forward a bridge on knowledge sharing between developed and developing nations.

Key words: Education, COVID19 pandemic, Curriculum, Collaboration

Introduction, scope and main objectives

Land uses of Bangladesh mainly with agriculture (64.2%), and forestry (17.8%) (Map 1). Homestead forests and government owned forests are the key sources of fuel and timber. However, a rapid population growth with high demand for fuel wood and timber and 0.97 million hectares of denuded land as a result of shifting cultivation, illicit felling, accelerated soil erosion and uncontrolled fire hazard, compelled the nation to choose environmentally, ecologically and economically viable tree species propagules (indigenous and/or exotic) with intensive (day to day) management systems. 1,568,563 numbers of confirmed COVID cases with 27,841 deaths have been enforced to close the academic institutions like IFESCU for 583 days. Moreover, notable gaps in forestry education between theory and practices existed both in classroom and field practices (Al Amin 2018) where COVID19 pandemic accelerated the gaps more. No students are allowed to take their classes in person, however, online platform came as only solution to continue the education program with little scope and resources. On contrary, one of the most climate change vulnerable country, is regularly affecting by natural calamities like flood, cyclone etc with limited wealth and resources, is crucial to consider the warranty of its investments. Forest lands are often encroached and lead a paradigm shift of forest management from British colonial approach (top down: law enforcement rather motivation) to participatory forest management. Local peoples' livelihoods are still depending on forest. Government have been imposed a ban on cutting of trees from the forest of Bangladesh since 1989. These situations make a consensus on the need of modern and adoptable to pandemic curricula of present forestry education and also its delivery mechanisms to the

students at graduate and post graduate level. This study provide a key idea how to minimize the gaps to secure global standard of forestry graduation program and way forward to confront the situation like COVID19 pandemic using the collaboration mechanism with developing and developed nation in generic nature, where IFESCU, Bangladesh and UBC, Canada using the collaboration platform of APFECM and demonstrate an example of success with generic phenomenon.



Map 1: Forest cover in Bangladesh (Extracted from Al-Amin, 2011)

Methodology

This study was carried out with an expectation to find the appropriate way to carry out the best curriculum suitable for future graduates of Forestry and Environmental sciences and also find way(s) appropriate teaching-learning delivery mechanism in difficult situation like pandemic and new normal condition. This was designed to uphold the conceptual approach to know about the steps needed to do in new normal and how this will be imparted to the curriculum. A semi structured questionnaire was developed and send to the alumni of IFESCU, members of Institution of Foresters of Bangladesh (IFB), different stakeholders particularly main employers of the graduate and academicians of home and abroad. However, purposively selected persons were interviewed for their valuable inputs through webinars (Focus group discussion). This study was carried out at Institute of Forestry and Environmental Sciences, University of Chittagong (IFESCU), Bangladesh. Moreover, to investigate the coping capability of IFESCU students with online courses, 55 students enrolled in 3 courses offered by University of British Columbia, Canada (UBC) under a collaboration program of APFECM (Asia Pacific Forestry Education Mechanism), which is another objective of the study.

Institute of Forestry and Environmental Sciences, University of Chittagong (IFESCU)

The Institute of Forestry, University of Chittagong (IFCU) was established in 1976 within the Faculty of Science of the University of Chittagong as the pioneer in forestry education of Bangladesh. The Institute has been renamed as the Institute of Forestry and Environmental Sciences, University of Chittagong (IFESCU) since July 1996. The

Chittagong University campus is straddled in valleys of the hills of the Sitakunda Range. The beauty and serenity of the environment makes it very conducive for effective learning and healthy living. The following table 1 illustrated the basic data of student enrolment at IFESCU in Bangladesh.

Table 1. Graduates and current enrolled students at IFESCU from the inception till 2020.

Students enrolled	Degree	Students			
		Male	Female	Foreign	Total
Graduates	B.Sc. (Hons.)	1021	225	15	1261
	M.Sc.	613	139	04	756
	M.Phil	05	01	-	06
	Ph.D	07	02	-	09
	Subtotal	1647	367	19	2032
Current students (Annual intake B.Sc (Hons)- 80; M. Sc – 60	B.Sc. (Hons.)	179	181	-	360
	M.Sc.	78	47	-	125
	M.Phil/PhD	10	03	-	13
	Subtotal	267	231	-	498
Total		1914	598	19	2530

Key approach

The following schematic diagram is illustrating how forestry education will be upgraded applying new knowledge base for fulfilling future demand for the home and abroad to a societal change as well.



Figure 1: Flow diagram showing how new knowledge base need to be inducted to make a societal change with the development outfits.

Results

The results of the study describes the answers offour basic queries of the survey respondents on curriculum modernization and about massive open online courses (MOOC) as alternate approach in COVID19 and new normal situation and the performances of the students participated in online courses offered and conducted by UBC using the collaborationplatform of APFECM.

A. Curriculum modernization

The first query to the respondent was “What are the basic qualities you expect from IFESCU graduates?”

The respondents showed their proclivity with multidisciplinary knowledge with strong communication skill and practical experiences for future graduates need to be equipped then other answers (figure 2).

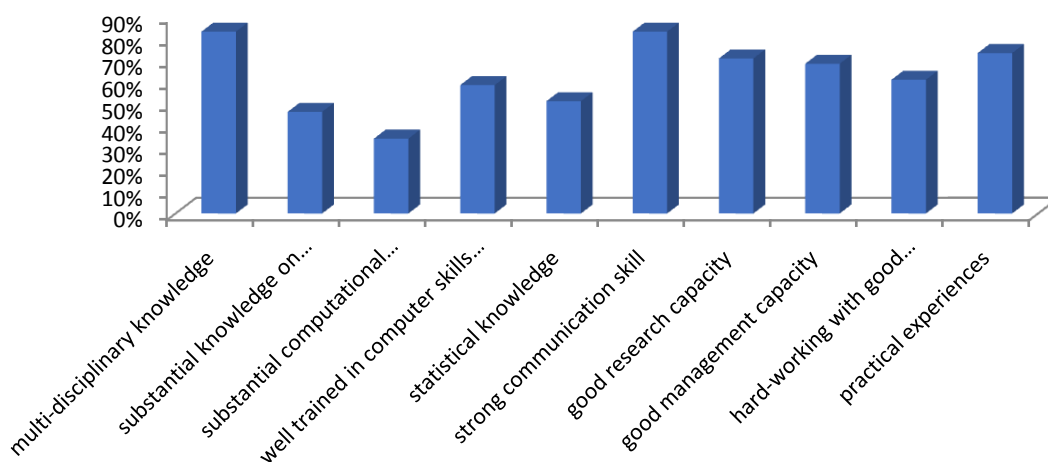


Figure 2: Illustrates the responses on basic qualities needed for a forestry graduate.

The secondquery to the respondent was:

“During the present pandemic situation the education system has been greatly disrupted. However, many institutions started to cope with the situation in different ways. Should we consider these kinds of unwanted situations in future for our curriculum development?”

Over 80% of the respondent asked to take appropriate measures to continue the forestry education in difficult time like pandemic (Figure 3).

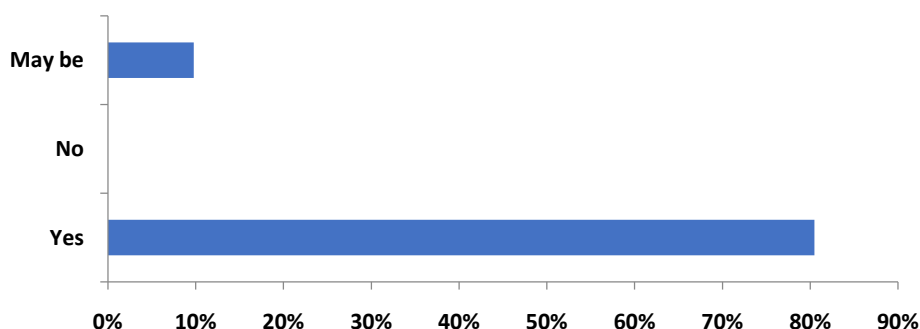


Figure 3. Illustrated the responses on whether measures need to be in curriculum to combat the unwanted situation like COVID19 pandemic.

Figure 3 illustrated the respondents clearly send a message to IFESCU authority to take measures to continue the education program despite of COVID19 pandemic like unwanted hazards for the nation and humanity in future as well. Then the question came to how? Then the following question was set:

The answer of preponderance is 'Yes' for the previous question, then what are the way outs? The results of the queries presented in figure 4. Online platform for theory and assessment were more preferred to other options.

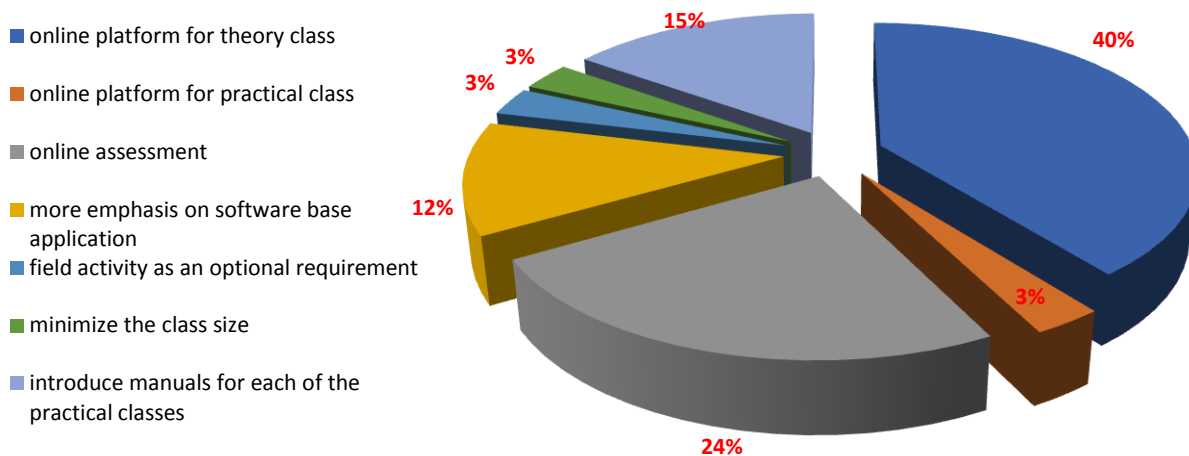


Figure 4: Illustrating the response of respondents on how the academic activities will be carried out during unwanted situation like COVID19.

Then the last basic query was “What are the courses (titles) will be in graduate programs of Forestry?”The answers came from three categories of the respondents:

Alumni:

General courses: Corporate Communication and Etiquette, Development Studies, Organizational Behavior and Leadership Development, Human Resource Management, International Communication, Sustainability Science, and Specific course on : Carbon Inventory, Conservation Biology, Green Banking, Renewable Energy Management, Urban Planning, Bioethics, Forest Toxicology, Forest Biotechnology, Forest Bioinformatics, Forest Molecular Genetics, Global Forestry, Forest Health and Protection.

Employers:

Water Resources Planning and Management, Communication, Advanced Writing Skills .

International experts:

Climate Change, Sustainable forest Management, Forest Soil, Genetics and Biotechnology, Forest Hydrology, Global Forestry, Urban Forestry, Communication and policy dialogue.

B. Students perception on participating MOOC

55 students participated in online courses titled “sustainable forest management in a changing world”; “Geomatics in Forestry: Data collection and management;” and “Introduction to Urban Forestry in the Asia Pacific region”. All of them successfully completed the courses and following figure 4 illustrating their results and scoring pattern with the continuous assessment of the programs.

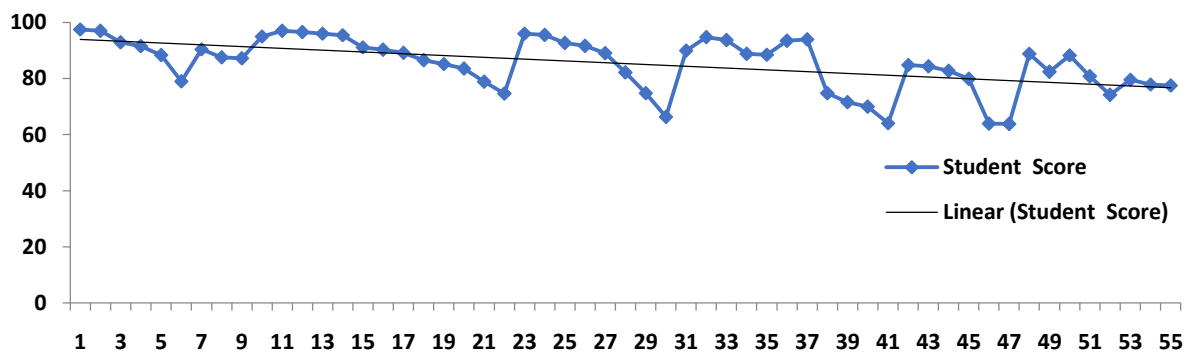


Figure 4: Presenting the scores of the students participating UBC offered online courses.

Discussion

The results revealed that forestry education of Bangladesh demands modernization of forestry education to make fit future graduates in local to global job market and also for higher education as well. The alumni, employers and experts from home and abroad also suggested new courses to meet the demand for future. On the other hand, COVID19 pandemic has stopped all the (in person) class room activities and lead the academicians to think alternate ways like using online platforms. Massive open online courses (MOOCs) which have advantages are recognized such as being open access, free to the learners, and providing a myriad of courses to choose from, which not only facilitates to offer updated course material but provide a bridge to minimize the knowledge gaps of developing and developed nations. The online approach also provides learning management system to better deliver the courses to students. Courses may be put online (internally), with assignments, marks and interaction better listed. Emergence of flipped classroom (good example(s) Google classroom, Zoom platform) was also recognized which has now been transformed into a place for discussion, instead of the traditional transfer of knowledge from teachers to students. The performance results of IFESCU students on courses offered by UBC also depicted that online course may be a good option to mitigate the hindrances caused by any pandemic or any natural calamity.

Conclusions

Forestry education now has mainly been shaped by emerging global issues related to sustainable development agenda related to forestry and environmental sector and the changing socio-economic landscape in many economies. Many universities are undergoing a paradigm shift in curriculum development and also seeking collaborative programs between universities. This study put an example to visualize the collaboration between developing and developed nations using APFECM platform to provide quality courses to forestry graduate and help them to secure a global standard, which is in generic nature as well.

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