Need for construction education in Bangladesh

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CONSTRUCTION education is concerned with the management of the overall process of construction projects. It provides detailed understanding of project development from conception, through planning and construction to commissioning and maintenance. Such an education develops skills in how to manage people, materials, equipment and plant while focusing on issues such as cost, time, quality, safety and environment. It educates students to become effective construction managers with comprehensive technological knowledge, management principles and communication skills.

There are numerous participants in the process of planning, designing, financing, building, and operating a construction project. Specialised knowledge can be very beneficial, particularly in large and complicated projects, since experts in various specialties can provide valuable services. However, it is advantageous to understand how the different parts of the process fit together. Waste, excessive cost and delays can result from poor coordination and communication among specialists. It is particularly in the interest of owners to insure that such problems do not occur. Construction education prepares the professionals to coordinate the different participants in the construction process and carry out a job efficiently by solving technical, financial, management, social, and leadership problems from its inception to completion. .

Undergraduate programmes in construction education in countries around the world are known by many different names. They range from building construction through construction management, construction engineering and management, to construction technology.

Bangladesh construction industry is growing steadily. Total construction expenditure of the country has increased from Tk. 100 billion in the early 1990's to about Tk. 200 billion in 2003. The country's construction output is steadily increasing, which is presently over 8 per cent of its GDP. Most of the construction works are in the public sector. Funding for a high percentage of construction projects come from multilateral development agencies (MDA) like the World Bank or Asian Development Bank.

The construction services sector in developing countries is a fundamental economic activity that pervades all sectors of the economy. It is an instrument for employment creation, a key infrastructure service and a tool for upgrading welfare. The development of a strong domestic construction services sector has to be supported by instruments of industrial policy, human resource development, and macroeconomic policies. Human resource development should be targeted at the education of highly skilled professionals, as well as other workers, in order to fulfil the requirements of the sector.

The duties of a construction graduate also include the determination of most appropriate method and sequence of construction operations for a particular project. They must be able to predict and monitor the construction operations in terms of labour, materials, equipment, and technical difficulties, and finally timely execution of all project items. They are responsible for dealing with scores of issues at the construction site, such as safety of construction operations, design and engineering of construction systems, and temporary structures.

There are education programmes at an undergraduate level in Bangladesh related to specific domains of construction, such as architecture and civil engineering, but none of the institutions of higher education in the country offers a course specifically geared toward producing professionals with an understanding of the total construction process from the inception of a project to its completion.

Construction education in selected countries

Construction education is relatively new in most countries around the world. The discipline is only about sixty-year old even in the United States, where construction industry accounts for about 10 percent of the nation's gross domestic product. Presently, there are over 100 U.S. schools that offer four-year baccalaureate degrees in construction. In order to manage a construction volume of more than $800 billion per year, the country is predicted to have a demand of more than six thousand construction graduates a year. The schools of construction are capable of producing less than half the annual demand for such professionals.

Building science and construction programmes in the United Kingdom are generally geared toward producing professionals who are capable of providing overall planning, management, coordination, and financial control services for construction projects. The graduates from these programmes are also employed as building control surveyors and services engineers.

Construction industry in Australia is one of the largest employers in the nation. Most of the Australian universities offer undergraduate education in construction to prepare the students for a professional career in building and construction related industries. The programmes are geared toward educating students to become effective construction managers with comprehensive technological knowledge, management principles and communication skills. Like the programmes in the US, the Australian schools offer four-year baccalaureate degrees.

The construction industry in Singapore has an annual gross output of about $10 billion, with a capacity of about $12 billion. The industry contributes around 7 per cent of gross domestic product (GDP) and accounts for about 6.5 per cent of total employment. Similar to many other rapidly developing countries of the world, construction in Singapore also has become a complex production process involving many advanced technologies. One consequence of this is the need for high calibre graduates in this discipline to manage the process. The construction education programmes aim to produce such graduates.

Construction education in Bangladesh

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The author conducted a survey to assess the need for construction education and to ascertain broad subject-matter requirements for such a programme at an undergraduate level in Bangladesh. The responses were sought both from academics who are teaching disciplines closely related to construction (e.g. architecture) and professionals who are involved with management of construction projects. Analysis of the survey data indicate that it is about time the institutes of higher learning in Bangladesh start teaching construction discipline at an undergraduate level for producing skilled professionals, capable of managing construction projects in sectors ranging from residential to commercial and industrial to roads and highways. The results also suggest that the curriculum for such a programme should have a minimum academic coverage of core subject matter that is essential for a graduate to function effectively in the construction environment.

Subject matter requirements

A curriculum for construction education should include academic coverage of some core subject matter that is essential for a graduate to function effectively in the construction environment. A study of the nature of construction education in selected countries around the world suggest that most of these programmes provide the graduates with a broad understanding of the subject matter courses related to construction science and practice, communications, human relationships, and management principles. Based on this review and a survey of academicians and professionals closely related to construction, the author recommends that the following categories of courses may be included in a curriculum for a construction education at an undergraduate level:

Architectural and Engineering Design Disciplines: A construction graduate must have an understanding of the processes of architectural and engineering design disciplines. The graduate must be capable of communicating with design professionals, and should be able to participate in planning phase of design-built projects. Construction sciences including architectural and engineering design topics are to be considered to be included in this category in order to enable the graduate to communicate with the design disciplines and to solve practical construction problems.

Business and Management: A construction graduate is required to assume the responsibility of planning, management, coordination, and overall financial control of construction projects. A construction graduate should have a broad understanding of the fundamentals of the free enterprise system, accounting, finance, business regulations, contract law, and labour law of the country, and marketing. This category should also contain fundamental courses to provide a foundation for contemporary business practices appropriate to applications in construction.

Construction Practice: The construction practice curriculum is of vital importance in a quality construction programme. Course material in this category covers both office and field activities required to complete any type of construction project efficiently.

Humanities and Social Sciences: Construction is concerned with people and their relationships. Therefore, the ability to communicate, both orally and in writing, and the understanding of human behaviour are essential assets to a construction graduate. It includes appropriate courses in communications, social sciences, and the humanities. The content should reflect the needs of the construction industry as well as the philosophy of the educational institution.

Mathematics and Science: A well-developed concept of mathematics and physical science is essential for a construction graduate. The technical process of construction can be best controlled by applying the principles of mathematics, statistics, and computer science. Moreover, an understanding of the behaviour of materials, equipment, and methods used in construction require laws of physics, chemistry, geology, and environmental sciences.

Courses recommended under each subject category have to be specified and developed to meet the specific economic, social, cultural, and technological conditions prevailing in Bangladesh. Institutes that are interested to offer a construction education programme should conduct a separate study for preparation of syllabi for all the individual courses to determine the course contents, learning objectives, and the measures of attainment of the objectives.

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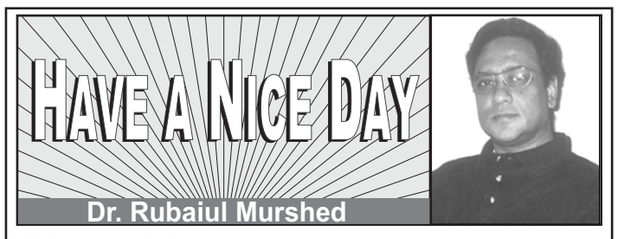

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We have a dream

ONE day in the very near future our citizens will understand they can receive the quality medical care they have not yet found available in Bangladesh.

Our children will understand they are being treated well here in their own motherland surrounded by their close ones.

Our youngsters will understand why people do not need to travel out of country for good medical treatment.

Our mothers will understand how 'infection control' can save a neonate or a mother? And what does malnutrition mean?

Our senior citizens will understand they will be able to breathe comfortably in a healthy environment of medical care.

People from neighboring countries will understand Bangladesh provides international standard Interventional Cardiology, Radiology and Bypass Surgery.

Our privileged class will understand and put their faith in our 'sophisticated medical services' like joint replacement and kidney transplant of international standard.

Our Bangladesh expatriate doctors will understand time has come to return home from Sydney, London, Toronto and New York and practice in a state-of the-art health care facility.

This 'Home-Run' programme visualised by us will fetch medical talents home commencing an important 'reverse brain drain' in health care delivery in Bangladesh.

Our Golden Bengal will understandably provide 'first world' hospital care at standard 'third world' cost and Bangladesh will also become a 'medical destination of choice' and a choice for health-tourism.