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## Water Education at the Tertiary Level The Case of Bangladesh

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### Introduction

Some sixteen years back in 1997 Ashis Nandy, Ajaya Dixit and I, while writing what probably must have been the first South Asian *manifesto* on the politics and knowledge of water, came to the following conclusions:

Till now, the approach to water management and water development has been fragmentary. Not only has it dealt with sea, river and groundwater separately, it has been "land-centric". Water management, we believe, should centre around water; it must be based on the recognition of the wholeness of water and its intrinsic function in nature. A comprehensive view also demands critical interventions in the curricula at all levels of education. The principal challenge is, therefore, to integrate the global and the local, to alter the structure and nature of current decision-making models, and the educational context within which they are generated, not only to accommodate a plurality of views, but also to generate options that would reflect the larger reality of water in nature and human society. The transition towards a more secure future for water begins with participatory, consensus-seeking, democratic, accountable governance.<sup>1</sup>

Nothing much has changed since then. Water education in South Asia, whether at the primary, secondary or tertiary levels, still remains marginal and fragmentary. Three factors seem to have contributed to this. Firstly, the hegemony of science over social science. This becomes apparent with

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respect to our understanding of water, for instance, when it is viewed only in terms of its chemical composition, that is,  $H_2O$  (twice hydrogen plus oxygen), without querying about its relevance in our society and in everyday use. A decade back Ajaya Dixit and I redefined water from the standpoint of social science and called the composition  $H_2OP_4$ , that is, twice hydrogen plus oxygen *plus* pollution, power, profit and politics. In fact, one can get  $H_2O$  only in the laboratory; outside the laboratory the social science meaning of water is more real and relevant. Not exposed to such societal meaning of water, young minds dilute the importance of water from the beginning and keep reproducing the diluted version even when becoming adult to the neglect of water itself.

Secondly, developmentality. The craze for 'land-centric' development cannot be denied. Indeed, it has come to a level that critics now humorously point out that when an engineer is brought to a river she cannot think anything else other than building a bridge! Disciplinary obsession could be the reason but there is no denying the fact that modern development nurtured a precise 'mentality,' which privileged the land over water. Europe's geomorphology and the geopolitical thrust of colonialism could be responsible for this, but in places and regions where there is either surplus or deficit of water the privileging of land over water could only limit the potentials of water-centric development. With the 'mind' colonized, indeed, dazzled by modernity's appetite for land, post-colonial South Asia continues to ignore water in development, from transportation, tourism to building housing infrastructures.

Finally, statism. Water is no longer under the control of the human, the user. For reasons of profit, politics and power, water is now under the control of the state and the government. This is best captured in a statement found in the *National Water Policy of Bangladesh* adopted in 1999: "The ownership of water does not vest in an individual but in the state."<sup>2</sup> In fact, water in general and river-water in particular has succumbed to statism, with the government keen to assert its rights over the water within its territorial borders without ensuring the rights of the river or its use by the people beyond the borders. This kills the holistic nature of the water, often with disastrous consequences. The drying up of a river, for instance, gets rationalized with citizens consenting to it on grounds of statist compulsions. Such modernist goals have invited not only, what Ashis Nandy following Ivan Illich refers to as, 'technicism, expertise and over-organization' but also and more painfully 'dehumanization.'<sup>3</sup> Arundhati Roy highlights this combination well when she refers to the devastating impact of the Farakka Barrage on the people of this side of the border:

It's interesting that the Farakka Barrage that diverts water from the Ganga to Calcutta Port has reduced the drinking water availability for 40 million people who live downstream in Bangladesh.

Arundhati then continues by censuring the confluence between state, nationalism and developmentality:

At times there's something so precise and mathematically chilling about nationalism. Build a dam to take water *away* from 40 million people. Build a dam to pretend to *bring* water to 40 million people.<sup>4</sup>

Modernity, developmentality and statism could also be read as varied manifestations of the same process, informing and influencing our current field of enquiry and reflection, that is, water education. Or, to put it mildly differently, it can be read as the future, present and past of water education where the past haunts the present and the past and present collectively haunt the future.

But then how do we overcome all this? There is no easy answer. The paper will examine critically the curricula at the tertiary level and see whether answers could be found in the critique itself. For the sake of brevity the paper will be limited to Bangladesh only, and this would include both public and private educational institutions. Bangladesh's experience with water education will surely throw light on the state of water education in South Asia. But before we embark more concretely on water education at the tertiary level the *context* needs to be further elaborated lest the exposition falls prey to miscommunication and invite fresh ambiguities.

## The Context

There is first the relationship between *education and colonialism*. The education provided under the British had two critical features. Firstly, a greater emphasis was given to the study of law and humanities compared to engineering and medical sciences.<sup>5</sup> Secondly, with the introduction of English as a medium of instruction (indeed, under Thomas Macaulay in 1835), most of the students settled for the habit of cramming the text in order to pass, what again turned out to be an excessive number of examinations.<sup>6</sup>

Indeed, the colonial government was set to produce a class of 'interpreters' and not *innovators*, mainly to carry out the task of administration on behalf of the colonial power. But the (colonial) organization of such institutions did not end with the demise of colonialism. As a matter of fact, it still remains remarkably contemporary. Gail Kelly and Philip Altbach, while discussing the relationship between education and colonialism, made a pertaining observation in this context:

European institutions [in the colonies] were established without the consent of the colonized. Once established, it is very difficult for the governments of Third World nations to break with preindependence institutions. Inertia is a strong force in that functioning institutions, even if they are not ideal, are often seen as sufficient. There are often no readily available models to take the place of the colonial structures.<sup>7</sup>

Not surprisingly, even after sixty five years of post-colonial experience, the bulk of the students in Bangladesh continues to attend courses in law and humanities than (for instance) engineering,

medical or 'pure sciences.' Table I amply demonstrates the uneven attendance of the students in the various disciplines at the tertiary level:

Table 1

Tertiary Level Education Percentage of Students by Field of Study (2005) <sup>8</sup>						
Country	Education Humanities & Law	Social Science, Business & Law	Science	Engineering, Manufacturing, and Construction	Agriculture	Health/ Welfare
Bangladesh	34.1	39.3	9.6	1.5	0.8	13.3
India	-	51.9	15.1	5.0	-	1.4

But this is not all. The colonial condition of having 'fundamental theories' and science brought in from the colonial motherland for the benefit of the less scientific and the savage still continues to dominate the education sector. This probably is also the reason for having an excessive dose of Western texts and theories in the curricula and fewer institutions of fundamental research in the country. Almost as designed by the colonial master and as a result of the colonised structures, scholars and researchers of Bangladesh continue to act as the suppliers of raw materials of knowledge with the expectation of all that the finished or manufactured goods of knowledge will be done by Western universities and institutions, indeed, only to be *re-supplied* to the universities and institutions of Bangladesh. In this unequal exchange of knowledge the field that suffered the most is indigenous knowledge and with it, indigenous technology. Knowledge of science also became partial, fragmented, uncertain and at times irrelevant.

There is yet another context which is equally central to water education in Bangladesh and that relates to the *governmentalization of water*. The budgetary allocation probably is a good starting point to understand this. And this is more because the figures have more to say than what are being displayed. A sector-wise allocation of the development budget, albeit of selected areas, is found in Table II.

Table 2

Sector-wise Allocation of the Development Budget: 2013-2014 (in percentage) <sup>9</sup>			
Defence	Transport & Communication	Education & Technology	Health
6.5	23.9	13.5	5.3

The budgetary allocation for education looks impressive, although the reality of such allocation could be far more complex and somewhat depressing. Firstly, when compared to the last year's

budget there is actually less money for the education sector in 2013-2014. In fact, percentage-wise the share of education has come down, although the size of the budget remains bigger. And the worrying fact is that the allocation for education this time remains below 2.0 percent of the country's gross domestic product (GDP). As one critic commented:

[T]his is the lowest level of expenditure on education anywhere in the world. Even in Africa, all countries now boast spending more than 5.0 per cent of their GDPs and no country allocates less than 20 per cent of its national budget there. Kenya and Senegal spend 31 per cent and 40 per cent of their national budgets respectively on education.<sup>10</sup>

Moreover, 13.5 percent budgetary allocation for education is misleading. In fact, a substantial part of the allocation is mainly for teacher's salary and has little to do with the development of education. Put differently, not only is the allocation for education little compared to transport and communication but whatever is allocated also has little to do with the development of education. But more critically there is a general consensus for such allocation where a significant section of the population, including members of civil society, deems it appropriate for the government not only to allocate more to the 'land-centric' transport and communication but also to have the *government* deprioritise education over other ostensibly profit-making sectors. And there lies not only the power of the government but also, and more importantly, the *governmentalization of the mind*. It is only a short step from here to the governmentalization of water and water studies. Let me explain this by way of reflecting on the *National Water Policy of Bangladesh*.

In the 21-page document of *National Water Policy of Bangladesh* the word 'government' is used over 50 times and if one includes its agencies and machineries another 50 times could easily be added. 'Government' water policy is otherwise being sold as 'National' water policy, seemingly delusive of the fact that the category of 'National' includes other agencies and players (like the village unions, community-based organizations, local bodies, civil society groups, non-government organizations, private enterprises, etc.) and not just the 'government.'

Interestingly, the word 'non-government organization' figured only once in the entire document. Not much different is the case of 'private bodies' and 'women,' mentioned only two or three times. The latter is particularly shocking in view of the recognition in the document that the 'the availability [of water] for sustenance of life...is a basic human right.' If those who manage and use the bulk of water - daily and regularly - can be referred to just two or three times in contrast to the overwhelming reference to the government there is obviously the apprehension that the *National Water Policy* far from being misconstrued and misdesigned is actually in the business of *displacing* a vital section of the people while *safeguarding* the power and interests of the government.

More concretely, the *policing of water* by the government and its agencies are at the heart of *National Water Policy*. Some citations from the document will make this clear:

The government reserves the right to allocate water to ensure equitable distribution, efficient development and use, and to address poverty.<sup>11</sup>

For sustaining rechargeable shallow groundwater aquifers, the government will regulate the extraction of water in the identified scarcity zones with full public knowledge.<sup>12</sup>

The Government has to be at the core of the effort to help build the local institutions and to impart a precise awareness of the issues and an unambiguous understanding of their role in water management.<sup>13</sup>

WARPO will be the exclusive government institution for macro-level water resource planning.<sup>14</sup>

Apart from over-burdening the government with work and things outside its domain and not to mention expertise, the *National Water Policy* sets out to govern or police the management and use of water but in the process ends up policing or governmentalizing the sphere of water itself. This is an outcome as much of the policy of the government as it is of the governmentalization of the mind. It is this context that informs, organizes and reproduces water education in Bangladesh. I will limit my discussion to four, albeit very different, universities. But first let me provide a general overview of the universities of Bangladesh.

The universities may be divided into four categories: public, private, special and international. There are altogether 32 public, 57 private, 2 special and 2 international universities. In addition to this, there are 31 specialized colleges, which includes medical, dental, engineering, polytechnic, law, agriculture, fine arts, home economics, and welfare and research.

Bangladesh National University and Bangladesh Open University come under special universities in the light of their institutional framework, while the Islamic University of Technology and the Asian University for Women are the two international universities, run and managed by an international board of directors. As for the number of students and teachers, the universities have 439, 406 students, including 119,303 female students, and 15,838 teachers, including 3673 female teachers.<sup>15</sup> It may be mentioned that there are more female teachers in the private universities than public universities, 1889 and 1784 respectively.<sup>16</sup>

For the sake of brevity, I will limit my discussion to three different kinds of public universities, namely, University of Dhaka, Bangladesh University of Engineering and Technology and Bangladesh Agricultural University, and one private university, namely, University of Asia Pacific, and that again, mainly because it has a department called Civil Engineering with Environmental Division.

## Case I: University of Dhaka

The history of the University and the curricula of its various disciplines are inextricably tied up. In his convocation address in 1922, Lord Lytton, the Chancellor of the University and Governor of Bengal, made a poignant remark regarding the birth of the University: “The University was an imperial compensation to the Muslims for the annulment of the partition of Bengal.”<sup>17</sup> Since then, the University could never rid itself of its political foundation. Dhaka University was at the forefront in the demand for a separate homeland for the Muslims and later on for the independence of the eastern wing from the state of Pakistan.

The result was a unique combination. Not only it could not overcome the fragmentation of knowledge bequeathed from the colonial era, it also got heavily involved in the business of nurturing and reproducing the political aspirations of the Bengalis. Put differently, the University hardly had the time and the necessary space for reflecting more systematically and holistically the non-political issues, ones that are directly related to life and living and no less significant than the political aspirations of the people.

In this context, water education either became a sub-topic within a course in a particular discipline or became a set of courses within a discipline. The special treatment given to the downstream flow of river water and the Farakka Barrage in the discipline of International Relations and Political Science is a good case of the former, while courses on water-related issues in the discipline of Geography, recently renamed Department of Geography and Environment, remains a good example of the latter.

The inter-disciplinary exercise is at the minimum and when it comes to water education it is almost nil. There are certain long-standing structural problems as well. The 'integrated course system' that was introduced in the 1990s was neither 'integrated' nor fully based on 'course system.' It was, in all practical terms, a compromise between the old mono-disciplinary method to the intending and somewhat little understood inter- and multi-disciplinary methods. The result was a hotchpotch, with the disciplines still struggling to define their uniqueness and justifying very narrowly and also cleverly their separate existence.

Simply put, the disciplines opted for the *add-on* principle and that again, more on *ad hoc* basis, while shunning both inter-and multi-disciplinary education. The example of the Department of Geography and Environment is a good one, more so in the context of water education, but is certainly not an exception.

Firstly, let me reflect on the *add-on* principle. The discipline renamed itself and added 'Environment,' particularly at a time when it became fashionable in the West to use the conceptualization of environment to stress more on the aspect of human intervention and the reorganization of both

human and nature. The consequence was a rapid add-on of various courses, ranging from biogeography, migration to gender. This was definitely an improvement from the previous course materials but it remained at the end nothing more than add-on of topics that only reproduced the pride and prejudices of the discipline itself. This brings us to the second point of contention.

The new courses and even the reorientation of the discipline by way of including the environment remained at the end limited to the students of the department. The course on 'Water Resource Management,' for instance, despite having relevance for many other disciplines and a vital topic for water education, is offered only to its own students. But that again was done in a half-hearted manner with a naive homage to alien sources of knowledge. The discipline, although primarily catering to the students of Bangladesh (a place with more water than land), still continues to provide more space to land education than water education, that is, if we take into account the number of courses allotted to the understanding of land rather than to the understanding of water.

Finally, even the abstractness of the courses is at times striking. We have already referred to the positivist grounding of modern education. So hegemonic and intense is this grounding that at times even with the best intention of the scholars and academicians the pernicious influence of positivist thinking cannot be avoided. Two or three instances will suffice here.

The discipline has included 'Gender' as one of its courses at the advanced Masters level, but it has included the subject more as a sociological and economic category and not as a diverse/multiverse category. While there is a possibility that the materials on 'eco-feminism' (a sub-topic of the gender course) would address the relationship between gender and water, but there is no guarantee that this would be pursued. I am raising this issue, particularly in view of the fact that women are the main carriers and users of water in everyday life. Similarly, the course on 'Migration' there is no mention of women, although the latter (with children) figures 70 percent of the legal and illegal migratory movement. More striking was the labelling of surface water (that is, of river, pond and lake) as 'fresh water' in the course on 'Biogeography.' In the light of polluted water or inversely lack of fresh water in Bangladesh and elsewhere, may be the intellectual stress is now more on the ideal than on the real!

But lest I be misunderstood, my intention here is not to make the curricula sound ludicrous or irrelevant. As I have pointed out earlier the discipline of Geography and Environment at Dhaka University is not an exception. A critical assessment of all other disciplines will show a regular and greater fancy for modernity, positivism and alien sources of knowledge. The reason we had focused on the above-mentioned department is because the latter does have courses and materials, although fragmented and half-hearted at this stage, from which a sound water education could be build up. I will return to this issue later.

## Case II: Bangladesh University of Engineering and Technology

My first educational encounter with the Bangladesh University of Engineering and Technology (BUET) took place several years back when I was invited to a panel of jury to examine and comment on the architectural design of the final year students on the subject of restoration and conservation of Rabindranath Tagore's ancestral place at Shelaidah in Bangladesh. I believe my credentials were my little knowledge of Tagore and my forceful advocacy of mud housing for some time. Taking the opportunity provided by the subject-matter, I reminded the would-be architects as well as their zealous teachers that Tagore always fancied mud housing and that the key house one faces while entering the premise at Shantiniketan in Paschim Banga (India) is, indeed, a mud house.

I must confess that it was not Tagore that made me attracted to the idea of mud housing. During my student years at Dhaka University National Professor Abdur Razzaque in a paper on Bangladesh sub-titled *State of the Nation* made an interesting observation as to how Bangladesh could develop and made prosperous.<sup>18</sup> He believed that the combination of two factors-*water and people*-could change the current fate of Bangladesh. Many years later I saw the relevance of his views in the now neglected, rural construction of mud housing. Where else one will find the combination of water and people so intricately related and serving one another?

Following my advocacy of mud housing, a faculty member and an architect stood up and disputed and thought the idea will push the country away from the path of progress and into the Dark Age! He opted, as expected, for concrete building. I had to remind him that his was purely an architect's point of view, thoroughly disciplined in the idea of *building* houses. As one tutored in social sciences my goals were somewhat different and that is to come up with an idea to provide houses to all the people of Bangladesh. The critical question therefore is whether we can provide concrete housing to 160 million people? Will our environment, soft as it is with nearly six months under water, be able to hold concrete housing for all? At least on that occasion I succeeded in making the builder of houses *think!* There are however good reasons to believe that the 'thinking' part will not go very far.

Take the case of Water Resources Engineering (WRE), for instance. The way the curricula of WRE at BUET is organized, particularly in terms of the courses offered (and here I am reflecting on the undergraduate level only), I am more than confident that students after going through all the courses and duly passing out the examinations and getting the WRE degree the first thing they will do upon seeing water or a river will put some concrete substance over it, either in the form of a bridge or embankment or dam. That is, the goal will be to tame and own the water, almost forgetting that from time to time they will have to drink the water and let it go free as well! The highly disciplined state of mind can be further concretized.

Out of 176 credit requirements for the WRE undergraduate degree only 9.5 credits deal with Humanities. The latter includes courses on 'English,' 'Advanced English,' 'Sociology,' 'Government,'

and 'Developing English Language Skills.' Aside from the fact that each of these courses consists of barely 2 credit points or less and only 2 or 3 hours weekly class, the contents are so basic and general that one quickly starts to question their purpose and how well such courses serve the students of WRE in understanding the complex relationship between water and the human environment. Take the 'detail outline' of the course on 'Government,' for instance:

Basic concepts of government and politics; forms, organs and functions of government; democracy; good governance; bureaucracy; e-government; socialism; Marxism; welfare state; U.N.O.

Government and politics of Bangladesh; administrative reforms; non-party caretaker government; local government; public policies; NGOs; managing development project: planning, implementation, monitoring; evaluation; constitutional bodies: EC, CAG, PSC; foreign relations of Bangladesh.<sup>19</sup>

The connection with water is obviously far-fetched. More interesting, however, is the sudden inclusion of the topic, 'administrative reforms; non-party caretaker government.' Apart from privileging partisan politics over environmental politics there is little to suggest as to how this would help in our understanding of H<sub>2</sub>O.

There have been some developments at the post-graduate level, particularly at the Institute of Water and Flood Management (IWFM), BUET, with the introduction of courses on integrated water resource management (IWRM). But then, what good will it do if the students, by way of being thoroughly disciplined at the undergraduate level, turn out to be more 'engineers' than what one analyst refers to as 'social engineers'?<sup>20</sup> More specific in this context was the conclusion arrived at by JC Heun over a decade back in his short report on the state of postgraduate training for the water sector of Bangladesh:

In my opinion, the degree programme [at BUET] serves its purpose well, but cannot easily become the main thrust for a comprehensive training programme in IWRM serving Bangladesh water sector as a whole for three reasons (1) the focus on civil engineering contents, (2) the duration and (3) the organisational set up of lectures spread out over the semester.<sup>21</sup>

The problem therefore is not only textual (indeed, arising out of the contents of the courses at BUET) but also contextual, structural and the fragmented nature of water education. Anything short of a thorough reorientation seems to be a non-starter.

### Case III: Bangladesh Agricultural University

The history of Bangladesh Agricultural University (BAU) is remarkable, particularly in the context of its focus on agriculture. It was established in 1961, but then it was established literally on the campus of the then East Pakistan College of Veterinary Science and Animal Husbandry.<sup>22</sup> Whether this signified the triumph of crops over animals or more brutally the animalization of crops still remains an open question. There are good reasons to suggest that the latter is more the case.

Any cursory look at the faculties of Agriculture, Agricultural Economics & Rural Sociology, and Agricultural Engineering & Technology, with departments ranging from Agronomy, Agricultural Economics, Biochemistry, Farm Power & Machinery, Soil Science, Horticulture, Chemistry, Agroforestry and even Rural Sociology, will immediately make one believe that the days of having both chemically and non-chemically but organically formulated food in Bangladesh are not very far. In a way with high yielding (or rather, fertilizer-dependent) crops it is already there! Organic food, however, given the cost of production, will follow at a more convenient time. Almost in the like of WRE, students here will be tempted to transform and possess the things of nature the moment they have time to lay eyes on them. Two items have suffered marginalization in the process.

The first victim is indigenous knowledge and technology. There is absolutely no attempt to understand and peruse indigenous knowledge and technology at BAU or, for that matter, in any academic institutions of the country. It is almost a taboo to speak in its favour. The idea is that modern science has buried the former for good and there is no reason to waste time on it! Experience, however, as SB Naseem reminds us, is quite the contrary:

Scientists with a modern education are influenced by western culture, they follow urban life styles that distance them, either consciously or subconsciously, from the heritage, culture and traditions of rural people. These outsider one-time researchers fail to acknowledge that local farmers, with their roots imbedded in their locality, could provide invaluable information for their scientific investigations. For example, agronomists recommend increased dosages of chemical fertilizers to increase crop yields, without regard for other socio-cultural constraints affecting the adoption of high input technologies. Thus, in this country many scientifically conceived and well-planned development programmes devised in city-based offices by personnel who did not listen to those 'stupid' persons ended up as failures.<sup>23</sup>

Whether the problem is now beyond *fixing* modern education and modern science and that again, by accessing 'valuable information' from the local farmers is another question. The fact, however, remains that a vast area of knowledge, nurtured and practised from time immemorial, has no place in the mental development of those who regularly benefit from it. And there lies the weakness in the education system.

Secondly, and this is almost implicit in the first, *people* too have been marginalized. The concern here is more with scientific and technological feat than for those who are likely to use and presumably benefit from it. Naseem captures this well:

High yielding paddies helped people to avoid potential food shortages like those experienced in the recent past. But they have created other problems. People say that the high yielding varieties of rice are tasteless. The excessive use of fertilizer is damaging soil fertility. Farmers maintain that while fertilizers keep the topsoil fertile they are damaging the subsoil, which is becoming harder like burnt bricks. The use of inorganic fertilizer and pesticides in paddy fields is also depleting fish resources in the *beel*. People believe that water contaminated by fertilizers and pesticides is flowing from higher land into the *beel*, destroying eggs and fry of various fish, particularly the *kai* fish, which lay eggs in paddy fields. People also blame recent fish diseases on the contaminated water. Some say that today there is an increase in digestive problems because of the heavy use of fertilizers and pesticide used to grow high yielding paddies.<sup>24</sup>

This almost makes one to believe that the high yielding paddies are more for profiteering than increasing production for tackling food shortages. And if we are to believe in Amartya Sen the problem lies with 'entitlement' and not want of food when many go hungry in the so-called food-scarce countries.<sup>25</sup>

Making education water centric, as indicated earlier, has always been a problem. BAU came up with a separate department on water and that again, under the banner of Irrigation and Water Management. The departmental prospectus has an interesting intro to rationalize its birth: "The department has been established because of the growing need of the specialists in the field of Irrigation & Water Management for *boosting up* agricultural production in the country." The focus again has been on the scientific and technological feat for increasing crop production and not on the dynamics of life and living of the people. In a way it is a semi-urban repackaging of WRE and IWFM courses at BUET and the fate of the students is no different from that of the latter. I must hasten to add here that save the Department of Languages under the Faculty of Agriculture there are no parallel courses on humanities, something that we found, albeit in a minuscule form, in WRE and IWFM at BUET.

#### **Case IV: The University of Asia Pacific**

Two issues may be flagged at the outset. Firstly, legal foundation. The University of Asia Pacific (UAP) is a *private* university and therefore, unlike public universities, remains outside the bounds of governmental control. Secondly, UAP has a Department of Civil Engineering with an Environmental Division, which promises inclusion of water education. In fact, the inclusion of environmental discourses in civil engineering suggests fresh and newer materials and thereby opens

up the possibility of having newer breeds of engineers. If the latter creates hope, the former could create obstacles.

The government of Bangladesh passed a Private University Act in 1992. Several private universities have been established since then. There are now altogether, as indicated earlier, 57 private universities. The UAP was established in 1996 and therefore is relatively new. It is not unnatural to hope that the UAP would be free from the limitations experienced by those that were established before the birth of Bangladesh. The freedom of UAP, however, is more restrictive than what the categorization of 'private' suggests. As the home page of UAP website states:

The University of Asia Pacific was established in 1996 as a private university under the Private University Act 1992, with a vision to enhance the opportunities for higher education in Bangladesh. Its *curriculum has been approved* by The University Grants Commission of the Government of the People's Republic of Bangladesh (emphasis mine).<sup>26</sup>

The UAP, like all other public and private universities, requires approval from the University Grants Commission (UGC), a statutory apex body, established by the President's Order of 1973. The element of governmentalization at the tertiary level of education otherwise cannot be minimized. In fact, the curriculum not only has to conform to the broad governmental position on education but also requires direct approval of the government. I would not be surprised that even in the midst of diverse and newer insights the curricula committee of UAP remains constrained by some amount of self-censorship in order to have the curricula approved by the governmental body. It is also very unlikely that the latter would approve something radical and quite out of the way from what is being currently taught in Bangladesh. It is therefore 'private' of a special kind or only in terms of ownership of the institution. In practical terms the government continues to have the final say in what is being taught and how the students are being disciplined.

The inclusion of the Environmental Division, however, holds some amount of promise. In the four-year course system, the Environmental Division comes as one of the two optional courses. The other optional course is Structural Division. The optional course on Environmental Division, however, does take into account some of the current issues on the environment, namely, 'environmental pollution,' 'environment and development projects,' 'environmental management,' 'environmental impact assessment,' and 'environmental engineering,' including GIS and remote sensing.<sup>27</sup> I guess one can conclude that the engineers coming out of the UAP will be relatively better informed on the issue of environment, and this is indeed a positive development, but then they could end up, and this is what I fear the most, treating the environment as a case requiring engineering!

Given the colonized and highly governmentalized structures of public universities one can only hope that the private universities would succeed in introducing newer and alternative courses in their

faculties, including water education. What is required is a thorough nurturing of decolonized and de-governmentalized minds; indeed, minds free from the mindset of yesteryears.

### **Conclusion: What is to be done?**

There seems to be a general consensus on the issue of overcoming the weaknesses and limitations of water education at the tertiary level, and this is through *training programs*, both within and outside the university. And there are scores of them, including those run by Bangladesh Water Development Board, Local Government Engineering Department, BUET, Centre for Environment and Geographic Information Services, Surface Water Modelling Centre, Bangladesh Institute of Management, Department of Public Health Engineering, and many more. These are mostly short-term courses, limited again to specific groups or aiming at a certain skill development, including computer training.<sup>28</sup> But then such training programs remain limited, precisely on the issue of *training* the 'trained and disciplined' people. As Tony Buzan, the inventor of *Mind Maps*, once pointed out:

If you want to lose £800,000 in a day, invest £1 million in training – 80 percent of what people learn is forgotten within a day. That isn't because training is inappropriate, it is because the training doesn't take the brain into account. Until training takes the brain into account, they'll continue to have new fads. They will continue to be disillusioned and search for the perfect fad, the panacea.<sup>29</sup>

This is not to advocate the inclusion of mind mapping in all water training programs, but to stress the point that training a 'trained and disciplined' person into newer modes of thinking and activities is more difficult than training 'an untrained person' into newer modes of thinking and activities. In this light, it is better to train individuals when they are young and fresh and not wait for them to be untrained or re-trained when they are already 'trained and disciplined'! Water education otherwise ought to begin not at the tertiary but at the primary level.

Secondly, there is a greater need to overcome the structural constraints that so much dominates the universities in Bangladesh, particularly public universities, not only for introducing newer courses but also for making the disciplines multi or post-disciplinary. There is no reason as to why students of history, economics or international relations at Dhaka University, for instance, will not be able to take one or two courses offered at BUET and vice versa.

This will at least begin an exercise towards nurturing more holistic view of life and living than what is presently found. Multi-or post-disciplinary ought to be pursued not only within the disciplines of the same university but also between and amongst the various universities. Now with computerization keeping a track of the students and the various courses they have selected beyond those offered by their parent department should not be a difficult task.

Finally, the territorial or nationalist agenda on water education needs to be replaced by a post-national or post-territorial agenda. In this light, the multi-disciplinary pursuit of integrated water resource management should not be limited merely to the task of including various disciplines but must also include the discourse on water beyond the territoriality of national boundaries. The time has come to view the world more from the standpoint of water and not merely from the standpoint of the land.

In so far as water education is concerned, virtual water courses on specific topics worked out by several faculties both within and outside Bangladesh, including faculties based in Africa or Europe, could be initiated so that the students and faculty members not only know each other beyond their respective national boundaries but also familiarize themselves with transboundary water discourses. Indeed, if a stream of consciousness is to be aspired then the focus ought to be not only on the consciousness but also on the stream as well!

#### ABOUT THE AUTHOR

Imtiaz Ahmed is professor of International Relations at University of Dhaka, Bangladesh.

#### Endnotes:

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29. A Mind Map is a visualisation of thought. That is, knowledge is not linear – all kinds of things radiate from our head when we have an idea. See, *Business Life*, September 2001, pp.14-15.



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