

Report No. 9

**THE CHALLENGE OF TECHNICAL AND
VOCATIONAL EDUCATION FOR
HUMAN RESOURCE DEVELOPMENT
POLICY-PLANNING-STRATEGY**

Centre for Policy Dialogue

House No 40/C, Road No 11, Dhanmondi R/A, Dhaka-1205, Bangladesh

Tel: 017-521580(M); E-mail: cpdiacom@bdonline.com

July 1999

The Centre for Policy Dialogue (CPD), established in 1993, is an innovative initiative to promote an ongoing process of dialogue between the principal partners in the decision making and implementing process. The dialogues are designed to address important policy issues and to seek constructive solutions to these problems. The Centre has already organised a series of such major dialogues at local, regional and national levels. These dialogues have brought together ministers, opposition front benchers, MPs, business leaders, NGOs, donors, professionals and other functional groups in civil society within a non-confrontational environment to promote focused discussions. The expectation of the CPD is to create a national policy consciousness where members of civil society will be made aware of critical policy issues affecting their lives and will come together in support of particular policy agendas which they feel are conducive to the well being of the country. The CPD has also organised a number of South Asian bilateral and regional dialogues as well as some international dialogues.

*In support of the dialogue process the Centre is engaged in research programmes which are both serviced by and are intended to serve as inputs for particular dialogues organised by the Centre throughout the year. Some of the major research programmes of CPD include **The Independent Review of Bangladesh's Development (IRBD), Governance and Development, Population and Sustainable Development, Trade Policy Analysis and Multilateral Trading System and Leadership Programme for the Youth.** The CPD also carries out periodic public perception surveys on policy issues and developmental concerns.*

*As a part of CPD's publication activities, a CPD Dialogue Report series is brought out to widely disseminate the summary of the discussions organised by the Centre. The present report contains the highlights of the dialogue on the theme of **The Challenge of Technical and Vocational Education for Human Resource Development Policy-Planning-Strategy** held at the CIRDAP Auditorium on May 20, 1999.*

Report prepared by: Aminur Rahman, Research Associate, CPD
Nazneen Ahmed, Research Associate, CPD.

Assistant Editor: Ms Ayesha Banu, Coordinator (Dialogue & Communication), CPD.

Series Editor: Professor Rehman Sobhan, Chairman, CPD.

Dialogue on
**The Challenge of Technical and Vocational Education for
Human Resource Development Policy-Planning-Strategy**

i) The Dialogue

The Institute of Diploma Engineers of Bangladesh and the Centre for Policy Dialogue jointly organised a dialogue on the theme of **The Challenge of Technical, Vocational Education to Human Resource Development** at CIRDAP Auditorium on 24th April 1997. The honourable Minister for Planning Dr. Mahiuddin Khan Alamgir was present at the dialogue as the Chief Guest. Amongst others Mr. Rashed Khan Menon, General Secretary, Bangladesh Workers' Party, Professor A.K. Azad Chowdhury, Vice-chancellor, Dhaka University, eminent educationists Professor Aminul Islam, Dr. A. Al-Muti Sharafuddin, Mr. Kazi Azhar Ali, Dr. Ali Asgar and Editor of The Daily Star, Mr. Mahfuz Anam were present at the dialogue. The dialogue was moderated by Professor Rehman Sobhan, Executive Chairman, CPD (List of participants is annexed).

Mr. Abdur Rafiq, Director General, Directorate of Technical Education made the keynote presentation. Dr. Nazrul Islam, Vice Chairman, BIT Council and Dr. Atiur Rahman, Senior Research Fellow, BIDS participated as designated commentators on the paper.

Introducing the theme of the dialogue Professor Rehman Sobhan made an observation that people often talk about the importance of university education or primary education in our country, but neglect to highlight the importance of technical education for our economic development. He pointed out that there is a volume of literature explaining the critical role of technical education for development. Analysis of the development process in various countries show that countries, which put the greatest emphasis on technical education, and particularly technical education at the middle level where they train a large number of people responsible for making the economy function, were the most successful in organising a successful economic strategy. If the initial industrialisation strategies of such developed countries as Germany, Korea, Taiwan, and Singapore are put under in-depth scrutiny then it will be found that development of middle level technical institutions provided the base for the development of the advanced industrial economies of today. It was the middle level technicians who brought about technological revolution and initiated a process of sustainable development in those countries.

Professor Sobhan emphasised that in addition to creating senior level engineers and well-educated people with Ph.D.s, Bangladesh also needed to build up a cadre of middle level technicians. In the absence of such a cadre there would be no one to properly look after the active power plants or the factories of the country; if expensive machinery develop mechanical problems or break down, there would be no one to repair these equipment; also there would be none to provide small and middle level entrepreneurship, which is the base of any industrial

revolution. Investments can not be efficient in the absence of adequate number of people skilled in technical knowledge. Professor Rehman Sobhan referred to his personal experience and noted that it has now become an urgent task to bring the issue of importance of middle level technical persons to the attention of the national policy makers. He proposed that one technical institute should be established in every upazila of Bangladesh which would prepare one thousand men and women every year, so that the country is at a position to produce four hundred thousand people each year, with a technical background who would in turn provide the mid-level services for the purposes of running the economy. Thus the country will have a group of skilled manpower which would also cater to the needs to the foreign labour market. He mentioned that it is in this category of manpower that the maximum demand for services is wanted in the Middle-East, as well as the emerging economies of East and South-east Asia. Drawing the attention of the Chief Guest, Professor Sobhan urged the government to prepare adequate number of trained people, and to take such strategic allocative decision so that the quality of our technical education at the national level improves in spite of the prevailing constricted education budget. Professor Sobhan remarked that it was not enough to raise the allocation of resources to this sector; but it was also important to undertake initiatives to bring about a major qualitative breakthrough in the country's education system which would be sensitive to the way in which market demand for technical services were emerging.

ii) Main issues covered by the Keynote Speaker

The paper of Mr. Abdur Rafique mainly contained extracts from his book **The Challenge of TVE for Human Resource Development - Policy Planning Strategy** (ISB 984-30-0240-7). In his paper, Mr. Rafiq highlighted the importance of Technical and Vocational Education for the development of mid-level Technical Manpower which alone could guarantee accelerated economic growth of Bangladesh. Citing relevant information Mr. Rafique stressed that development experiences of some selected countries such as India, Germany, Japan, Pakistan, South Korea and Singapore reveals a positive correlation between economic growth and production of mid level technical manpower. Referring to the job market data he observed that as an economy moves forward with higher level growth, the pattern of employment of skilled manpower changes with increasing weight to technicians and decreasing weight to skilled workers. He also noted that according to a World Bank study the role which the Bangladesh government could assume in the present context was to expand and improve the quality of primary education for all, support the secondary and higher education on meritocratic and self-financed basis, and expand the technical and vocational education at the secondary and post secondary level in order to increase the supply of skilled manpower with technical and vocational skill as per the requirement of the job market.

In the concluding part of his paper, Mr. Rafique made several recommendations to the government concerning the development of technical education in the country. These were:

- (1) Expansion of the facilities of the existing Polytechnic Institutes

- (2) Establishment of new Polytechnic Institutes
- (3) Development and modernisation of rural technology
- (4) Diversification of the courses in the Polytechnic Institutes
- (5) Revision and development of the curriculum
- (6) Strengthening the teachers' training programmes and
- (7) Research on the emerging needs of technical education.

iii) Discussion

The presentation of the keynote paper was followed by an in-depth discussion on the various issues raised by the author.

Nexus between Technical Education and Economic Growth in Bangladesh

Taking part in the discussion Dr. Nazrul Islam pointed out that the present system of technical education in Bangladesh included several parallel systems: vocational education system run by the government, those run by the NGOs and those run by other organisations; there were also a system of vocational training in some of the industries as well as in the road side workshops. The country also has diploma engineers from Polytechnic Institutes, graduate engineers from BITs and BUET. However, the level of utilisation of the technical capacity in the industrial sector was very poor. In the past Bangladesh had failed to produce efficiently and increase productivity, this led to the cost escalation making products of Bangladesh non-competitive in the global market. One of the major reasons for this situation was that the country did not have enough trained and qualified people at various levels. The mid-level technicians are the key persons in any industry. He agreed with Mr. Rafiq that there is a definite correlation between economic growth and adequate supply of mid level technical people.

According to Dr. Atiur Rahman, the education system of Bangladesh was suffering from a serious crisis; the crisis was most acute in the technical education sector. He emphasised that we were now in a globalised set up where lack in technical cadres could no more be ignored. In the given context Bangladesh needed to adequately prepare herself if she was to survive in an increasingly competitive globalised world. Our neighbouring countries were preparing to face the emerging challenges, especially through rapid expansion of technology. The language of twenty-first century would be the technical language. If we do not develop adequate technical knowledge rapidly, we would not understand the language of the next century. Our present technology would become obsolete in the future year. Bangladesh has to educate her young generation in the technical language of the future which alone could promote the economic growth of Bangladesh.

Dr. Abdullah Al-Muti Sharafuddin agreed with Mr. Rafiq's contention that technical education has great economic value. Mr. Mahfuz Anam also supported this view emphasising that policy makers must give due importance to the technical education sector of the country. He

pointed out that if a massive reallocation of resources was not made in the technical education sector, then we would not be able to break down the vicious circle in which our economy was entrapped. In the technology biased world of the twenty-first century there would be no alternative to skilled persons. Human resource was Bangladesh's principal resource. But Bangladesh cannot face the needs of the future world only with numbers; she has to have quality human resource, because that is what mattered most. Technical education plays a central role in developing quality of human resource and thus stimulating growth.

Another discussant argued that as we live in a global village, information technology was an important factor that cannot be ignored as well. He noted that an illiterate worker in Bangladesh with access to only primitive technology has to compete with a highly competent worker of developed world backed by top level technology. To change such a scenario Bangladesh has no other alternative but to produce a technically competent workforce. According to him Bangladesh has the basic elements for growth with which an average leadership could produce a good result. The people of Bangladesh are very meritorious. Only the right environment was required for development. Compared to developed nations the developing countries needed more technical and vocational training.

Professor Aminul Islam, Vice Chancellor of Bangladesh Open University, himself a geographer, tried to identify the problems of our villages from the perspective of a geographer. He observed that the rapid transformation of marshy land into cultivated one leads to the problems of deforestation and misuse of land. Scientists have established that because of human manipulation of environment our overall climatic system was undergoing drastic change. Natural disaster was one of the outcomes of such inadvertent manipulation. Instead of protecting ourselves from natural disasters through suitable and cost-effective technology, we went for huge structural investments such as the ones envisaged under the Flood Action Plan which was designed following the disastrous floods of 1988. Today, he added, after 5 years of FAP, it has become obvious that the outcomes from the strategy of massive indivisible investment that was undertaken regarding the FAP were not at all effective; rather the strategy has had adverse impact on nature. He argued that environmental problems such as flood, pollution etc. actually deteriorated as a result of lumpy investments although these problems could be well resolved through cost effective, small scale investment using appropriate technology. He believes that in today's context there was no way to achieve development other than through peoples' participation in the community and local development.

Dr. Islam also pointed out that population was a major problem in our country and the magnitude of this problem was growing at an exponential rate. It has been projected that by the year 2025 our population be about 25 crore. An alarming fact about our population problem is that 47 percent of our population under the age of 15. This means that there is a dangerous in built momentum in the growth of population in future years, even if the fertility rate declines substantially over the matched period. He believes that rapid technologically induced economic

growth is the only way to a better future.

Dr. Ali Asgar of BUET pointed out that in order to cope with the modern world, we should realise that technical education is necessary not only for production but also for proper consumption as well as development of culture.

Professor Ajoy Roy from Dhaka University requested the economists and technocrats to provide the theoretical base for the statistically found positive correlation between the technical education and economic growth which was reported in the study. He recalled that three decades ago when Scotland was in the midst of recession while England, Ireland and other West European Countries were enjoying economic growth, an enquiry committee was commissioned to look at the causes of recession in Scotland. The report entitled, "What's Wrong With Scotland" identified lack of mid-level technicians as one of the major causes of the recession. Compared to the 300 technical schools/polytechnic institutes in England, which annually produced about 30,000 technical persons, the number of technical institutes as well as technical persons were insignificant in Scotland. He informed the participants that one of the interesting findings of the report was that scientists, technologists and technicians were the products of the education system, not of the industrial system. It is the technical people who created the conducive environment for growth of new industries.

Future Demand for Technical Education

It was pointed out by many of the discussants that technical education is the basic need of our society at present. Dr. Atiur Rahman expressed his apprehension that Bangladesh's readymade garments sector would fail to avail orders from abroad if they did not develop computer technology. In future, banking system would be highly automated and compared to the level demanded, Bangladesh's bankers would be considered as backdated people. Therefore, Dr. Rahman noted that if Bangladesh fails to develop technical knowledge on a mass scale, she would not be able to plug herself in to the world banking system of the next century. Moreover, manpower export from Bangladesh to Malaysia, Saudi Arabia and other countries would also not be possible in future as the skill of our people would not be able to match the demand of highly developed industries of the next century. In this context he drew attention to the need to upgrade the skill of Bangladeshi labour force in the absence of which the country would not be able to attract foreign investment as well.

Dr. Rahman emphatically called upon the participants to give renewed thought to the prevailing situation in the business sector in the country, to its demand for skilled manpower. The money spent on education should be geared towards quality improvement, and fulfilment of the real needs of the society. Dr. Rahman noted that in a study carried out by *Unnayan Parishad* it was found that the companies surveyed were not interested to recruit graduates from the Universities who were trained by the premaking education system. Rather the companies were in need of business executives, financial analyst, technically skilled people etc., which the present

system of university education were unable to provide. 71 percent of the companies proposed that they were prepared to collaborate and co-operate and give financial support, if the universities came forward to redesign their education system in a way that will fulfil their specific requirements.

Dr. Rahman thought that decisions about what should be learnt and where should the emphasis in education be put could not be decided only from the perspective of domestic concerns. He thought that education was not something different from our life. In a globalised set up it was hard to ignore the demand for an education system which generates skilled manpower. The demand of life, and that of education, cannot be different. He added that if we really want to enter into twenty-first century with the necessary momentum, development thoughts should coincide with real life needs, and budgetary allocation should also follow suit. He argued that once we accept that particular perspective, education and life would not seem to be altogether different, and this would mean that we have truly realised the importance of technical education in Bangladesh.

Commenting on the present education system Professor Aminul Islam referred to the issue of *drop out*. He pointed out that only eight lakh students appeared in the SSC examinations every year out of three to four crore youths of the same age cohort; from those only four lakh pass the SSC examination. He enquired, "Where are the rest and what will happen to them"? On the basis of his extensive experience coming from village tours undertaken for the purpose of the *Open University Programme*, Professor Islam observed that students do not value the formal SSC certificate since this paper fails to ensure their food for subsistence. There was a strong demand amongst students for practical training which would enhance their skills and productivity as per real life job-requirement. He apprehended that the decline of the skilled manpower in the country's total manpower export (one of the findings of the study) over the period of time was very alarming, as far as the future prospects of manpower export from Bangladesh was concerned.

Supporting Professor Islam yet another participant, Mr. Nahid, MP, pointed out to the failure of the age-old education system to meet the demand of the present time. As the basic objective of education should be to meet the material and spiritual demands of the people, we should renovate and reorganise the education system accordingly. He thought that the perception of the general people regarding education was to pass certain examinations and to earn some degrees like B.A., M.A. etc. However this did not necessarily equip the degree holder with adequate skills to tackle real life problems and cater to real life requirements. Thus, he added that we possess a perverse structural composition of an educated mass (with respect to effective demand) which consists of abundant unskilled educated or inadequately skilled personnel. The root cause of this distorted structure lied in ignoring the role of technical and vocational training.

According to Mr. Nahid Bangladesh needed a change in the social psychology where

technical education is concerned. He argued that a common perception among general people was that the dignity of technical education is lower than that of the university education. However, the changing world demanded a change in this perception. Mr. Nahid also expressed the need for diffusion of technical training amongst village population through gradual transformation of the agenda of one technical institute at every district to an agenda of one technical institute at each thana. He observed that in order to survive in the intensely competitive world, we need to prepare our new generation through adequate education and training of science and technology.

Relative Importance of Technicians and Professionals in the Growth Process

Professor A.K. Azad Chowdhury, Vice Chancellor, Dhaka University, dwelt upon the issue of relative importance of technical and professional persons. He thanked Mr. Rafiq for presenting an informative paper. However, according to him, the paper has drawn a parallel line between a professional and a technical person. He thought that the concern should be the development and progress of the country and the country's preparation to stand up to the challenges of the twenty-first century. The main issue was not whether we should use more professionals or more mid level technical personnel. He, however, noted that he did not deny the need for increasing the budgetary allocation for the so-called (according to him) mid level technical education in Bangladesh. He argued that although South Korea was doing well in 1980's, currently her performance was somewhat lagging behind because their innovation and technological development failed to keep pace with Japan, USA and Europe. Our problem, according to Professor Azad, is that we have a lot of budgetary allocation for primary, secondary and madrassa education, but not much for university and technical education. He thought that madrassa education should be more technical. He argued that Dhaka University was providing technical education in the sense that business administration, computer science, biotechnology etc. are technical subjects. He did not think that there was significant level of correlation between technical education and growth. According to him the main problem was innovation and deployment in the market that could generate the skilled manpower. Innovation could only be done by professionals. He stressed that for development we should train up people in the areas of biotechnology, environmental technology, genetic engineering, microchip technology, computer technology etc. Syllabus of Polytechnic institutes needed to be revised taking cognisance of the current demand. He proposed that the term polytechnic should be changed to colleges or universities. He urged for a whole new package of development. He also added that we should not alienate professionals from technicians. Professionals should have innovative capacity and the mid-level technicians could help them in a meaningful way in order to generate growth.

Dr. A.A. Sharafuddin pointed out that we have to find out the type of technical manpower that we would need in the future. Biotechnology is a very prospective area for development. Both professionals and a large number of technicians would be required in this sector. Technical institutes should take this into consideration.

Computer Technology and Technical Education

In the course of the discussion many participants gave top priority to the need for the expansion of computer technology. Dr. Atiur pointed out that in this regard, our young generation is sending messages by trying to learn the computer technology, without proper assistance from the government, whereas the policy makers are lending this extremely-eager-to-learn generation a deaf ear. He also added that our new generation is keen to enter in the data entry industries. They were not preparing the base to accept the technical challenge of the next century. However, the banks were not coming forward with loans; our policy makers were not providing the proper incentives to set up computer-based industries. He opined that when our youths go to the west, they become efficient in technical knowledge, and keep pace with the western development, it was only ironic to see that we were not using our people in our development. There was no training, no loan, and no budgetary allocation for such enthusiastic youth, he added.

Pointing out the large number of computer training centres in the cities, Mr. Jamil Chowdhury noted that most of the computer trainees of our country were actually typesetters. They only know how to type. Training on software programming in these centres was almost non-existent. The good computer training institutes of the country were by and large inaccessible to the majority of people partly because their very expensive charges, and partly because enrolment in these institutions require at the least a graduation degree. He suggested that in order to earn foreign exchange through export of computer technology related services, as was the case with India, we needed to explore the international market of data entry and software programming. This in turns implied that Bangladesh should put emphasis on software programming. He drew attention of the minister that customs duty on imports of computers should be removed.

The Issue of Quality of Technical Education in Bangladesh

Dr. Nazrul Islam pointed out that many people enquired about the quality of our technical personnel. A committee under Ministry of Education was currently working on the issue of finding ways and means of improving the quality of this group of workers. One of the things the committee found out was that our teachers and students were not exposed to the real problems of either the society or the industries. There was a need for research cells in the institutes and close interaction between academic institutions and industries should be given top priority.

Dr. Atiur Rahman drew attention to that part of Mr. Rafiq's paper where the author observed that technical and vocational education training remained under-funded in Bangladesh. Whilst about 2 percent of the total revenue budget for education was allocated to this sector, the contribution of development budget for education to this particular sub-sector plummeted to 1.3 percent in 1993-94 from 14.5 percent in 1988-89. He was surprised as to why such a decline in the budgetary allocation to this sector did take place instead of a rise in allocation, which was

actually required. He agreed with Mr. Rafiq that the policy makers should give a fresh look at the technical and vocational education sector.

Dr. Sharafuddin observed that the keynote speaker has pointed out the deterioration in the quality of technical education, but did not analyse the reasons behind such deterioration. Neither did the author mention the steps required to improve the quality in this sector. He also noted that compared to other sectors, the proportion of females in technical education was relatively low. In formulating strategic decisions this point also merited attention.

Dr. Kazi Azhar Ali noted that Diploma Engineers Association has long since been demanding that adequate steps be taken to prepare larger number of technical people in Bangladesh. He observed that there are no apprenticeship facilities in the technical institutions of the country. For take off to sustained development Bangladesh needed technical manpower. He drew attention of all the participants to the fact that the community schools were set up in early 1980s as an extension to the prevailing schools for the purpose of giving technical education to the rural people. However, that project failed.

Jamil Chowdhury urged the participants not only to think about expanding the base of vocational education, but also to address the issue of the quality of what the polytechnic graduates are learning from these institutions. He suggested that the standard of the current vocational education and training should be regularly updated in order to make our students more equipped to catch up with the developed nations. Proper monitoring to ensure the quality of education should be given top priority.

Mr. Chowdhury also drew attention of the participants to an important phenomenon existing in the education system by observing that many students in our country viewed the adoption of unfair means in examination as a right; teachers were often harassed by students if they went for actions against them. He thought that since the practice of unfair means, especially in case of vocational and technical education, was fraught with great danger for the future of the country, we need to mobilise social opinion against such malpractice.

Mr. Rashed Khan Menon expressed his personal experience about attending a school committee meeting where he found that the school had neither any science teacher nor any science student. He urged that to ensure economic progress we needed to create a science-mentality in our society like the one which was very much present in India. Mr. Menon also supported the idea of uniform school education as proposed by the planning minister and urged that the National Education Committee should deal with this issue.

Policy Recommendations for Technical Education

A consensus emerged in the course of the discussion as to the need for quality technical education in Bangladesh. The participants made a number of recommendations.

Expansion of the number of technical institutes

Dr. Nazrul Islam agreed with Professor Sobhan's suggestion of establishing technical institutions in every upazilla to meet the increasing demand for mid level technical personnel. He emphasised that there was a need for many more polytechnic institutes in Bangladesh than were actually there in the country. In the mean time more shifts in the existing institutions could be started so that several batches of students could study together. This would mean recruitment of more teachers in the existing polytechnic institutes. Dr. Nazrul also recommended that some of the polytechnic institutes be converted into BITs. This would enable Bangladesh to produce higher numbers of qualified technical people. Bangladesh should depend on her own experts rather than foreign ones. Mr. Mahfuz Anam and Dr. Quazi Azhar Ali also supported the view of establishing more technical institutes in Bangladesh.

Professor Aminul Islam pointed out that there were only 20 vocational training institutions in the country, and if one vocational training institute was established at each district as was suggested by the discussants the total number of such institutes would rise to 64. Even this number was inadequate compared to the existing need of the country. Professor Islam, however, mentioned that the Open University was seriously thinking of introducing non-formal technical education as an addendum to its SSC programme with the aim of building an efficient manpower in the country.

Mr. Nahid also thought that the existing number of poly-technical institutes (about 20) was highly inadequate considering the population size of Bangladesh, and this was a reflection of our negligence to this sector. This in turn has contributed to the persistence of poor conditions in Technical and Vocational Institutes.

Dr. Nazrul Islam expressed a high degree of optimism about rapid expansion of technical education in the coming future on the basis of measures which were promised to be undertaken by the Prime Minister and the Education minister. He also mentioned about the need for a balanced development of the Eastern and Western Zones of the country which had also been suggested by the prime minister.

Financial support to technical education sector

Dr. Atiur Rahman proposed that Bangladesh should make provision for new budgetary allocation for the development and expansion of technical education and thought that the budget should respect people's aspiration and needs. Dr. Sharafuddin, Professor Aminul Islam and Dr. Ali Azgar were unanimous in that in spite of the strong pull from the demand side of the labour market, there had been a decline in the development expenditure on technical education, from 14 percent to 1 percent of developmental allocation for the education sector; the revenue

expenditure was also stagnated. This was really frustrating. This argued that the allocation should at least be raised to their previous level.

Public and Private sector co-operation in expanding technical education

Dr. Nazrul Islam invited private sector entrepreneurs to come forward not only in terms of giving employment opportunities to technical people, but also in terms of contributing towards the upgradation of the standard of technical education in Bangladesh. This would eventually help them reduce their production costs. The private sector could also consider financing some technical institutes to create enough number of engineers.

According to Mr. Mahfuz Anam, for expansion of technical education, as well as for human resource development, it was the government which should play the central role. He was of the opinion that it did not necessarily mean that the government should finance everything, or that only the government should invest. But government should play the central role in organising, monitoring and giving policy direction. He expected dynamism from the new government so that it would take into consideration the importance of technical education for the present and the future generations.

Professor Aminul Islam pointed out that there was a need for proper planning for providing technical education to the large number of dropouts from the education system. At the same time Bangladesh should also privatise specific areas of technical education.

Dr. Ali Azgar of BUET did not agree that the NGOs should be play the dominant role in providing technical education in Bangladesh. He argued that in the developed countries education was not provided through the invisible hand of the free market economy; rather education was provided through an active involvement of the visible hand of the state. He recalled that even as early as in 1990 a British MP had proposed spending tax revenue imposed on wine for the purpose of development of technical education. As a consequence, by the year 1900 it could be possible to establish 25 polytechnic institutes and 100 science schools at the expense of 9 lakh pounds (earned through tax revenue on wine). Thus emerged the institutionalised poly-technic education systems. He noted that before the 20th century there was no science education as such in the universities. However, in 1962 University Grants Commission transformed these science schools into universities. In this way, expansion of technical education was stimulated through an active government policy. Thus, he argued, it would be wrong if poor countries like Bangladesh view NGOs as a panacea to existing flaws and as the main vehicle of correcting poor performance of the education sector in Bangladesh. It would be wrong for the GOB to rely on the NGOs and relinquish all her responsibilities. Dr. Azgar argued that if the government was incapable of taking the responsibility for expansion of education, NGOs should in that case also take over all the functions of the government.

Dr. Azgar noted that there was a lack of foresight in both government planning and NGO

activities. Government plans cover only a five-year period; plans and activity of the NGOs also lack long term vision. The government should think about the future of the country, and not limit its concern to the tenure in the office. There should be a long-term planning and adequate investment for the education sector.

Raising the quality of technical education

Mr. Shabbir Ahmed raised the issue of political determination in maintaining and improving the quality of polytechnic education. In India, he said, that the central government was continuously monitoring the standard of polytechnic education in recognition of the fact that the polytechnic graduates were closely attached with the development activities of the country. He thought that the government of Bangladesh should take due cognisance of the role the polytechnic graduates and their contribution to the economy and should take appropriate measures accordingly to upgrade the quality of polytechnic training.

Professor Ajoy Roy also recommended monitoring of the quality of technical education provided by the polytechnic institutes and drew attention to the fact that the employers often complain about the low quality of technical graduates from these institutes.

Dr. Shahjahan Tapan observed that the Open University could play a very important role for the development of technical training in the country. It could provide a standard curriculum and a standard evaluation system. The training centres could train the trainees by following the curriculum, of the Open University. At the end of their course the trainees would sit for Open University conducted examinations and will earn the Open University degree. In this way, he thought that the standard of technical training which was now considered to be sub-standard, could not only be improved but also be made uniform.

Other recommendations

Dr. Nazrul Islam proposed that boys and girls should get equal opportunity in training institutions. The country should have educational institutions where along with general education, vocational training would also be given a priority. If such institutions could be developed all over Bangladesh, the country would be able to produce enough manpower with vocational education. Following this training, the interested students would enter into polytechnic institutions.

Dr. Al-Muti Sharafuddin noted that our technical education system should be concerned about the needs of the society and it should follow a syllabus which can fulfil these needs. He noted that our planning ministry and research institutes should undertake an investigation to estimate the number of different categories of technical people required for the economy.

Dr. Ali Asgar mentioned about the controversy regarding the nature and scope of the

polytechnic education; should it be limited to the subjects of mechanical and electrical engineering and metallurgy or should it be broadened through incorporating biotechnology? He pointed out that the author of the keynote paper did not recommend inclusion of biotechnology as subject matter of polytechnic education. He thought that Polytechnic education should be defined from a broader perspective and in line with modern demands. This would call for incorporation of biotechnology within the scope of technical education.

He further pointed out that negligence towards polytechnic education, decline in mid-level technical personnel or the increase in poverty, were not the main causes of concern, rather were the symptoms of the disease. He said that we became poor and that's why all these symptoms appeared. Such poverty was not limited only to economic poverty but also bracketed the poverty of quality education as well as poverty of our mind-set, our lack of foresightedness and adequate planning. He thought that a proof of our narrowness regarding the planning for education was that we viewed education and judge its contribution only from the production angle. But education being a finer element of human existence could be seen as consumption as well. He was of the opinion that while viewing the benefits of education, one needed to take into cognisance of its consumption aspect also. *Technology Culture* was absent from our mindset of the government. He urged that abrupt closure of Equipment Board, government failure of running Bangladesh Machine Tools Factory, shut down of BADC, high customs duties on equipment and lack of equipment for technical and scientific researchers - all these were a pointer to the non-existence of *technology culture* in Bangladesh.

Professor Ajoy Roy pointed out that the trained people passing out from polytechnic institutes should be in the process of continuous education and learning. If such process of retraining was absent then knowledge could become antiquated given the very short life cycle of modern technology. He proposed that the government should establish appropriate institutes to carry out a process of continuous learning.

Mr. Rashed Khan Menon emphasised that the forthcoming **National Education Policy** should give top priority to the issue of polytechnic as well as science education in the secondary level of the education system of the country.

The Speech and Comments of the Chief Guest Dr. Mohiuddin Khan Alamgir, State Minister for Planning, Government of Bangladesh

Dr. Mohiuddin Khan Alamgir was of the opinion that education was a social responsibility which the government could not pass over either to the private sector or the NGOs. Education, in whatever level it may be (primary, secondary, tertiary or vocational), should be a major concern of the government and the government should ensure the upgradation of knowledge and science from one level to another. The minister assured that the present government was fully concerned about its responsibility in this area and had no intention to avoid such responsibility. The past

governments did not carry out their fundamental responsibility in the area of *education-expansion* which has been reflected by the decline in budget allocation for the education sector over the last decade. There should be appropriate planning and adequate incentives for creating a conducive environment for development of skilled manpower and enhancement of skills. Society needed to achieve this target in order to ensure take-off to sustained development.

Dr. Alamgir noted that the author directed our attention to the major shortcomings in the education strategies followed in the past. Whilst at the primary level equitable distribution of the opportunity for education remained unachievable, and both the quality and quantity of technical education at the mid-level declined, madrassa education was overemphasised. Dr. Alamgir ascribed such education-strategy, pursued over the last two decades, as a means to aggrandise political ascendancy rather than as an instrument for achieving the goals of national development. Similarly, in villages with poor primary education facilities, the past governments renovated the school-buildings but did pay due attention to the quality and quantity of education, ignoring the fact that expansion of primary education was very much possible through an expansion of simple tools of instruction such as blackboards, slates and chalks and without lumpy investments in buildings. The experience of Kerala would testify to this. In case of secondary education, past governments raised the salary of teachers of non-government schools. Although such salary-hike imposed burdens on the students in the form of increased tuition-fees. Past governments were silent over this issue. He reiterated that the present government had no intention to use education for political interests. The government was going to implement the Fifth Five-Year Plan from July 1, 1997. The country did not have any plan in the recent past; only *ad hoc* decisions were taken during the past two-three years. In order to gain political support in local areas, political leaders often took populist decisions like unplanned, uncoordinated establishment of primary and high schools, girls colleges, government colleges etc. without taking into cognisance of their real utility to the society. Under the current government there would be a departure from such practice.

Government Plan in the Education Sector

Primary Education

Primary education should get utmost importance not only in terms of building a strong base for secondary, technical and higher education, but also in terms of creating a social framework that would ensure social justice. Any attempt at improving education sector without putting due emphasis on primary education would lead to sustained inequality. Every child should have access to primary education in order to have an enlightened future. Having this in mind, the government was going to establish 19,500 primary schools within the next five years. These schools would help to cover all the children of Bangladesh, within the age group of 6 to 11 years, under the umbrella of formal primary education. At present, there are 46,000 government primary schools and 6,000 non-government primary schools in the country. The minister also emphasised that as per "constitutional legislation" there should not be any difference in the method and system of primary education. The legislation has been violated through diversified

primary education in government schools vis-à-vis Madrassas. He urged for a consensus regarding the issue of a uniform primary education policy for the whole country. It was also emphasised by the minister that the government had no intention to deceive the public in the name of informal or mass education instead of offering them genuine formal primary education.

Secondary Education

The government was planning to bring 70 percent to 75 percent of the students of relevant age group within the net of secondary education. The prime concern of the government was to update the syllabus in the secondary level, as the country was lagging behind by 25 to 30 years from the developed world in the area of standardised secondary education. Upgrading the syllabus and uplifting the standard of secondary education was not an impossible task and Bangladesh could gain from the world experience in this area.

Vocational and Technical Training in the Secondary Level

Dr. Alamgir reiterated GOB's commitment to transform Bangladesh from a society of prejudice and apparition of darkness, to a society imbued with the values of science and technology. From this perception the government supported the proposal of one technical training institute in every district (as was proposed by the writer of the keynote speaker and supported by other distinguished discussants). Such a proposal had also been included in the draft Fifth Five-Year Plan. Ignoring science and technology at the secondary level Bangladesh could in no way improve the productivity in agriculture, industry and service sector.

Higher Education

In order to keep up with the latest development in the various fields of knowledge Bangladesh needed to send meritorious students abroad after their successful completion of university education. For an endogenously generated national progress in the fields of science, technology and knowledge Bangladesh needed to capture the leading-edge developments in these areas. The country could not advance rapidly only through mere imitation and import of science and technology from abroad.

The minister said that the university education should be selective and should be limited to only the meritorious students. To make the current university system more effective the cost of education needed to be increased. However, such an increase in no way implied those poor but meritorious students should not have access to the universities. There should be appropriate mechanism for their admission as well.

The Minister informed that the government was actively thinking of renovating such specialised institutes like Institute of Glass and Ceramics and Institute of Textile. In order to remain competitive in the global RMG/Apparels markets, renovation and modernisation of the Institute of Textile was an urgent necessity. The government was also planning to establish such institutes as Institute of Bio-Technology (for sustaining green revolution) and Institute of Food-

Technology.

The Minister also informed the dialogue participants that increasing the numbers of doctors and nurses for achieving the goal of *Health for All* has been an issue of serious concern for the government. There was at present a serious mismatch between the number of doctors and nurses in the country - the respective numbers were 25,000 and 18,000. The situation was perhaps unique in the world, he observed.

The minister welcomed the suggestions and guidance from specialists and experts and was of the opinion that they could effectively contribute towards enhancing the national base of science, technology and knowledge. Once the technology base was set up, it would automatically contribute to the increase in self-employment activities. However, the government would need to ensure provisions for appropriate credit facility for this purpose. In this connection, DFIs and the banking sector would need to be reorganised and renovated.

The minister then expressed his personal view as well as the view of the present government apropos of some important issues raised in the course of the dialogue.

On the issue of zero tariff duty on computer import, the minister said that in order to disseminate the computer technology all over the country import of hardware should be made duty-free. However, there should be duty on some selective software which could be developed locally in order to encourage and boost up the potential domestic software programmers. In the case of laboratory equipment, all the equipment except those which are locally manufactured should be under the category of duty-free in order to facilitate research and development activities in the country.

The Minister also informed that the government was going to establish some science and technology universities in the northern part of the country as well as in some backward areas. The government was fully conscious about ensuring equal opportunity to all the areas of primary and secondary education and technical training. At present, areas like Chittagong Hill-Tracts, Mymensingh, Dinajpur etc. were lagging behind in the field of education.

The minister also raised the issue of optimum utilisation of educational institutions. He supported introduction of several shifts in order to make these social investments in education cost effective. He also urged that we needed to change our current attitude about holidays which were to be enjoyed by educational institutions.

The Minister stressed that the present government was interested in transforming organisations like BADC and BMTF into *Technology Diffusion Centres* rather than closing those down.

Mr. Rashed Khan Menon raised the issue of transferring BMTF to the army at the price of one taka. In his reply to this question the Minister informed the participants that the government wanted to privatise the factory, but there was no response from the private entrepreneurs. Thus, the government was contemplating to hand-over the factory to the army so that the factory could provide training support and facilities to the army personnel in concerned areas.

Responding to Mr. Nahid's comment, regarding diffusion of technical education the minister informed that those non-government schools, which intended to function as colleges, would be given necessary permission only when these institutions were capable of providing science education in the higher secondary level. He further informed the participants that the planning commission was thinking of making a proposition that all new schools in the secondary level should be adequately equipped to provide science education. However, the minister mentioned about some of the limitations in this context such as lack of required number of adequately trained science teachers, and sub-standard syllabus.

While concluding the session, Professor Rehman Sobhan remarked that the dialogue was highly educational and fruitful. Professor Sobhan hoped that the dialogue would help bring the issue of technical and vocational education into the centre stage of education policy debate from the remote backyard where it had so far been exiled. He expressed his optimism that if Bangladesh could keep her focus on technical education, she would be able to build up a cadre of highly trained skilled mid-level technicians. They will receive training through an effective system of technical and vocational training. Such a cadre could play a crucial role in the future development of the Bangladesh economy.

List of Participants

Dr. M.K. Alamgir	State Minister for Planning, Govt. of Bangladesh
Dr. Abdullah Al-Muti Sharafuddin	Former Director, Gonoshakkharata Abijhan
Professor A.K. Azad Chowdhury	Vice Chancellor, Dhaka University
Professor M. Aminul Islam	Vice Chancellor, Bangladesh Open University
Dr. Nazrul Islam	Former Chairman, BIT
Professor Ajoy Roy	Professor, Department of Physics, Dhaka University
Mr. Quazi Azhar Ali	Former Secretary, Ministry of Education
Mr. Rashed Khan Menon	General Secretary, Workers' Party
Dr. Shahjahan Tapan	Professor, Institute of Education and Research, Dhaka University
Dr. Atiur Rahman	Senior Research Fellow, BIDS
Mr. A.K.M.A. Hamid	General Secretary, Diploma Engineers' Association, Bangladesh
Mr. Md. Fazlur Rahman	Secretary-in-Charge, Ministry of Science and Technology
Dr. Ali Asgar	Professor of Physics, BUET
Mr. Mahfuz Anam	Editor, The Daily Star
Mr. R. Mollik	
Mr. A.I. Sirajee	
Mr. Kazi Ezabul Khalid	
Mr. Nurul Islam Nahid	Member of Parliament, Awami League
Mr. Rafiqul Islam Bhuiyan	President, Institute of Diploma Engineers
Mr. Abdur Rafique	Director General, Technical Education
Mr. Saiful Haq	Director (Admn.), DTE
Professor Rehman Sobhan	Executive Chairman, CPD