

The role of education for rural population transformation in Bangladesh

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Rural population transformation in the developing countries like Bangladesh is one of the contemporary issues in development paradigm. Firstly this article attempts to describe the current status of the education system including vocational education in Bangladesh and then looks how these education systems are failing to meet the needs of the Bangladesh economic development needs. Finally, it will focus on how education and vocational education might help bring about transformation of the economy in a way that will help the nation to complete globally and how it might transform the economy from one that substantially rural and agricultural in base towards a knowledge skills-based economy. (Asia-Pacific Journal of Cooperative Education, 2007, 8(2), 1-21).

Keywords: Vocational education and training; rural; economic development; Bangladesh.

As a newly independent (1971) country Bangladesh is struggling with huge population, low per capita income, mass poverty, unemployment and underemployment, illiteracy, child labor, malnutrition, corruption, and related social problems. The economy of the country is poor and based on the rural agricultural sector, but natural disasters - mainly floods, affects the economy annually which delays economic progress. Rural-urban disparity in terms of per capita income, consumption, education, health facilities, and physical infrastructure is an important developmental issue in Bangladesh. The Government of Bangladesh and a significant number of non-government organizations (NGOs) are working to improve the socioeconomic conditions of rural poor by means of rural population transformation through a variety of programs. This paper describes the status of general and vocational education systems in Bangladesh, and drawing on some basic statistics investigates how this education system is failing to meet Bangladesh economic development needs. Some ways which might help bring about transformation of the economy and help the nation complete globally as well as transform the economy from one that is rural and agricultural in nature towards a knowledge skills-based economy are presented.

TOWARDS EDUCATION AND ECONOMIC TRANSFORMATION IN BANGLADESH

The main purpose of this paper is to explore how education might help bring about transformation of the rural population in Bangladesh in terms of its principal socioeconomic indicators. It identifies how and where this population transformation can occur. The arguments presented in this paper are based on secondary data sources derived from published and unpublished documents, research material, reports, and professional papers presented in seminars. Some relevant general information also has been drawn from international documents that highlight the issues under consideration. The sources of the

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secondary information are: materials from government ministries and departments, UN agencies such as UNDP, UNESCO and UNICEF, Bangladeshi NGOs and international non-government organizations (INGOs), and research institutes of universities and other autonomous bodies. Material from these sources are mostly quantitative in nature and are used here to describe the country situation and patterns of rural population transformation taking place along with factors related to this transformation including the limits and things obstructing the process of transformation.

A second means used to support the arguments presented here is the use of qualitative data, in the nature of observations, analytic views and insights, used as guidelines for consultation and discussion with persons considered key informants - or knowledgeable persons - for the issues relevant to the paper. Persons responsible for collecting material described above were the principal author of the paper, and three associates/assistants - all well trained and experienced in research process including collection of data using structured and unstructured methods of investigation/interviewing, consultation/discussion, and considering secondary materials.

THE CURRENT STATUS OF THE EDUCATION SYSTEM IN BANGLADESH

General Education

Formal education in Bangladesh is provided in four stages: pre-primary or early childhood education; primary (grade I-V), secondary education (grade VI –XII of which first three grades are considered junior or lower secondary, grade IX-X as secondary, and grade XI-XII as higher secondary); and tertiary education which includes two-year bachelor's courses, along with three and four-year bachelor's honors courses and one-year master's degree courses. The basic structure of these education systems are shown in the following figures and tables. A parallel system of formal religious education exists for Muslim students, and this is known as Madrasah education. For Madrasah education, Ebtedayee, Dakhil, Alim, Fazil and Kamil are the equivalent to primary, secondary, higher secondary, bachelor's and master's respectively. In recent years Madrasah education has gone through some modernization and to make the system more closely equivalent to the Bangladesh general education system. Nearly 3 million students are currently enrolled in Madrasah education.

Following education for all (EFA), the government of Bangladesh made primary education compulsory for all children between the ages of six and 10. This had a major impact on the system, and the gross enrollment rate increased since from 75% to 95% by 1996 (Sedere, 1996). Bangladesh has 18 million children in 62,000 primary schools; one of the largest primary systems in the world. Over 65% of primary schools are government schools; the rest being registered non-governmental schools - assisted by the government. The government of Bangladesh distributes free books and education kits to students in all primary schools. There also are some private schools - much fewer, in number - that cater to the social elite. Many secondary schools also have primary school sections. Primary education level is from years 1 to 5, and the primary curriculum is competency-based and was developed by the National Curriculum and Textbook Board (NCTB). The Directorate of Primary Education (DPE) implements the curriculum and manages the primary education system. There is no nationwide examination at the end of the fifth year. However, government education boards conduct a scholarship examination at the end of year 5.

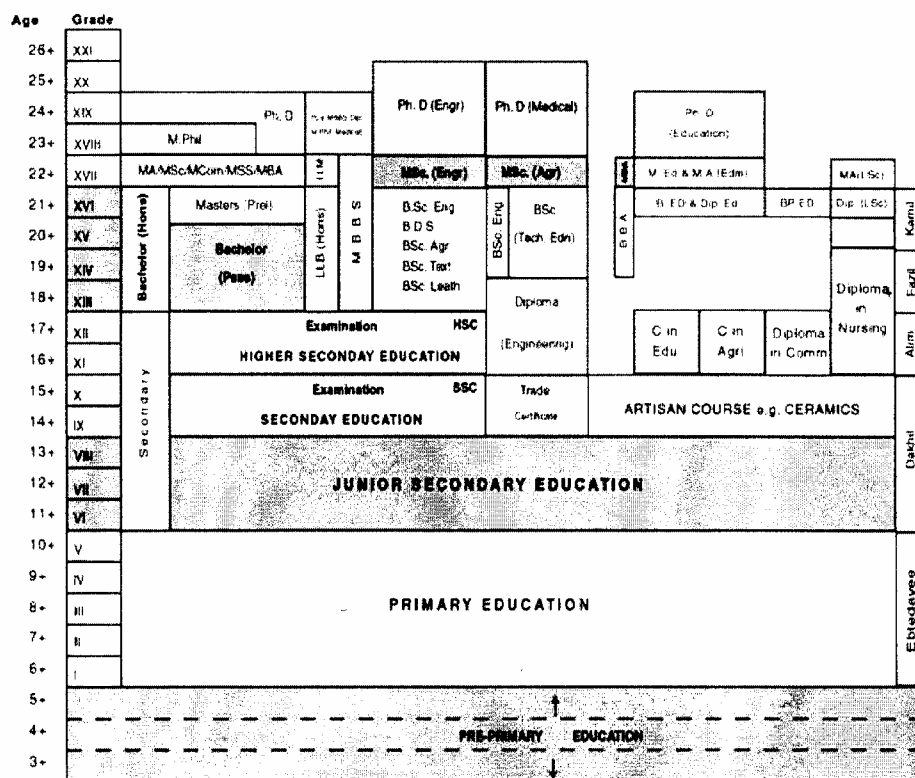


FIGURE 1

The present Bangladesh educational structure - excluding Madrasah education

Formal education at the secondary level in Bangladesh is provided in three forms: general, technical, and Madrasah education. General education starts from grade VI after completion of the primary cycle, and continues up to grade XII. This seven year cycle is sub-divided into three stages: junior secondary grade VI-VIII; secondary grade IX-X; and at the end of grade X a national public examination called Secondary School Certificate Examination (SSC) is held. In the case of the higher secondary grade XI-XII (known as HSC), another national public examination called higher secondary certificate examination is held at the end of grade XII. Madrasah education runs programs parallel to general education. So for Madrasah education the Dakhil level is equivalent grades VI-X of general education curriculum. At the end of grade X, a public examination (the Dakhil Examination) equivalent to SSC is held. After Dakhil is Alim - a two-year course, at the end of which another public examination (the Alim examination) considered equivalent to HSC is held. Completion of at least grade VIII or equivalent is the minimum requirement to enter into certificate programs in technical-vocational education and training -the lowest stage of Technical-Vocational Education and Training (TVET).

There also are some non-formal secondary level programs offered in the non-formal education and training sector of. For example, the Underprivileged Children's Education Program (UCEP) is one NGO providing non-formal secondary education along with

technical/vocational training in urban locations. In most recent years the Dhaka Ahsania Mission (DAM) also launched secondary and post-secondary level programs containing both technical-vocational training and general education. Target groups for these programs are the urban poor.

Tertiary education covers college and university education, and professional education in a variety of fields. Following 12 years of formal education, students can undertake two to five years of college education for a bachelor's or bachelor's honors degree depending on disciplines. Courses for such degrees include the humanities, science, business, engineering and medicine. University education similarly includes both bachelor's honors degrees, along with master's and doctoral degrees. Some universities also the MPhil which leads to the PhD degree. In addition to the normal universities, non-campus distance education programs are offered by the Bangladesh Open University (BOU) - especially in the field of teacher education. There also is a National University which works as an affiliating university to supervise college level education.

Some professional institutions provide opportunities for students to gain professional skills; these include teachers training colleges, the National Training and Research Academy for Multilingual Shorthand (NTRAMS), the Chartered Accounts Institute of Professional Management, Institute of Bankers, Institute of Personal Management, Bangladesh Institute of Management, and so on. College level education resulting in diplomas, professional certificates, bachelor's and master's degrees in a variety of fields - agriculture, engineering, medicine, nursing, dentistry and law - is treated as professional education. Such institutions for professional education are typically located in cities.

Non-formal education is targeted at parts of the population who, for a variety of reasons, failed to gain access to or dropped out of formal education. Generally this sector consist of disadvantaged persons; economically, socially, culturally and physically. The broad objective of non-formal education is to provide basic education - sometimes equivalent to primary education. But depending on age group, gender dimension and a variety of socioeconomic factors, elements like life skill training or functional literacy, awareness building, credit program and so on, are incorporated or emphasized.

Technical Vocational Education and Training (TVET)

Currently technical and vocational education and training is provided in the country in the following form:

1. Two-year Certificate courses are offered at technical training centers, and vocational training institutes under the auspices of government ministries. Additionally, there are private a number of commercial institutes that provide TVET. Some NGOs also offer vocational training – but on a very limited scale and at the lower levels
2. Diploma level in polytechnic/monotechnic institutes under the government offer four-year training (earlier it was 3 year) to prepare mid-level technicians in engineering or technology, following 10 years of formal education. Agriculture institutes offer diplomas in agriculture, textile institutes offer diplomas in textile technologies
3. Bachelor's degrees are offered at textile institutes and leather institute, and the Bangladesh Institute of Technology over a four-year period following 12 years of formal education

TABLE 1
Stages of formal education, population size, and enrolment in Bangladesh

Stage	Grades	Age group	Population	Approximate Enrolment (%)	Institutes
Pre-primary	Nursery KG, etc.	3-5	15,502,000	Not reported; Tends to zero in rural areas	Kindergarten schools, nurseries mostly in urban areas
Primary	I-V	6-10	18,680,000	90-95	Government primary school, Rural non-government primary school, Ebtedayee Madrasah, Community Schools, etc.
Secondary	VI-XII	11-15	15,455,000	48	Govt. and Non-govt. high schools
Bachelor & master's	XIII -XVI	16-21	21,297,000	3	Govt. and Non-govt. colleges, universities and specialized institutes

TABLE 2
Participation in general, technical and religious education in Bangladesh (Bangladesh Bureau of Information and Statistics [BANBEIS], 1999)

Type	Institutions	Teachers	Students	Teacher/student
Primary education	78,126	32,0694	17,659,220	1:55
Secondary education	16,166	18,3277	7,887,010	1:43
College education	2,511	64,720	1,534,833	1:24
Madrasah education	7,651	109,993	3,299,107	1:30
University education	39	6,537	116,079	1:18
Total - General education	104,503	685,603	30,499,103	1:44
Technical-vocational education	1,422	7,909	137,006	1:17
Professional education	191	3,760	62,341	1:17
Teacher education	129	2,311	25,633	1:11

4. The Bangladesh University of Engineering and Technology and a number of newly established universities and other private sector engineering and technological universities offer a four-year courses following 12 years of formal education. Agriculture universities offer professional education for the agriculture sector
5. Specialized institutes offer teacher training and professional education in medicine dentistry, nursing and law; and
6. The Ministry of Agriculture, Youth, Women Affairs offers short courses for skills development.

GAPS BETWEEN EDUCATION SYSTEMS TO MEET THE NEEDS OF BANGLADESH ECONOMIC DEVELOPMENT

In the recent past Bangladesh has achieved considerable progress in terms of primary education enrolment. But further analysis suggests that progress is lacking in terms of quality and in effecting the desired transformation. High teacher-students ratios (up to 1:70), a lack of physical infrastructure and facilities (often resulting in overcrowded classrooms that adversely affect scholastic achievements), poor quality teaching and inadequate monitoring and assessment of student learning, results in poor performance in terms of improving students life situation (Mia et al. 2003).

Among the problems, the following overlapping issues are identified as most notable:

1. Both formal and non-formal TVET is devoid of a meaningful linkage with employers and the job market. According to employers, training does not produce students with the skills they require. Rigid and centralized training system restricts responsiveness to practical demands
2. The quality of training is poor, as the instructors lack training experience, initiative and motivation to fulfill their responsibilities
3. Lack of diversification in training clientele limits the possible exploitation of the full range of supplies of TVET graduates. TVET addressed to in-school youth in grades 9-10 as part of SSC vocational is biased in favor of males. Underprivileged youth outside the school system – especially girls - do not have access to skills training which might raise their income level and to contribute to the economy. The impact of TVET on poverty reduction is desired, but conditions are not properly created to make it effective
4. The non-governmental sector has demonstrated, albeit on a very small scale, the capability to develop local demand-led training customized to the potential of the trainees, in contrast to weak performance by government financed and managed institutions. But the need for governmental support for key functions like development of appropriate policy formulation, information and evaluation and standard setting is overlooked; and
5. TVET is expensive and students or the enterprises do not share the cost for public sector institutions. At the same time consumable supplies, other operating cost including regular maintenance cost of equipment are under-financed. These institutions do not fully utilize their actual capacities.

The overall size and growth of the TVET, educational and professional education is relatively small and sluggish in terms of meeting demand, although this is gradually expanding in both the public and private sectors. The limited number of institutes, both government and private, are mostly located in city or urban areas. NGOs usually do not have any non-formal network of vocational training in rural locations (e.g., UCEP operates only in four major cities). A few other NGOs providing some skill training are the Dhaka Ahsania Mission, Mirpur Agricultural Workshop and Training School, Center for Mass Education in Science

TABLE 3

Primary school enrolment for the six to ten year old portion of the population in Bangladesh (1996- 2001) (Primary & Mass Education Division, 2002)

Year	6-10 year population		Enrolment		Gross enrolment rate (%)	
	Boys	Girls	Boys	Girls	Boys	Girls
1996	9,506,775	8,998,926	9,219,358	8,361,058	97	93
1997	9,675,992	9,185,591	9,364,899	8,666,774	97	94
1998	9,760,550	9,319,338	9,576,942	8,783,700	98	94
1999	9,294,826	9,012,439	9,065,019	8,556,712	98	95
2000	9,351,062	8,945,250	9,032,698	8,635,287	97	97
2001	9,236,432	8,877,769	8,989,795	8,669,425	97	98

TABLE 4

Secondary education institutions and participation in Bangladesh as at 2001 (BANBEIS, 2002))

Formal education		Institutes	Students (million)
General education	Junior secondary	3,245	5.34
	Secondary	12,926	2.55
	Higher secondary	1,511	0.95
	Sub-total	17,682	8.84
Madrasah education	Junior secondary and secondary	5,391	1.59
	Higher secondary	2,260	0.14
	Sub-total	7,651	1.73
TVET	Secondary level	929	0.06
	Higher secondary	691	0.07
	Sub-total	1,620	0.13
Total formal secondary		26,953	10.70
Non-formal NGOs		Offering grade VI-VIII education + vocational training.	

and Bangladesh Rural Advancement Committee. However, the Ministry of Youth runs about 270 rural non-formal centers imparting trades skills to people under age 30 for self-employment. This however represents something of a 'drop in the ocean' when the rural population size and their training needs are considered. To illustrate, among the rural population aged 15 years and above in rural areas, only 0.04 per cent have diploma/vocational training. Genderwise almost all are males, and no female graduates are reported to have gained diploma/vocational training in rural areas. For the age group 15-29 years only 0.09 percent of HSC graduates (eligible) are currently enrolled in diploma/vocational courses, and again all are males (Bangladesh Bureau of Statistics [BBS], 2000).

Due to the gaps between and within education systems the current status of education prevailing in the country is quantitatively inadequate, and qualitatively incompetent to address the education and training needs of the nation population. Internal inefficiency and lack of responsiveness of the societal requirements especially when it comes to the 'world of work' therefore mean the education system has failed to benefit individuals who need to make a good living and to broaden their personalities with information and essential human qualities.

Vocational and skill training is now provided via the Bangladesh Technical Education Board. The Board introduced Secondary School Certificate (Vocational) from 1995. Currently a total of 996 secondary schools, and a smaller number of higher secondary schools, nationally are offering vocational training courses together with regular secondary and higher secondary subjects. Although the Board was established in 1961, progress has been slow and little achieved. The Board introduced HSC courses in Business Management, Diploma in Commerce and Forestry, Certificate Courses and a few computer-based trades recently; but the coverage is very limited. In view of future demand, particularly for IT-related professions, the training network needs urgent development and expansion. All possible measures including regulatory and financial support provision should be in place to enable faster development of the private sector which is in a position to supplement the government education sector.

Training needs of the rural population, despite the above new measures, remain mostly unmet primarily because of a lack of infrastructure and facilities in the rural areas. Statistics from the Household Income and Expenditure Survey (BBS, 2000) suggest that participation by rural households in technical and vocational education is very low and that the number of graduates from TVET is insignificant. Inadequacy is reflected in availability of facilities and access to these facilities, suggesting that rapid and extensive development of technical and vocational education is needed in view of future demand emanating from the country's socioeconomic development, globalization and integration with world market. The vast rural population, particularly the youth, must be brought under training and skill development to enhance their contribution to the national economy and to increase their livelihood capacity. In addition to expansion of the formal education network, the non-formal and informal education networks need expansion to cover the greater rural population, and to educate them for a changed national and international scenario. Potentially, Bangladesh could be a big source of supply of manpower for many overseas countries, which need technically trained people to serve their growing economies.

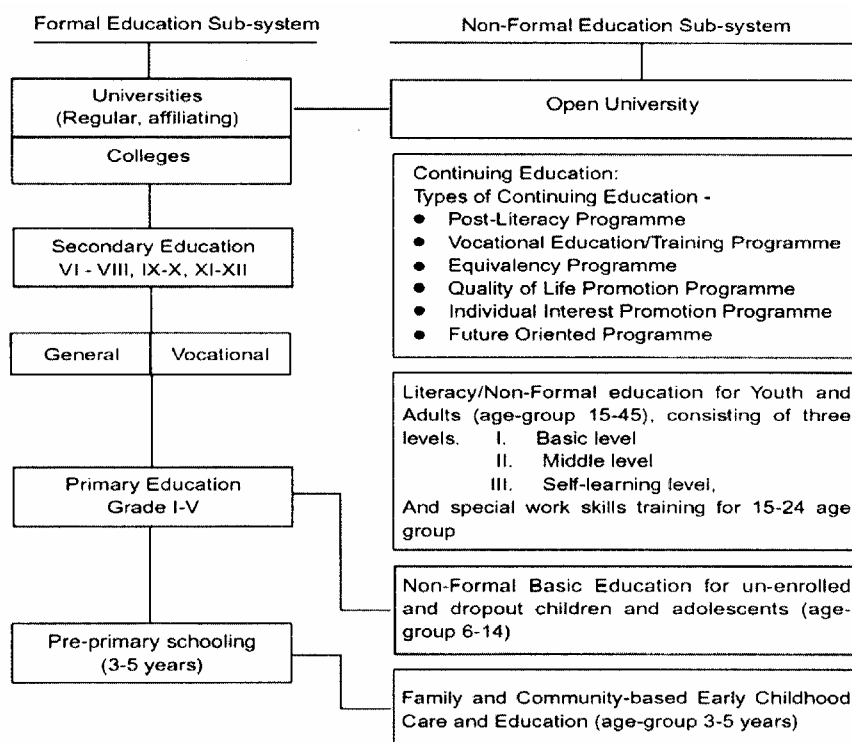


FIGURE 2

Formal and non-formal educational systems in Bangladesh (BANBEIS, 1999)

THE ROLE OF EDUCATION AND VOCATIONAL EDUCATION FOR RURAL POPULATION TRANSFORMATION IN BANGLADESH

Education for human resource development is understood to be a learning process of acquiring complete mastery of one's destiny through self confidence built on methodical training and exercise with emphasis on creativity. From such a point of view, developing human resources for successful rural transition essentially implies liberating the minds of human beings to seek the value of their existence with enhanced capability, and to be able to choose the best options for them. The inputs and processes in this regard would seek to maximize their potential and make best possible use of opportunities. It is a universally recognized reality that the quality of a country's human resource will determine its ability to compete in global market. Some Asian countries like Japan, Hong Kong and Singapore, despite limited land and natural resources, have amply demonstrated that the rate of economic growth and social progress can be increase by the population gain skills, enterprise and being industriousness. Supplementary and complementary supporting policies, along

TABLE 5
Growth of TVET Institutes, teachers and students in Bangladesh, 1980 – 2000 (BANBEIS, 2002)

Year	Institutions	Students	Teachers
1980	109	22156	1703
1985	137	26421	2303
1990	135	27060	2249
1995	137	36010	2592
2000	147	50142	2650

TABLE 6
Distribution of employed population (million) by agriculture and non-agriculture, rural areas of Bangladesh 1981 – 2000 (BBS, 2001)

Employment by sector	1981 Census (%)	1991 Census (%)	2000 Labor Force Survey (%)	Annual average growth 1981 – 2000
Agriculture	13.83 (71.0)	15.27 (66.0)	18.89 (62.0)	1.93
Non-agriculture	5.72 (29.0)	7.82 (34.0)	11.40 (38.0)	5.23
Total	19.55 (100.0)	23.09 (100.0)	30.29 (100.0)	2.89

TABLE 7

Selected economic indicators of rural population transformation in Bangladesh, 1978-2001 (BBS, 2002)

Indicators	Changes over years		
	1978-1979	1998-1999	2000-2001
Proportion of GDP (%)			
Crop	40.04	13.21	14.16
Agriculture, total (including forestry and fishing)	52.86	29.24	24.86
Percentage of household by sub-sector	1983-84	1996	Annual growth rate
Farm household	72.70	66.18	1.35
Non-farm household	27.30	33.82	3.98
Employment by broad economic sector (%)	Labor Force Survey 1990-1991	Labor Force Survey 1999-2000	
In agriculture	68.5	51.1	
In non-agriculture	31.5	48.9	
Shift in sources of income (%):	1991-92	1995-96	2000
Agriculture	40.1	35.4	25.5
Business and commerce	12.4	14.7	22.4
Professional services/wages/salary	21.1	27.7	27.7
Gift/remittance	10.6	9.6	11.0
Other	15.8	12.6	13.4
Total non-agriculture	59.9	64.6	74.5
Total	100.0	100.0	100.0

TABLE 8
Gross value added by sub-sectors of agriculture 1996-1999

Sub-sectors	Value added at 1984-1985 constant price			Annual growth (%) 1996-1997 to 1988-1999
	1996-1997	1997-1998	1998-1999	
Crop	158,066	160,277	168,453	3.28
Poultry & livestock	21,455	23,172	24,932	8.10
Fishery	21,607	23,495	25,464	8.92
Forestry	16,252	16,951	17,629	4.24
Total non-crop	59,314	63,618	68,025	7.34
Total	217,380	223,895	236,478	4.39

with appropriate education policies, also are necessary to ensure proper utilization of educated, trained human resources. This, in practice, underscores the importance of national-level planning for the development of quality human resources, which will be suitable for achieving a higher rate of the national economic growth and social development, and also facilitating achieving millennium development goals at par with economically developed nations.

Human resource development through education and training for rural transformation is particularly important for a country like Bangladesh where the natural resource base is very poor, the land-person ratio is extremely adverse, and the population is likely to continue to grow putting pressure on the economy well into the middle of the 21st century. The vast reservoir of human population is the only potential resource, and this needs to be utilized to its full to make viable and sustainable transition a reality. The concept of sustainable development considers, first, a pattern of economic growth, which definitely and mostly benefits the poor. It then emphasizes creating conditions in which people will continue to see the benefits of development, carry forward growth to the advantage of future generations, but not at the expense of erosion of their vitality and distortion of their surrounding, and thereby preventing reappearance of poverty. Education, training and skill development is thus a necessary condition for attaining such development.

The important premise underlying education, skill development and training as an approach to positive social transformation is:

1. Poor men and women in Bangladesh are not idle, nor are they incapable. For the sake of survival they apply enormous energy and creativity, strength and dynamism on a daily basis to solve their problems. In the face of many calamities they demonstrate a high degree of resilience. Education, training and skill development will enhance their ability to work better with much higher return
2. The desired quality of human resource is not currently achieved through the existing arrangement of education and training. It is resulting in minimal economic growth merely covering the rate of increase in the population with no significant decline in poverty. This situation in turn limits the domestic resources to be made available for investment in human resources development. Education and technical/vocational skills training which are considered to be the major aspects related to economic growth and poverty elimination, have so long been the sectors of under-investment, poor planning and implementation at national level
3. The overall question is how the human resources in rural areas should be re-shaped to lift technological and managerial innovation to a level, which will upgrade the production structure and result in higher stage of economic development. For transformation and sustained growth a country needs to move into higher technology-based production from low-wage labor intensive (traditional low value-added goods) production and has to expand the production base through diversification. This is both a challenge and a prospect given the present state of the labor force. As the skill requirements will be continuously changing, the workforce will need to be highly skilled and flexible enough to quickly adapt to new global and domestic requirements. In such a situation a redesigned general and technical-vocational educational package will have to be offered before the vast majority of population living in rural areas; and
4. The task of having the mass rural population out of poverty and putting them in control of their own lives is a complex, multidimensional and to some extent, formidable one. The vision of transition in this context is to enlarge people's choices in regard to developing their

capabilities and competencies, enabling them to put their capacity to productive and socially responsible use. Provision of appropriate education and training in this circumstance would work as a catalyst. History of development in some Asian countries (such as Japan, Hong Kong, Singapore), as already mentioned has proved this to be invariably true. Providing access to education for a large number of people, particularly basic education, skill and vocational training linked to productive utilization is a formidable challenge for Bangladesh when one considers impediments like financing, choice of right policies and planning, and successful implementation of any policy changes.

EDUCATION FOR FIGHTING POVERTY

The role of education as a major determinant of health is indisputable. The Bangladesh Health and Demographic Survey (BBS, 2000) shows morbidity in Bangladesh varies from 5 to 15 percent depending on level of education. For most of the diseases identified, people without education suffer most, and the higher the level of education, the lower the mortality. One might argue that level of education is itself directly related to income and wealth, which in turn influence mortality. Thus an argument may be that the impact of education is a spurious one. But if we keep income constant we find that relationship between education and health is positive. That is, the role of education, as an independent variable, seems to assert strong influence on health as reported by Grossman (1973) in the much cited and publicized 'Grossman Model'

In Bangladesh, in order to lower the maternal mortality rate (MMR), infant mortality rate (IMR) and to achieve the lowest possible total fertility rate (TFR), the role of education for girls' in particular is crucial. When girls are better educated, or go through a process of learning, their behavior changes dramatically with respect to health practices that bring substantial positive impact for family health. Options grow in favor of late marriage, fewer children, birth spacing – all fertility related behavior changes. Better care for mothers and children, informed choices and decisions, seeking right service at the right point – all which promote health and ultimately survival and life expectancy along with economic productivity for a better standard of living arise as a result of girls' education. Better health implies therefore more income that ensures people's elevation above poverty line.

Education helps to reduce poverty both directly and via better health. If Bangladesh's target is, at least, to halve the proportion of the population below the poverty level, education has to be placed in direct reference to health and to get people out of the so-called 'low-income, ill-health' trap. Development is then to be viewed as an integrated state of health, income and consumption; each of these shaped and influenced by education directly and in conjunction with others. Exogenous injection of higher income or induced consumption cannot produce sustainable impact if adequate education, training and skills are not there. To start an endogenous process of change in income and health, the role of education has to be strengthened with appropriate ingredients and quality. To turn this transformation into something positive and sustainable, education has to play a prime role. Education has to enhance capacities of people, expand the areas of competencies, and change people's practices and attitudes, which together can significantly improve their lifestyle. For overall transformation, that is, eradication of poverty and attaining better health and living standards in line with the millennium development goals pursued by the nation, the education policy and program must be carefully designed at both national and local levels (World Bank, 2002)

EDUCATION PROMOTING EMPOWERMENT OF WOMEN

Empowerment is a broad concept, representing more than a simple increase in income level or access to material resources. Making people free from illiteracy, providing them with appropriate knowledge or know-how, promoting their health and nutritional status and ending their state of destitution or marginalized social position and low esteem and so on, all are important components of empowerment. This is particularly true for rural women in Bangladesh who are fettered by chains of tradition, prejudice, superstition and poverty. Their empowerment implies fulfillment of all the requirements for development of peoples. education both basic, life skill, technical and vocational education/training can play a pivotal role to inhibit empowerment.

It is notable that women are now increasingly participating in labor force in rural areas in Bangladesh. This change is attributed to several factors such as increasing landlessness, population pressure, interventions from government organizations and NGOs promoting income-earning activities particularly micro-credit support to cover both conventional and non-conventional vocations. During the period 1995-96 to 1999-2000, in only four years, - according to the Labor Force Survey - women participation in the economy has grown 14.7 percent - equivalent to an average annual increase of 3.7 percent (BBS, 2000). However, less encouraging is that increased participation by women in income generating activities is in low wage activities such as agriculture, forestry and fisheries (see Table 7 & 8). Female employment in this sector increased at a rate of 41 per cent annually, whereas in other sectors, which require educated and skilled workers, the rate of increase was insignificant. For instance, in manufacturing the growth was only 2.7 percent, and a total of 1.2 of million women were working as day laborers in rural areas in 2000. Unfortunately their average wage is only approximately 55 per cent of their male counterparts.

Available findings suggest that though women are 'coming out of the home' at an increasing rate, they are gaining employment in industries or occupations where no literacy or skill training is required. Most then are working as day laborers (Figure 1) and earning a frustratingly low income in comparison with males. However, as a result of phenomenal increase in micro-credit expansion, number of women engaged in poultry, cow or goat rearing and so on, has increased; thus women becoming engaged in 'self-employment/own account works' accounts for a major part of increase of women's employment in rural areas. In summary, the vast majority (70%) of rural workingwomen are engaged in low-income activities like day-labor or unpaid family labor. Since these women lack literacy/basic education and skill training their marginal product and income remain at a low level.

Researchers have consistently emphasized the importance of education and skill training in various tiers of micro-credit operation, such as portfolio selection, management of production and marketing and financial management (see, e.g., Shah, 1998). However, women's education and training not only ensures better use of micro-credit, its positive impacts are diverse. It is rather a particularly strategic investment in human resource development with higher levels of social return. The education of women and girls has a tremendous impact not only on their own development, but also on their families and communities. It also has a catalytic effect on every dimension of development and poverty alleviation (Tanaka, 1998).

It has been the experience in Bangladesh that formal schooling for a few years (and then dropping out) or literacy programs per se are inadequate in providing specific preparation for women's empowerment that could be reflected in equitable status of women in family life, ensuring their legal rights, protecting them from various forms of exploitation and violence (for instance illegitimate divorce by husband or deprivation from natural privileges in the family and social settings). Eradication of gender-based discriminatory behavior with respect to health, nutrition and hygiene and so on, can be promoted through continuous education, which are not usually provided in general education curriculum with required space and details (and for which there is no scope in literacy program). NGOs in Bangladesh, though limited in scale, are seeking to promote gender sensitive issues through continuing education programs. Organization like Dhaka Ahsania Mission, BRAC, CAMPE, VERC, RDRS have developed materials for continuing education loaded with gender issues. Knowledge is supposed to increase and make women aware of their proper role in the family and society through these materials (Jahan, 2002).

In analyzing the important components of empowerment, researchers have identified four broad categories of control over resources as characteristic pre-requisites: (i) control over income, (ii) control over labor power, (iii) control over natural resources, and (iv) control over knowledge (Jahan, 2002). Education can play a vital role in promoting women's control over each of these components. Control over income, for example, can be achieved by increasing efficiency for better utilization of micro credit; over labor power through increasing labor productivity; over natural resources through increased knowledge of better utilization and management of such resources; and over knowledge through accumulation of information and achievement of competency (particularly for gender issues).

SUSTAINING THE CHANGE IN FERTILITY DECLINE

There has been a genuine reduction in fertility level in Bangladesh, with the total fertility rate declining to 2.9 by 2000, from 4.8 in the mid-1980s and in the early 1970s. However, within this national trend, the decline has been slower in rural areas compared with urban areas. Given this, as might be expected, the contraceptive prevalence rate is much lower in rural areas than urban areas. A concomitant change has been preference for smaller family size, the mean ideal family size being 2.5 for ever-married women¹ and 2.4 for ever-married men. Among the host of factors explaining the decline, schooling level is notable.

The rate of urbanization in Bangladesh is another significant aspect of demographic transformation. The rate of urbanization in Bangladesh is one of the highest in the developing world.² In order to sustain the benefits already achieved in primary health care services and promotional initiatives toward fertility reduction, women's development project activities encouraging higher contraceptive acceptance rates and lowering the desired family size, it is important that investment in education covering health and family life dimensions are increased. This should be a major consideration in policy toward further reduction in population growth. Besides the introduction of relevant contents in the general education system, special education program should be directed through non-formal continuing

¹ That is women who at any time up to the present have been married

² There is a significant differential in contraceptive prevalence rate (CPR) rural to urban, with ca. 62% CPR for urban women compared with less than 50% for rural women.

education system targeting the particular sub-groups of population, which contribute most to population growth. Educational policy concern should also take specific note of investing in girl's education and training toward gainful participation in labor force with upward mobility prospect, which will have the effect of delaying marriage and limiting births to make a sustained effect on positive rural population transformation.

PROMOTING INDIGENOUS SKILLS THROUGH EDUCATION, TRAINING AND DISSEMINATION

There are many indigenous, traditional skills and technologies practiced by rural people for generations. Many of them are locality specific and require fine craftsmanship which people learn usually through informal education. Some examples are traditional thrashing of cotton wool, seasoning a gourd receptacle, burning a pattern on cane, salting and drying of fish and meat, underground vegetable preservation of preparing cheese and butter oil, and so on. Some diverse skills serve local needs and people involved in the crafts work in the rural areas usually earn a poor income. The important features of these age-old local production techniques include low cost or inexpensive process, almost hundred percent locally procured natural raw materials and above all simplicity of the process. Unfortunately most of these technologies are now found to be in decline in the absence of support for upgrading/modernizing the skills and marketing promotion of the products. The knowledge is less well known and its propagation is rare. However due to growth of local and international market linkages exploitation of the potentials of goods produced using the locally available materials and improvement in the low-cost, technologies are possible. If the underlying basic principles are deciphered and disseminated through education, and skills of the people are improved by combining education and training these age-old local production techniques can be turned into local industries and the products can find the modern market. Promotion of the skills can be done through both formal and non-formal systems of education and training. This can be a part of the systematic policy efforts to strengthen and diversify the product line through small and medium scale industries, which can compete in the international market. The existing small and medium scale industries, which employ a large proportion off-farm rural labor force will be further expanded for absorption of skilled labor within the national economy. The rural unemployed, men and women will not have to turn to the cities only to meet with uncertainties and to add to the already-existing city problems. Rural education can specifically focus upon the opportunities available in the rural areas for production of commodities and marketing of those by using and further improving the skills so that the students can gather the necessary orientation and prepare themselves for wage and/or self-employment.

CHANGING PATTERNS OF EMPLOYMENT IN RURAL AREAS

Comparative data from the Bangladesh Labor Force Survey (LFS) 1995-96 and 1999-2000 show that in rural areas of Bangladesh size of total labor force (15+) increased by 3.8 million (a 3.43 percent growth per annum), which was mostly accounted for by growth in the female labor force. During this period, data for the different genders show that male labor force increased by 1.2 m (ca. 1.25 percent per annum), whereas the female labor force increased by 2.6 m (ca. 17.11 percent per annum). However, taking into consideration the total female population (10+ or 15+) female participation in labor force still remains low. The wide discrepancy between male and female labor force participation rates points to the nation's

low level of achievement in mainstreaming women in the overall socioeconomic development process. It is suggested, therefore, that education and other enabling conditions will have to be expanded and strengthened in order to bring the hitherto unutilized or underutilized vast women folk of the country to make adequate social transformation. The second distinctive feature observed here is that in the rural areas during the last two decades there has been a relative proportional escalation of employment in non-agricultural activities and concomitant decline in the share of agriculture (Table 6).

GROWTH OF RURAL NON-FARM SUB-SECTOR

Despite a continuous emphasis given earlier (through the Five-Year Development Plans) on rural development and agriculture (as it appears the plan documents' commitment), rural poverty continues on a mass scale. Yet, the economy of Bangladesh being predominantly agrarian and with three quarters of the population living in rural areas, the impetus for rapid rural development and population transformation is expected to come from a shift to rural non-farm sector. Of course agricultural development and growth of the rural non-farm (RNF) activities are mutually reinforcing. The introduction of new technology in agriculture, as influenced by the globalization process and growth with diversification in the rural non-farm sector, demonstrates a condition prompting rural transformation. Substantial changes are indeed occurring in rural areas indicating growth of RNF in Bangladesh (Table 7). The share of agriculture in GDP is declining, and at the same time the percentage of rural households engaged in the non-farm sub-sector is increasing. Data on source of income of families suggest that during the early 1990s almost 60 percent of income came from non-agriculture sources in rural areas. The share of income from non-agricultural sources rose to almost 75 percent by 2000. Expansion of professional services and activities for wages/salary and so on, substantially encourage emergence of non-farm activities in the rural areas and development of trading places and semi-urban growth centers with consequential changes in the life style of people. Expanding electrification of rural areas, with a target of covering all the villages in about a decade from now, and emphasis being placed on the development of road links between the villages and the increasing number of rural growth centers, are the major infrastructure supports for accelerated growth of the RNF activities in the vision of the nation.

RURAL NON-FARM SUB-SECTOR AND OUTLOOK FOR FUTURE CHANGE

Available macroeconomic evidence lends support to the view that rural non-farm activities are a dominant and growing segment of the rural economy in Bangladesh (Bakht, 1996). It is reported that rural manufacturing is the most important Rural Non-farm Activities (RNFA) in terms of current growth performance. That non-crop agriculture has experienced rapid growth during the recent years is also evident from the value addition by sub-section in total agriculture (Table 7).

The rapid growth of the RNF sub-sector in Bangladesh can substantially support the poverty reduction trend observed in rural Bangladesh, and also compensate for the stagnant growth in agriculture, even as it is now recognized that Bangladesh has reached the frontiers of production in agriculture (BIDS, 2001). However, some studies suggest that the RNF sub-sector in Bangladesh is dualistic in structure. Traditional activities using primitive technology and family labor dominate in large part. On the contrary, activities with higher

capital intensity, use of sophisticated technology and high factor productivity is comparatively limited. Mahmud (2003) observes that the more productive segment of the RNF sub-sector continues to be small, and does not attract rural workers into these activities at a sufficiently large scale to contribute to a net increase in per capita rural non-farm income. Minimum skill and capital requirement seem to be the main entry barriers to these productive activities. Promotion of appropriate education - specifically life skills and vocational training for the rural population, therefore, is one of the challenges that the country has to accept in making the RNF sub-sector play a significant role toward a positive rural population transformation. According to Bakht (1996), research suggests that rural manufacturing is the largest potential source of new employment. On the other hand, traditional low productivity cottage industries still dominate the RNF sub-sector. Bakht observes that growth patterns in semi-urban or peri-urban locations are more dynamic in nature. Therefore, when provided with special measures in support of the small industries at semi-urban or peri-urban locations, these locations will be able to cater to the thriving demand from urban locations and exploit better infrastructure and communication advantages in expediting the process of economic transformation for the rural people. Skill training, vocational programs and credit facilitation will further enhance the growth potentials of peri- or semi-urban locations to the benefit of the present-day rural population.

In the pursuit of diversification of the rural economy, the whole range of the RNFA must be looked at in terms of potential for economic transformation. Currently RNFZ use low and moderate level of skills and make small or moderate level of investment. But given the context of globalization, maximizing their potentials for entry into export markets (in addition to strong domestic linkages), with the use of higher skills level for higher quality products is an important consideration in perspective. Their potential for concentrating on the use of women in the labor force appears to be interesting in the process of rural transformations. In the current overriding concern to have improvement in the rural economy, policy emphasis has been laid on rapid development of the RNF sub-sector, particularly with an eye on its scope of contribution to accelerating the poverty reduction process. Labor Force Survey (LFS) findings indicate a growing share of labor in the RNF sub-sector, but without corresponding increase in the level of per capita rural non-farm income. This situation has been explained in terms of a precarious balance between 'push' and 'pull' factors in the sectoral transformation of the rural labor force. Increasing landlessness coupled with absence of education or training has driven agricultural workers to move out of agriculture to accept low productivity unskilled work in non-farm sectors. In the other process at the same time, high level investment in urban growth centers has become a general attraction to the rural unemployed or under employed workers, but the latter (workers) cannot find higher income job because of minimum skill requirement in the jobs. Unskilled workers accommodate with the situation by trying to learn skills on the job, but have to accept lower wage rate, and productivity and quality of products remain low. The pace of transformation is constrained by this in the globalized market dynamics (Mahmud, 1996).

CONCLUSION

This paper has endeavored to establish a relationship between education and development and justified its contribution towards population transformation in Bangladesh. The initial discussion suggests that the current status of general and vocational education of Bangladesh

is not well planned - although enrollment primary education is good. The paper states that the education system in Bangladesh fails to meet the needs of the Bangladesh economic development needs in general. A shortage of fund and staffs, insufficient physical infrastructure, shortage of reading materials, meaningless link between general and vocational education vs. job market, poor training, lack of diversity in training, political instability, and lack of coordination between government and non-government organization are prime causes behind that. Finally, the paper proposes how the education system might help the nation transform the economy from one that substantially rural and agricultural in base towards a knowledge skills-based economy. Overall, the available empirical data provide sufficient evidence that transformation from farm to non-farm activities in the rural areas has been on the increase, and that relatively large enterprises with non-crop agricultural bias make better use of the skills of the human factor. The organizational management dynamics and the skill level required in productivity have posed new demands for quality workforce creating a pressure for transformation.

Toufique and Tuton (2002) suggest that over the years changes are taking place in different sectors, and it is 'hands' and not 'land' which makes the most critical force to determine the future path to transformation. This is not to undermine the current importance of agriculture, for it is necessary for food security and its forward and backward linkage with non-farm sector. But, while the agriculture sector would continue to remain a key sector for transformation, it is recognized that achieving a desired level and direction of transformation would largely depend on 'educating' and making these prospective hands 'skilled'. People, including women, already have to some extent come out of their traditional lifestyle and perception of their image and status. Current life situations as well as the possibilities have influenced them to look for new opportunities and develop new aspirations. If they are now further equipped with more information, particularly science-based education, and technical vocational training, they can shape their destiny to have a more satisfying standard of living in Bangladesh.

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The Asia-Pacific Journal of Cooperative education (APJCE) arose from a desire to produce an international forum for discussion of cooperative education issues for practitioners in the Asia-Pacific region and is intended to provide a mechanism for the dissemination of research, best practice and innovation in work-integrated learning. The journal maintains close links to the biennial Asia-Pacific regional conferences conducted by the World Association for Cooperative Education. In recognition of international trends in information technology, APJCE is produced solely in electronic form. Published papers are available as PDF files from the website, and manuscript submission, reviewing and publication is electronically based.

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