POSSIBILITIES & DEFICIENCIES OF SCIENCE EDUCATION IN NORTHERN PART OF BANGLADESH

Dr. Md. Humayun Kabir

Introduction:

Northern part of Bangladesh particularly Rangpur Division was formed on 25 January 2010. This division was declared comprising of 8 districts and 58 upazilas of Rajshahi Division.

The area of Rangpur Division is 16320.26 sq km, located in between 25°20' and 26°37' north latitudes and in between 88°50' and 89°53' east longitudes. It is bounded by West Bengal state of India on the north, Joypurhat, Bogra and Jamalpur districts on the south, Assam state of India on the east, West Bengal state of India on the west. The soil composition is mainly alluvial soil (80%) of the Teesta River basin, and the remaining is barind soil. This area has a humid subtropical climate. The climate of this region is generally marked with monsoons, high temperature, considerable humidity and heavy rainfall. The hot season commences early in April and continues till July. The average annual temperature is 24.9 °C (76.8 °F). About 2,192 mm (86.30 in) of precipitation falls annually.

Demographics:

As of the 2011 Bangladesh population census, Rangpur division has a population of 13847150; male 51.18%, female 48.82%; Muslim 85.70%, Hindu 13.54%, Buddhist 0.34%, Christian 0.03% and others 0.39%.

This division has a very diverse population with minority groups including tribes such as Sawthal who have been living in this part from the beginning of settlement in this area.

Etymology:

The name of Rangpur comes from the word Ranggopur. It changed in the flow of time. The word Ranggo means charm, happiness and Pur means a place, area. So the word Ranggopur means the city of Happiness. There was a king in Kamrup Empire. His name was Bhagadatta. He built a Ranggamahal by the side of the river named Ghagat. Ranggamahal means the ancient kings of Bengal area spent their time by enjoying or some kind of other recreation. From then, the place was known Ranggapur. And in the flow of time it has changed to Rangpur.

Mughal owned the place in 1575. In the time of Mughal Empire, Mughal divided their ruling system in Rangpur in three administrative areas. They made a Criminal Headquarter in Rangpur.

After several rulers, finally Rangpur came under British East India Company in 1765. Movements against British rulers started here in 1930. During British colonial rule, they created several educational institutions. (citation needed)

Education:

Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs and habits. Educational methods include storytelling, discussion, teaching, training, and directed research. Education frequently takes place under the guidance of educators; however learners may also educate themselves. Education can take place in formal or informal settings and any experience that has a formative effect on the way one thinks, feels, or acts may be considered educational. The methodology of teaching is called pedagogy.

Formal education is commonly divided formally into such stages as preschool or kindergarten, primary school, secondary school and then college, university, or apprenticeship.

A right to education has been recognized by some governments and the United Nations. In most regions, education is compulsory up to a certain age.

Science education is the field concerned with sharing science content and process with individuals not traditionally considered part of the scientific community. The learners may be children, college students, or adults within the general public; the field of science education includes work in science content, science process (the scientific method), some social science, and some teaching pedagogy. The standards for science education provide expectations for the development of understanding for students through the entire course of their education and beyond. The traditional subjects included in the standards are physical, life, earth, space, and human sciences.

Literacy Rate &Educational Institutions:

Rangpur Division has an average literacy rate of estimated at 47.95%; male 46.15%, female 34.50%. Recently the literacy rate of this area has improved as it stands at 71% as of 2015 due to the modernization of schools & colleges and educational funds. These funds are provided by managing committee, governing body and local elites in this region.

Educational Institutions:

University 2, open university 1, college 657, secondary school 2579, lower secondary school 716, veterinary college 1, technical college 12, textile institute 1, BEd college 1, vocational training institute 1, vocational textile institute 1, youth training centre 2, primary teachers training institute (PTI) 1, agricultural training institute 1, veterinary resource training institute 1, BPEd collage 1, law college 1, homeopath college1

Noted Educational Institutions:

Begum Rokeya University (2008), Hajee Mohammad Danesh Science and Technology University (2002), Rangpur Cadet College (1977), Rangpur Medical College (1966), Government Rokeya Mohila College (1964), Kurigram Girls' High School (1928), Lalmonirhat Government High School (1921), Carmichael College (1916), Sayeedpur Pilot Girls' High School (1904), Thakurgaon Zila School (1904), Thakurgaon Government Boys' High School (1904), Kurigram Government High School (1895), Gaibandha Government Boys' High School (1885), Nilphamari Government High School (1882),), Rangpur Government Girls' School (1876), Dinajpur Government Girls' High School (1869), Dinajpur Zila School (1854), Rangpur Zila School (1832), Teachers Training College.

Notable Educationist:

The historical background of education in northern part of this country is very bright and resourceful because lot of educationist is born here and plays a dominant role in their related area at the early stage of education. Is as-

- Begum Rokeya Sakhawat Hossain, commonly known as Begum Rokeya (9 December 1880 – 9 December 1932), was a Bengali writer, educationist, social activist, and advocate of women's rights. She has been considered the pioneer of women's education in the Indian subcontinent during the time of the British rule.

Birthplace of Begum Rokeya in Pairabondh, Mithapukur, Rangpur

- Abu Sadat Mohammad Sayem, 6th President of Bangladesh, first chief justice of Bangladesh.
- Hussein Muhammad Ershad, former President of Bangladesh.
- Mashiur Rahman Jadu Mia, former Prime Minister.
- Mostafa Kamal, Chief Justice of Bangladesh.
- Ahmed Hossain, Chairman Rangpur District Board and Minister for Agriculture, Forest and Fisheries (Undivided Bengal).
- M. A. Wazed Miah, nuclear scientist.
- H N Ashequr Rahman, Parliament member, former State Minister, Educationist and Entrepreneur
- G M Quader, politician and the former Minister of Commerce and former Minister of Civil Aviation.
- General Mustafizur Rahman, Former Chief of Army Staff of the Bangladesh Army.
- Hassan Mahmood Khandker, Former Inspector General of Bangladesh Police.
- Dr. Rashid Askari, Bengali-English writer, fictionist, columnist, professor of English and current vice-chancellor of

Kushtia Islamic University-Bangladesh.

- Dr. Mujibur Rahaman and M. A. Wahed; Health Scientist, they had enormous publication on both preventive and curative medical interventions for diarrhoeal diseases. He had long standing association with icddr'b and made many publications in the area and of nutrition and health.
- Dr. Motlubor Rahman, Educationist, Social Worker, Muktijoddha Organizer, Consultant of Food and Agriculture Organization (FAO) of the United Nations. Former Chairman of Bangladesh Agricultural Research Council (BARC). He had great contribution for self sufficiency of Rice and Sugar.
- Mohammad Nurul Islam, Former Governor of Bangladesh Bank.
- Sajeeb Wazed Joy, Young Global leader, ICT Consultant and Political campaigner.
- Anisul Huq, poet and writer.
- Rezwana Choudhury Bannya-Bangladeshi Rabindra Sangeet artist & Educationist.
- Sharif Imam, husband of Shahid janoni Jahanara Imam
- Jahanara Imam, Bangladeshi writer and political activist.
- Abbasuddin Ahmed, Prominent Bhawaiya singer and writer.
- Rathindranath Roy, Founder of Bhawaiya academy and singer.
- Ferdausi Rahman, legendary folk singer. (citation needed)

Qualitative Dimension of Science-education:

The education system lacks a sound Human Resource Development and deployment system and this has demoralized the primary education sector personnel, including teachers, and contributes to poor performance. Poverty is a big threat to primary education. Since 2000, there has been enormous progress in achieving the target of primary education. The total enrolment rate in developing regions reached 91 percent in 2015, and the number of children out of school has dropped by almost half. There has also been a dramatic increase in literacy rates, and many more girls are in school than ever before. These are all remarkable successes. In Rangpur Division, the population is very increasing. The number of seats are available in colleges is less than the number of students who want to enroll, and the number of seats are available in universities is also less than the number of students who passed higher secondary level and want to join in a university. Unfortunately, there is not enough science affiliated honors' colleges, medical colleges and universities in this region. For this reason, most of the middle class students cannot get access to their higher education with science background. Besides, the cost of science education is increasing day by day; as a result many of the students are unable to afford it.

Sustainable Development Goal 4 and its Targets:

Goal 4: Ensure inclusive and quality education for all and promote lifelong learning. Sustainable Development Goal 4 has 10 targets encompassing many different aspects of education. There are seven targets which are expected outcomes and three targets which are means of achieving these targets.

Seven Outcome Targets

4.1. Universal primary and secondary education, 4.2. Early childhood development and universal pre-primary education, 4.3. Equal access to technical/vocational and higher education, 4.4. Relevant skills for decent work, 4.5. Gender equality and inclusion, 4.6. Universal youth literacy, 4.7. Education for sustainable development and global citizenship.

Three means of Implementation

4. a. Effective learning environments, 4. b. Scholarships, 4. c. Teachers and educators.

Prospect and Deficiencies of Science-education:

Science teaching in schools and colleges in northern part is far from satisfactory. Once the most sought-after subject at secondary and college levels in this area, science is losing its appeal in an alarming shift of choice. Wel qualified teachers and properly equipped laboratories are very few and far between and could hardly be found in most of the schools and colleges. The teaching methodology and teachers cannot inspire the serious and meritorious students to take up science for their higher studies. As a result, enrollment in secondary and post-secondary science has steadily fallen over the last 15 years. This is alarming. If we cannot stop this trend, we will very soon be facing a situation where science and scientific enterprises in our country will be seriously jeopardized, leaving us as a nation of traders.

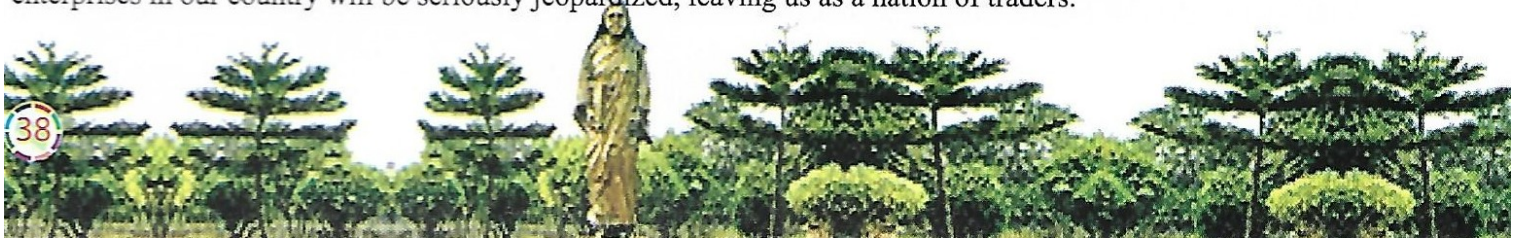
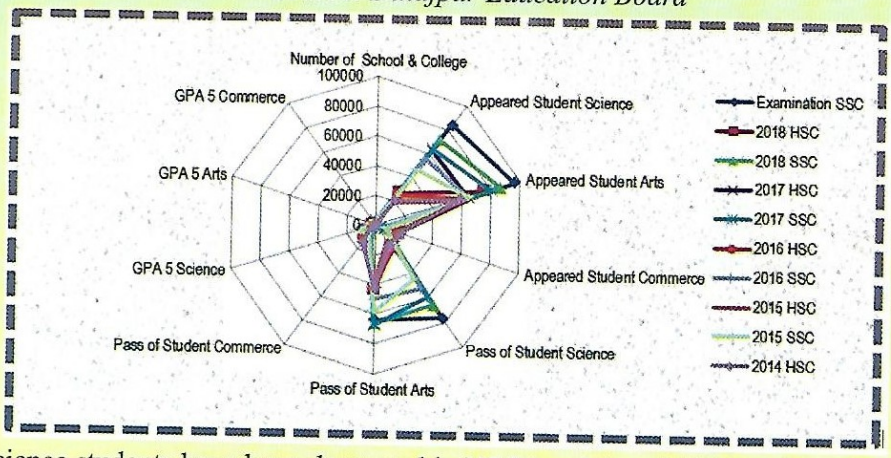


Table-1: History of SSC & HSC, Passed vs Appeared (% of GPA 5 among passed)

Year of Examination	Examination Type	Number of School & College	Appeared Student			Pass of Student			GPA 5		
			Science	Arts	Commerce	Science	Arts	Commerce	Science	Arts	Commerce
2018	SSC	2619	84336	96367	5941	76437	63699	4740	10545	102	108
	HSC	653	26948	76037	16522	18889	43256	9806	2008	203	86
2017	SSC	2606	71178	86205	6189	65624	66416	5322	6807	59	63
	HSC	633	62517	64078	16067	20536	38015	10421	2748	195	44
2016	SSC	2569	63228	79214	7150	59887	67481	6653	8628	146	125
	HSC	609	25038	61578	16480	19403	42109	11317	3562	272	65
2015	SSC	2550	55369	63962	7201	52462	49490	6237	10368	195	279
	HSC	584	19256	54485	15247	13204	37348	12119	2039	220	136
2014	SSC	2510	46275	64520	7643	44803	58577	7078	12933	1179	715
	HSC	541	20958	58795	17280	15628	42196	14116	2872	1041	561

Source: Dinajpur Education Board



Number of science students have been decreased in HSC level than SSC level but GPA is increased. In SSC level science & arts students are near about same but HSC level almost half. Science students afford good result and achieve good GPA but arts & commerce students cannot able it (table 1). Fear of science, lack of subject related experienced teachers in SSC level, in absence of laboratories is one of the main causes for decreased the science students.

Nowadays, science education is losing its importance, quality, and priority over other areas of education. This is alarming, especially when development can only be achieved through assimilation and application of technology. In the past a science teacher in our country invariably impedes a person with strong background in science and mathematics. Unfortunately, today students in these areas can earn a B.Sc. degree without mathematics. Moreover, science students are opting for non-science subjects for their higher education because of demand in the job market, indicating the poor priority that we are attaching to science education. We have been unable to impress young students with the beauty and joy of science.

Reasons for Decline in Science Enrollment:

Some of the reasons identified as common in both secondary and post-secondary science education include lack of laboratory space, lack of funding, and inexperienced and fewer qualified teachers with poor salaries and lack of motivation.

There are fewer science-based jobs in the country. The IT boom seems to be over. Most industries in our country do not have sufficient science facilities. Science education is regarded as difficult and only attracts top students in schools and colleges. Science education is made more difficult by poor and unattractive teaching and too much unnecessary workload with poor or no laboratory facilities including equipments, computing or internet facilities. Even students with strong skills in physics, chemistry, biology and mathematics are opting for business studies. In a typical private university, more than 50 percent of the students are enrolled in BBA studies because it is easier to get good grades and then good jobs.

Recommendations for Science-education:

The following recommendations were made to Teachers, Researchers, policy makers and other concerned organizations:

- Teachers with strong science background interested in teaching science in harmony with nature should be appointed in schools and colleges with attractive salary and facilities.
- Regular training of the science teachers on changing environment of science education should be introduced.
- Science Fairs, Olympiads, and Science Weeks should be organized regularly.
- To build up well facilities laboratories' with equipments, chemicals & internet.
- Laboratory or Field base curriculums must be developed.
- More scholarships and incentives for science students.
- Problem-solving-oriented evaluations should be introduced to encourage creativity over memorization.

The state of science education in developing countries in general is not encouraging and Bangladesh is no exception. A concerted effort at the national and international levels will be required to change the present situation. International scientific organizations can play a significant role in making this a priority issue. Let science and technology be the main vehicle for socioeconomic development of the teeming millions of the world.

Need Comprehensive Research for Science-education:

The necessity of self-sufficiency in education and feeding stuff is vital for the economic well being in a country. On way this need could be satisfied by performing the extensive research work for the improvement of quality base science education that exists in the country.

In this scientific age, it is no denying the fact that economic self-sufficiency of a nation means self-sufficiency of science education and technology. Ours is a Glorious nation, but blessed with natural resources and if these are harnessed properly, no doubt the nation will get self-sufficiency of science education & technology and achieve the sustainable development goal within targeted year of 2030. The future prosperity of a nation mainly depends on the advancement of science-education and technology. We are confident that the deliberations of this management options will greatly contribute to this effort.

Fulfillment of Increasing Need:

Education is the main key to a developed nation. Education is the focal point to eradication of poverty. Meritorious and bright full educated society can build a develop country. So Education is the backbone of a nation.

At last to be told that as the scope of the study is very much limited, so nothing can be apprehended for sure. This study has focused as a field of inquiry, which has different avenues on which researchers can work. This type of study will help to formulate future policy planning of the country based on science-education. The under-developed Agrobased Economy of the country is very much dependent on the science-education backward & forward links.

This work is a scientific presentation of problem oriented research results on science education with recommendation to overcome the problems of quality education.

The present century demands sharing of knowledge. This research work involves important methods of communication with those who are staying away from research areas. This type of research is a very healthy sign of development science-education & technology in Bangladesh.

It is felt that this information based on local studies would add to increase the horizon of knowledge of those educationists who are engaged in education & technology development works for the benefit of the students and educators in Bangladesh.

Initially there are some drawbacks and deficiencies but with time, this research work would undauntedly continue to grow and serve the teacher and students in the years to come.

It is hoped that these results presented and documented will help to enrich and update the knowledge of the researchers, subject matter specialists and extension workers for suitable understanding by the students and carry the message to their fields for materialization.

Science-education is a positive tool for civilization and progress. Therefore, struggle for continuous progress through understanding and cooperation in each and every case of education & technology and justice is required for our responsibilities and works.