Assessment of Environmental Awareness of the Students with Primary Education

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Abstract

The study aimed to assess the environmental awareness of the students who have completed primary education both from the non-formal schools of BRAC and formal government schools. Data were collected from Tangail district during July-August 2002 through structured questionnaire. Four hundred twenty interviews were conducted with both boys and girls. Students showed better awareness for safe water and safe sanitation practice compared to other environmental issues. The students of BRAC non-formal primary schools performed as well as those who have completed education from government primary schools although there is a difference between these two groups with regard to their socioeconomic background, curriculum, and teaching method. There are also no major differences in the performance of boys and girls in different environmental issues. It indicates that more current environmental problems like arsenic pollution of water, depletion of biodiversity in Bangladesh, and protective measures to resolve these problems should be included in the primary level curriculum.

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Introduction

Environmental education and training can be important in effecting social change towards a sustainable society. The United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992, agreed to a global environment and development agenda for the 21st century, called Agenda 21. In Agenda 21 it was stated "Education, including formal education, public awareness and training should be recognized as a process by which human being and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues" (1).

Most Asian countries have made efforts to introduce environmental education at primary, secondary and tertiary levels. The approaches could be making environmental studies a separate course, or incorporating environmental education into existing curricula at primary and secondary levels, or using a combination of both approaches. Primary level education is the main focus of attention because of the inherent flexibility in curricula to infuse environment into existing subjects and the higher level of enrollments in primary schools compared to secondary schools. NGOs and universities in some countries play a big role in teacher training, and providing materials for formal education (1).

Environment related materials are also included in the non-formal primary education programme of Bangladesh. In Bangladesh, the content of environmental education in the social science courses (for non-formal primary education) may be fairly adequate (1).

There are fifty-three basic competencies that any children should achieve after the completion of the primary education which are selected by the government of Bangladesh. It is clearly stated in the basic competencies that positive attitude for environment will be developed after the completion of the primary education (2).

Objectives

The study aimed to assess the environmental awareness of the students completed the primary level both at non-formal schools of BRAC and government schools. The study specifically aims to:
- know the level of awareness on general environmental concept,
- know the level of awareness on environmental pollution,
- know their knowledge of safe water use, specially about arsenic,
- understand their sanitation practice,
- know the level of awareness on waste management,
- know the level of awareness on the biodiversity, and
- compare the knowledge and awareness of BRAC non-formal school graduates with those completed primary level from government schools.

Methodology

Sampling

Information was collected from the students who completed primary education both from BRAC non-formal primary schools and government primary schools using structured questionnaire. Data were collected from six *upazilas* and sixteen *unions* of Tangail district.

Four hundred and twenty (420) interviews were conducted for this study. Among these 420 interviews, 209 interviews were with the BRAC non-formal school graduates. These BRAC graduates are selected from 15 randomly selected BRAC non-formal schools. The interviews with the students of government primary schools were 211 and these students were also selected randomly from 15 (randomly selected) schools. Among them 208 were girls. The distribution of sample is presented in the table 1.

Table 1. Distribution of sample according to school type and sex

School type	Boys	Girls	Total
BRAC	104	105	209
Government	108	103	211
Total	212	208	420

A questionnaire was prepared with thirty-six questions covering different areas of environment like general perception of environment, environment pollution, safe water, arsenic, sanitation practice, waste management and biodiversity. Answers of all the thirty-six questions are categorized into different sections according to different environmental issues. The results of each question showed separately. The overall performance of the students in each section including average of correct answer achieved are also presented.

Limitation of the study
The study area was restricted to only one district. As such, the findings may not represent the actual environmental awareness level of the primary completed students of Bangladesh, and hence should not be generalized.

Findings

General perception on environment

To assess the awareness on general perception of environment, six issues were considered. These are:
- Understand the term environment
- Have knowledge on different components of environment
- Said 'yes' for clean environment
- Know the reasons of keeping clean environment
- Agreed with negative effects of over population on environment
- Know why over population put pressure on environment

Fifty-five percent of the students understood the term environment and have knowledge about the different components of environment. Those include *'both biotic and abiotic factor'* as environmental component was considered correct. The BRAC non-formal school students performed better in understanding the term environment and its different components (Fig. 1). Girls of the BRAC non-formal schools were ahead of boys in understanding the term environment. But, the boys and girls of the government schools did equally well (Annex 2).

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Ninety-four percent of all the students said 'yes' for clean environment. But, only sixty-two percent knew the benefit of clean environment. As a benefit of clean environment most students mentioned *'for healthy living'* which was considered as correct. No major difference was found between the students of different school type and sex (Fig. 1).

Figure 1. Comparision of correct answers for general perception of environment according to school type and sex

Knowledge
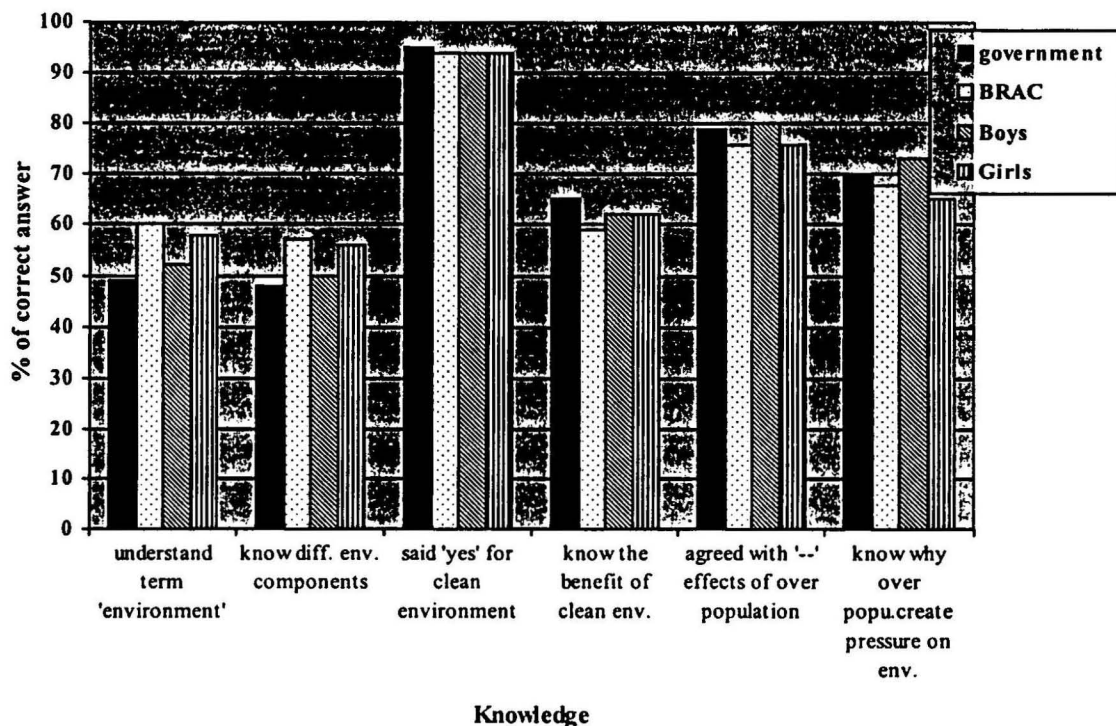
Seventy-eight percent of all the students agreed with negative effect of over population on environment. There were no differences in performance of the students of different school type and gender. But boys of BRAC schools did significantly better than girls (Annex 2).

Only sixty-nine percent knew, why over population put pressure on environment. The respondents mostly stated about *increase of environmental pollution/ decrease of natural resources/ increase of diseases.* No major differences were found between students of different school and sex (Fig.1).

Table 2. Mean number of correct answer on general perception of environment according to school type and sex

item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	1.9	3.3	5.2	6.7
1	7.7	9.5	3.8	9.1
2	10	8.1	9.4	11.1
3	12	13.3	15.6	15.4
4	21.5	22.7	20.8	15.4
5	17.2	10.9	27.4	23.6
6	29.7	32.2	17.9	17.9
mean	4.14	4	4	4
Standard deviation	1.6	1.8	1.7	1.6

The mean of correct answer of general perception on environment for BRAC school students was 4.1 and 4 for government school students. The mean of correct answer for both the boys and girls was 4. There was no significant difference in mean number between different school type students and gender (Table 2).

## Awareness on environmental pollution

To assess the awareness on environment pollution five issues were considered. These are:
- How to protect soil erosion,
- The causes of soil pollution,
- The causes of air pollution,
- Problems related to air pollution and
- How to protect air pollution.

Sixty-seven percent of all the students responded correctly of 'how to protect soil erosion'. Almost all the students mentioned *'planting tree'* as a protection of soil erosion. No significant difference was found between students of different school and sex (Figure 2).

Forty-nine percent of the students were aware about the 'causes of soil pollution'. Majority mentioned about ' *throwing garbage or polythene'* as a cause of soil pollution. Very few mentioned other causes like *'excess use of fertilizer/pesticide to the agricultural field'*. No difference was found between students going to government and BRAC schools, but boys did better than girls (Figure 2). The boys of government school also performed better than their counterparts but the results of the boys and girls of BRAC school were similar (Annex 5).

Figure 2. Comparision of correct answer of pollution of environment according to school type and sex
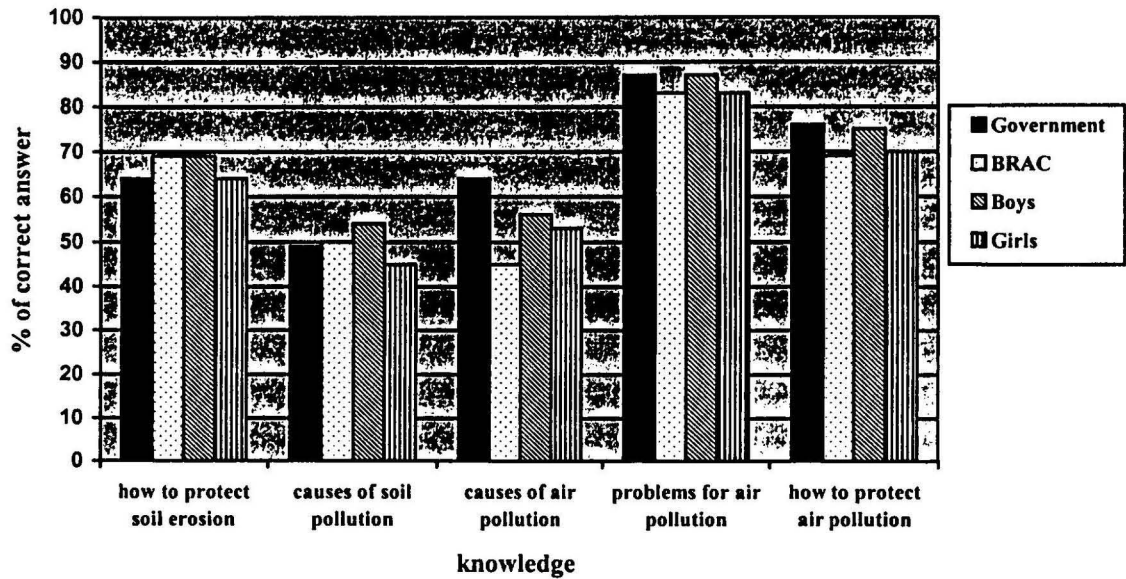
Eighty-five percent of the respondents agreed with the problems related to pollution. No major differences were found between different school type (Table 2). But, differences were found in the performance of the boys and girls. The boys of BRAC school did significantly better than the girls. The performances of boys and girls of government schools were similar (Annex 5).

Fifty-five percent of the respondents were aware about the *'reasons of air pollution.'* Black smokes from the transport/dust/fumes from the mills and factories' were cited as the reasons of air pollution. The government students performed better than BRAC students. But no significant differences were found between boys and girls (Figure 2).

Seventy-three percent of the students were aware of the problems related to air pollution. *'Causing of different diseases/could cause breathing problem'* was identified as impact of air pollution. No major differences were found between different types of school and sex (Figure 2). But the boys of BRAC school did significantly better than the girls. The performances of boys and girls of the government schools were similar (Annex 5).

Table 3. Mean number of correct answer on environmental pollution according to school type and sex

item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	5.7	6.2	5.2	6.7
1	4.3	8.6	3.8	9.1
2	9	11.5	9.4	11.1
3	18.5	12.4	15.6	15.4
4	16.6	19.6	20.8	15.4
5	26.1	24.9	27.4	23.6
mean	3.94	3.72	3.97	3.69
Standard deviation	1.70	1.79	1.64	1.84

The overall perception about pollution of the students at different schools are quite convincing specially about the air pollution. But no major differences were found between different types of school and sex (Figure 2).

Awareness on safe water

To assess the awareness on safe water five issues were considered. These are:
- What is safe water,
- Causes of water pollution,
- Problems associated with water pollution
- How to purify the drinking water, and
- How to protect the water pollution.

'clean/germ free/arsenic free water' was considered as correct answer for the meaning of safe water. Eighty-two percent of the students understood the meaning of safe water. No significant differences were found between the children of different schools, but boys did better than girls (Figure 3). No significant differences were observed between boys and girls of BRAC school but the boys of government schools did better than the girls of the same group.

Majority of the students mentioned 'throwing of garbage or polythene' to the water source or 'washing cloths to the pond/river/canal' as a major reason for water pollution. Which was certainly considered as correct answer. Very few students mentioned about 'mixing of chemicals from mills and factories and fertilizers and pesticides from the agricultural field' as a cause of water pollution. Eighty-nine percent of the students answered correctly. No major differences were found between students of different schools and sex (figure 3).

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'Cause disease' was the only correct answer received from the students for the problems of water pollution. Ninety percent of all the students answered the question correctly. Students of the government schools did better than those of the BRAC schools. The boys and girls showed little difference (Figure 3).

Figure 3: Comparision of correct answers on awareness of safe water according to school type and sex
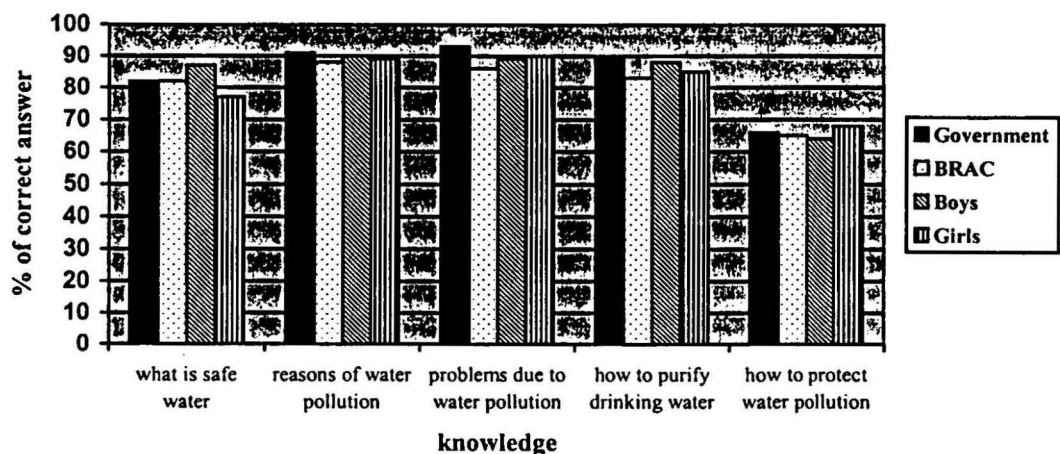
Eighty percent of all the students answered the question *'how to purify the drinking water'* correctly. The answers considered as correct were *'by boiling/by water purifying tablet/and through filter.'* The students of the government school did better than the BRAC school students. But the boys did better than girls (Figure 3).

To protect the water pollution majority answered as *'not dumping garbage or polythene to the water sources'*. No other issues received for this answer. Students of both government and BRAC schools did equally good. Also, no differences were found between boys and girls (Figure 3). Seventy-five percent of all the students answered this question correctly.

Table 4. Mean number of correct answer according to school type and sex

Item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	----	1	05	0.5
1	0.5	4.3	2.4	2.4
2	5.7	4.8	3.8	6.7
3	10.4	11	10.4	11.1
4	27	31.1	27.8	30.3
5	56.4	47.8	55.2	49
mean	4.33	4.11	4.28	4.15
Standard deviation	0.91	1.15	1.01	1.07

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Significant differences were found in between BRAC and government school students in mean of correct answer of safe water awareness. But, no mean difference were found among the boys and girls (Table 4).

Awareness on arsenic

To assess the environmental awareness on arsenic six issues were considered. These are:

- understand the term arsenic,

- awareness about arsenic contaminated water sources,

- problems that could arise by drinking arsenic contaminated water,

- understand what green-coloured tubewell means,

- understand what red-coloured tubewell means and

- awareness about the source of arsenic-free water

The answer *'arsenic is one kind of poison'* was considered as correct in response to understand the term arsenic. Very few students knew that the arsenic is a poison. Most of them thought that it was one kind of germ or disease (Figure 4). Only 11% of all the students answered correctly.

Those answered 'red-coloured *tubewell water'* as arsenic contaminated water source was taken as correct answer. Sixty-four percent of all the students knew about the arsenic contaminated water sources. The students of government schools did better than BRAC schools but no significant differences were found between the boys and girls (figure 4).

'Causes disease' was considered as correct answer of the problems of drinking arsenic contaminated water. Sixty-four percent of all the students knew the correct answer of this question. Both the students of government and BRAC schools did equally good. No significant differences were found between boys and girls (Figure 4).

Forty-nine percent students knew the meaning of 'green-coloured' and 50% of the students knew about 'red-coloured' tubewell. Those answered *'no arsenic in tubewell water'* for green-coloured tubewell and *'tubewell water is arsenic contaminated'* for red-coloured tubewell considered as correct answers. There were no significant differences between the students of different schools and between the boys and girls. (figure 4).

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Figure 4: Comparision of correct answer on arsenic awareness according to school type and sex
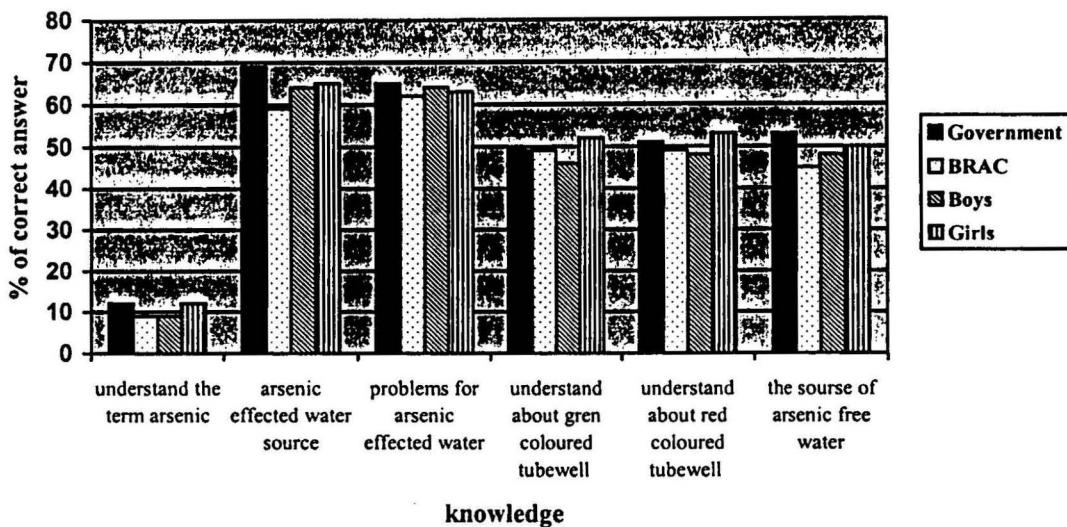
'rain water, pond/river and dug well'- any one of these responses was considered as correct answer for their knowledge about arsenic-free water sources. Forty-nine percent of all the students answered correctly. No significant differences were found between the different school types and sex (figure 4).

Table 5. Mean number of correct answer on arsenic according to school type and sex

Item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	33	28	30.7	30.3
1	2.4	2.4	1.9	2.9
2	5.7	3.8	4.7	4.8
3	7.7	10.4	12.3	5.8
4	9.6	9	9	9.6
5	19.1	17.5	17.5	19.2
6	22.5	28.9	24.1	27.4
Mean	3	3.3	3.1	3.2
Standard deviation	2.4	2.4	2.4	2.4

No significant difference was found in mean of correct answer among the different groups of students for awareness on arsenic (Table 5).

knowledge on sanitation practice

To assess students awareness on safe sanitation practice three issues were considered. These are:

- proper place of a defecation,
- washing hands after defecation, and
- what should be used to wash hand after defecation.

Seventy-nine percent of all the students knew the proper place of defecation. As a place of defecation *'pacca latrine'* was considered as correct. The students of government schools did better than those of BRAC schools. Both boys and girls did equally well (Figure 5).

The level of awareness of the *'need of washing hands'* and what to use to wash hands after defecation were found satisfactory. Almost all the students knew that the hands should be washed after defecation. No differences were found in this aspect. (Figure 5).

Figure 5: Comparision of correct answer on safe sanitation practice according to school type and gender
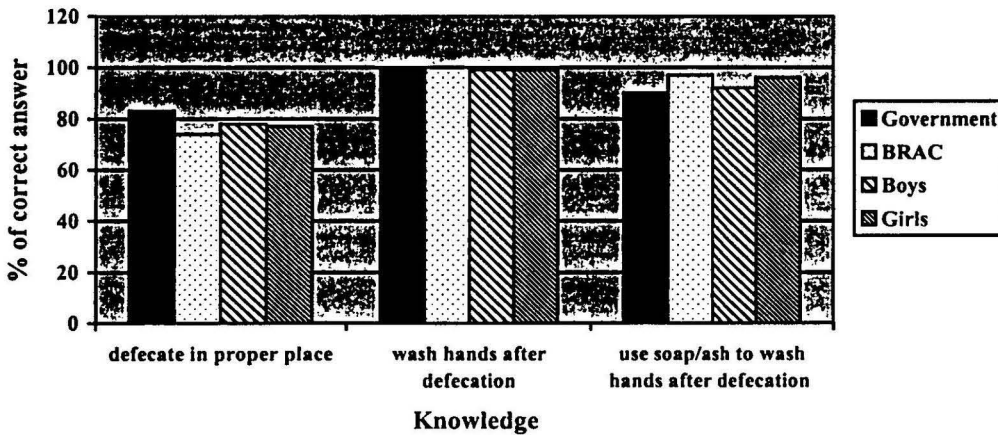
Ninety-four percent of all the students knew about *'what to use for washing hands after defecation'*. *Soap/ash*- both were considered as the proper material for washing hands after defecation. BRAC school students did well than the students of government schools (Figure 5). But, the girls of the government schools did significantly better than the boys of same group (Annex 14).

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Table 6.Mean number of correct answer on sanitation practice according to school type

Item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	------	-----	------	-----
1	0.5	-----	------	0.5
2	12	15.2	17	10.1
3	87.6	84.8	83	89.4
Mean	2.8	2.8	2.8	2.8
Standard deviation	0.35	0.36	0.38	0.33

No significant difference was found in mean of correct answer among different school attending students for safe sanitation practice (Table 6).

Awareness on waste management

To assess respondents' on waste management six issues were considered. These are:
- proper place of dumping garbage,
- agreed with the usefulness of kitchen garbage,
- know the use of kitchen garbage,
- agreed with the bad effects of polythene on environment,
- know about negative effects of polythene on environment, and
- know about alternatives of polythene bag.

Dumping garbage *'in a particular place or dustbin'* was considered as correct answer. Ninety-two percent of all the students answered correctly. No differences were found between different the students of different schools. Also boys and girls did equally well (Figure 6).

Fifty-three percent students agreed with the usefulness of the kitchen garbage. But only 38 % students know about the actual use of kitchen garbage. *'preparing compost'* was considered as the correct answer for the usefulness of the kitchen garbage. BRAC school students were ahead of government school students. But, the results of boys and girls showed no difference (Figure 6).

**Figure 6:Comparision of correct answer on waste management
According to school type and gender**
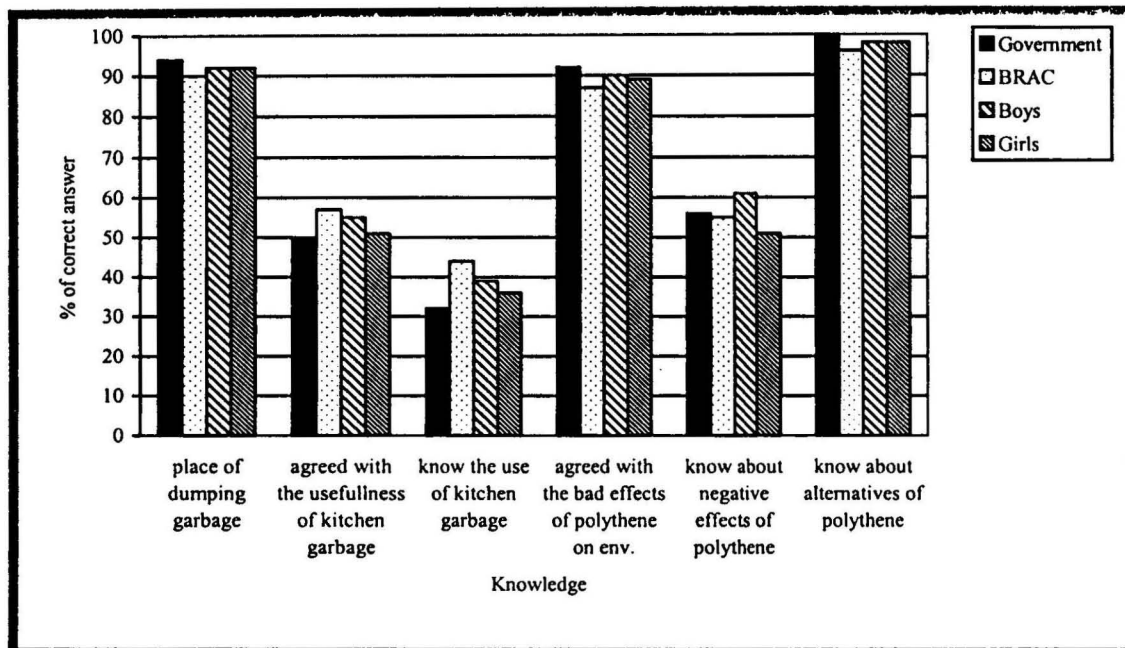
Ninety percent of all the students agreed with the bad effects of polythene. Government school students performed better than the BRAC school students. But, the boys and the girls performed equally well. (Figure 6).

Sixty-two percent of all the students were aware about the different negative effect of polythene. The correct answer that were received from the respondents was, '*Polythene decrease the soil fertility and prevent the drainage of water*'. The performance of different school students was similar for this item. But, the boys were ahead of girls (Figure 6). The boys of government schools did better than girls (Annex 17).

Ninety-eight percent of students could tell about the different alternatives of polythene. *Jute/cloth/paper bag'* was considered as correct answer for the alternatives of polythene bag. Government school students performed better than the BRAC school student , but no difference was found between boys and girls (Figure 6).

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Table 7: Mean number of correct answers on waste management according to school type and sex

Item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	0.5	------	-----	0.5
1	3.3	2.8	4.2	1.9
2	8.1	8.5	9	7.7
3	21.5	22.3	17	26.9
4	22	23.7	24.5	21.2
5	15.8	22.7	18.4	20.2
6	28.7	19.9	26.9	21.6
Mean	4.2	4.1	4.2	4.1
Standard deviation	1.4	1.3	1.4	1.3

No significant difference was found in mean of correct answer among the students of different school and sex for awareness of waste management (Table 7).

Awareness on bio-diversity

To assess the respondents awareness on biodiversity four issues were considered. These are:

➢ importance of tree for environment,
➢ required amount of forest for a country,
➢ importance of insect, and
➢ importance of bird.

Almost all the students (99 %) knew about the importance of tree. Different types of answers were received from the student, like *'prevent soil erosion, give shades, prevent storms, balance the oxygen in air'*. All the answers were considered as correct answer. The students of government school and BRAC school as well as boys and girls did equally well (Figure 7).

Very few respondents answered correctly about the required amount of forest for a country. Only 21 % of all the students correctly answered this question. The performance of government school students was found better than BRAC school students. No differences were found between boys and girls (Figure 7)

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Figure 7: Comparision of correct answer on awareness about biodiversity according to school type and gender
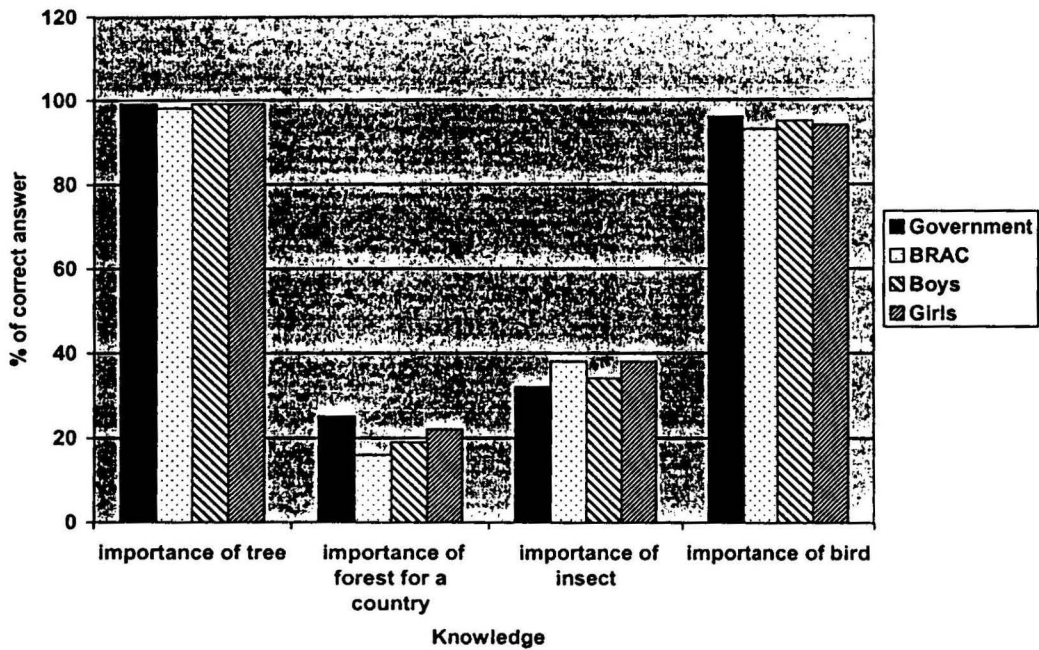
'Beneficial effect or both beneficial and harmfull effects' were considered as correct answer regarding the knowledge about the usefulness of insects. Only 36 % of all the students answered correctly. Most of the students thought that the insect were harmful to us.

But, 95% of all the students considered bird as beneficial. No significant differences were found between the students of different schools and sex. Regarding the knowledge on beneficial or harmful effects of insects and birds (Fig. 7).

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Table 8: Mean number of correct answer on biodiversity according to school type and sex

item	% of correct answer			
	School type		Sex	
	BRAC	Government	Boys	Girls
0	0.5	------	0.5	------
1	4.8	3.8	0.5	-------
2	49.8	50.2	3.8	4.8
3	38.8	35.1	52.8	47.1
4	6.2	10.9	8	9.1
mean	2.4	2.5	2.4	2.5
Standard deviation	0.7	0.7	0.7	0.7

No significant difference was found in mean of correct answers among the students of different schools and sex (Table 8).

The influence of other sources to create awareness other than school book

Television is the another major source for creating environmental awareness other than the school book. The government school students were more exposed to television than the BRAC school students. The boys mentioned more about television as a source of raising awareness than girls. Elderly people and radio were also treated as other sources (Table 9).

Table 9. The other source of knowledge

School type	Type of media	Male	Female	Total
Government	T.V.	47	36	83
	Radio	12	15	27
	From elders	22	23	45
	Do not know	46	51	97
BRAC	T.V.	34	37	71
	Radio	18	14	32
	From elders	23	22	45
	Do not know	48	44	92
	From library book/ magazines	2	3	5

Conclusion and Recommendations

The students with primary education have better awareness about safe water, safe sanitation practice and importance of trees. The students are poorly aware about environmental pollution (like air, water and soil pollution) and the problem of arsenic.

The teaching methods and curriculum of the government and non-formal primary schools are different. The students of the government schools came from the households with comparatively better socio-economic background. It is believed that the achievement of the students studying at government schools should be better than the other schools. But, the study results show that in the field of environment the performance of the students of both the government as well as the non-formal primary school of BRAC is almost similar. It is a positive achievement of the BRAC schools. The boys and girls have no significant difference in overall performance on environmental awareness.

Recommendations:

> Since many students still believe that it is safe to drink tubewell water, it would be beneficial to introduce/strengthen arsenic issue in the curriculum of primary education.

> Understanding biodiversity is a step to appreciate and conserve nature. Therefore, importance should be given to biodiversity in the curriculum of primary education. By increasing awareness on biodiversity, threatened and endangered species could potentially be preserved.

The study findings also revealed that in addition to schoolbooks, media also provided a source of awareness raising. To use the positive impact of mass media, it could be used more actively for raising awareness. The elderly people of the community could also play important role in awareness raising since a good number of respondents treat them as a source of knowledge beyond their school books.

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Annex 1. Comparisons of correct answer for general perception of environment according to school type and sex

Items	School type			sex		
	BRAC	Government	significance	Boys	Girls	significance
understand the term environment	60.3	49.3	P<.01	51.9	58.2	ns
have knowledge on different components of environment	57.8	48.3	P<.05	50.4	55.7	ns
said 'yes' for clean environment	93.7	94.7	ns	94.3	94.2	ns
know the reasons of keeping clean environment	59.3	64.8	ns	62.2	61.5	ns
Agreed with negative effects of over population on environment and	76.5	78.6	ns	80.1	75.5	ns
know why over population effects environment	67.9	70.1	ns	72.6	65.3	ns

ns = statistically not significant at p= 0.05

Annex 2. Comparison of correct answer for general perception of environment by sex difference of BRAC and government school

Knowledge	BRAC			Government		
	Boys	Girls	Significance	Boys	Girls	Significance
understand the term environment	53.8	66.7	P<.05	49.1	49.5	ns
have knowledge on different components of environment	52.8	62.8	ns	50	49.5	ns
said 'yes' for clean environment	94.2	93.4	ns	94.4	95.1	ns
know the reasons of keeping clean environment	62.5	56.1	ns	62	67	ns
Agreed with negative effects of over population on environment	82.6	70.4	P<.05	77.7	79.6	ns

ns = statistically not significant at p= 0.05

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Annex 3: Mean number of correct answer on general perception on environment by sex difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	1	2.9	4.6	1.9
1	8.7	6.7	10.2	8.7
2	9.6	10.5	4.6	11.7
3	12.5	11.4	13	13.6
4	21.2	21.9	25	20.4
5	16.3	18.1	11.1	10.7
6	30.8	28.6	31.5	33
Mean	4.1	4.1	4	4
Std. deviation	1.6	1.7	1.8	1.7

Annex 4. Comparision of correct answer on environmental pollution according to school type and sex

Items	% of correct answer					
	School	type		sex		
	Government	BRAC	significance	Boys	Girls	significance
how to protect soil erosion	68.8	64.4	ns	68.8	64.4	ns
the causes of soil pollution	49.7	48.8	ns	53.7	44.7	P<.05
the causes of air pollution	45.4	63.5	P<.01	55.6	53.3	ns
problems due to pollution of air	82.7	87.2	ns	87.2	82.6	ns
how to protect air pollution	69.3	75.8	ns	75.4	69.7	ns

ns = statistically not significant at p= 0.05

Annex 5. Comparisons of correct answer on environmental pollution by sex of BRAC and government school

Knowledge	BRAC		Significance	Government		Significance
	Boys	Girls		Boys	Girls	
understand the term environment	72.1	65.7	ns	65.7	63.1	ns
have knowledge on different cmponents of environment	49	50	ns	58.3	38.8	P<.01
said 'yes' for clean environment	48.1	42.9	ns	63	64.1	ns
know the reasons of keeping clean environment	88.5	77.1	P<.05	86.1	88.3	ns
Agreed with negative effects of over population on environment and	76.9	61.9	P<.01	74.1	77.7	ns

ns = statistically not significant at p= 0.05

Annex 6. Mean number of correct answer on environmental pollution by sex of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	4.8	7.6	5.6	5.8
1	4.8	12.4	2.8	5.8
2	10.6	12.4	8.3	9.7
3	14.4	10.5	16.7	20.4
4	23.1	16.2	18.5	14.6
5	26.9	22.9	27.8	24.3
6	15.4	18.1	20.4	19.4
Mean	3.8	3.5	4	3.8
Std. deviation	1.6	1.9	1.6	1.7

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Annex 7: Percentage of correct answer on safe water according to school type and sex

| Items | % of correct answer | | | | | |
| | School | type | Significance | sex | | significance |
				Boys	Girls	
what is safe water	81.5	82.3	ns	86.8	76.9	P<.01
causes of water pollution	91	87.6	ns	90.1	88.5	ns
problems associated with polluted water	93.4	85.6	P<.01	88.7	90.4	ns
how to purify the drinking water	89.6	83.3	P<.05	88.2	84.6	ns
how to protect the water pollution	66.4	65.1	Ns	63.7	67.8	ns

ns = statistically not significant at p= 0.05

Annex 8: Percentage of correct answer on safe water by gender difference of BRAC and government school

| Knowledge | BRAC | | Significance | Government | | Significance |
	Boys	Girls		Boys	Girls	
what is safe water	85.6	79	ns	88	74.8	P<.01
causes of water pollution	88.5	86.7	ns	91.7	90.3	ns
problems associated with polluted water	85.6	85.7	ns	91.7	95.1	ns
how to purify the drinking water	85.6	81	ns	90.7	88.3	ns
how to protect the water pollution	68.3	75.2	Ns	80.6	74.8	ns

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Annex 9: Mean number of correct answer on safe water by gender difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	1	1	----	----
1	4.8	3.8	------	1
2	2.9	6.7	4.6	6.8
3	9.6	12.4	11.1	9.7
4	34.6	27.6	21.3	33
5	47.1	48.6	63	49.5
Mean	4.1	4	4.4	4.2
Std. deviation	1.1	1.1	0.8	0.9

ns = statistically not significant at p= 0.05

Annex 10: Percentage of correct answer on arsenic by school type and sex

Items	% of correct answer					
	School	type	significance	sex		significance
	Government	BRAC		Boys	Girls	
understanding of the term arsenic	11.8	9	ns	9.4	11.5	ns
awareness about arsenic effected water source	69.1	59.3	P<.05	63.6	64.9	ns
understand what green coloured tubewell means	65.4	61.7	ns	64.1	62.9	ns
problems that could arise by drinking arsenic effected water	49.2	48.8	ns	46.2	51.9	ns
understand what red coloured tubewell means	50.9	49.2	ns	47.6	52.8	ns
awareness about the source of arsenic free water	53	45.4	ns	48.1	50.4	ns

ns = statistically not significant at p= 0.05

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Annex 11:Percentage of correct answer on arsenic by gender difference of BRAC and government school

Knowledge	BRAC		Significance	Government		Significance
	Boys	Girls		Boys	Girls	
understanding of the term arsenic	10.6	8	ns	8.3	15.5	ns
awareness about arsenic effected water source	56.7	61.9	ns	70.4	68	ns
understand what green coloured tubewell means	62.5	61	ns	65.7	65	ns
problems that could arise by drinking arsenic effected water	46.2	51.4	ns	46.3	52.4	ns
understand what red coloured tubewell means	47.1	51.4	ns	48.1	54.4	ns
awareness about the source of arsenic free water	41.3	49.5	ns	54.6	51.5	ns

ns = statistically not significant at p= 0.05

Annex 12:Mean number of correct answer on arsenic By gender difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	33.7	32.4	27.8	28.2
1	2.9	1.9	0.9	3.9
2	6.7	4.8	2.8	4.9
3	10.6	4.8	13.9	6.8
4	7.7	11.4	10.2	7.8
5	17.3	21	17.6	17.5
6	21.2	23.8	26.9	31.1
Mean	2.9	3.1	3.3	3.3
Std. deviation	2.4	2.4	2.3	2.4

ns = statistically not significant at p= 0.05

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Annex 13:Percentage of correct answer on sanitation practice by school type and gender

Items	% of correct answer					
	School	type	significance	sex		significance
	BRAC	Governm ent		Boys	Girls	
proper place of defecation	74.2	82.9	P<.01	79.7	77.4	ns
Washing hands after defecation	100	99.1	ns	99.5	99.5	ns
What should be use to wash hand after defecation	97.1	90.4	P<.01	91.9	95.7	ns

ns = statistically not significant at p= 0.05

Annex 14:Percentage of correct answer on safe sanitation practice by gender difference of BRAC and government school

Knowledge	BRAC		Significance	Government		Significance
	Boys	Girls		Boys	Girls	
proper place of defecation	74	74.3	ns	85.2	80.6	ns
Washing hands after defecation	100	100	ns	99.1	99	ns
What should be use to wash hand after defecation	99	95.2	ns	85.2	96.1	P<.01

ns = statistically not significant at p= 0.05

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Annex 15: Mean of correct answer on safe sanitation practice by gender difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	------	-----	-----	-----
1	------	-----	------	-----
2	14.4	9.5	19.4	10.7
3	85.6	89.5	80.6	89.3
Mean	2.8	2.8	2.8	2.8
Std. Deviation	0.3	0.3	0.4	0.3

ns = statistically not significant at p= 0.05

Annex 16: Percentage of correct answer on waste management by school type and gender

Items	% of correct answer					
	School	type	significance	sex		significance
	BRAC	Government		Boys	Girls	
proper place of dumping garbage	90	94.3	ns	91.9	92.3	ns
agreed that the kitchen garbage is useful	56.5	50.2	ns	55.2	51.4	ns
know the purpose of kitchen garbage	44	31.8	P<.01	39.2	36.5	ns
agreed that the polythene has bad effects on environment	87.1	92.4	P<.05	90.1	89.4	ns
the different negative effects of polythene on environment	55	56.4	ns	60.8	50.5	P<.05
alternatives of polythene bag	95.7	100	P<.01	98.1	97.6	ns

ns = statistically not significant at p= 0.05

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Annex 17: Percentage of correct answer on waste management by gender difference of BRAC and government school

Knowledge	BRAC		Significance	Government		Significance
	Boys	Girls		Boys	Girls	
proper place of dumping garbage	91.3	88.6	ns	92.5	96.1	ns
agreed that the kitchen garbage is useful	58.7	54.3	ns	51.9	48.5	ns
know the purpose of kitchen garbage	44.2	43.8	ns	34.3	29.1	ns
agreed that the polythene has bad effects on environment	89.4	84.8	ns	90.7	94.2	ns
the different negative effects of polythene on environment	58.7	51.4	ns	63	49.5	P<.05
alternatives of polythene bag	96.2	95.2	ns	100.	100	ns

ns = statistically not significant at p= 0.05

Annex 18: Mean of correct answer on waste management by gender difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	-----	1	------	------
1	3.8	2.9	4.6	1
2	8.7	7.6	9.3	7.8
3	15.4	27.6	18.5	26.2
4	26	18.1	23.1	24.3
5	15.4	16.2	21.3	24.3
6	30.8	26.7	23.1	16.5
Mean	4.3	4.1	4.1	4.1
Std. deviation	1.4	1.4	1.4	1.2

ns = statistically not significant at p= 0.05

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Annex 19:Percentage of correct answer on biodiversity by school type and gender

Items	% of correct answer					
	School	type	significance	sex		significance
				Boys	Girls	
importance of tree for environment	98.1	99.1	ns	98.6	98.6	ns
required amount of forest for a country	16.3	24.6	P<.05	18.9	22.1	ns
importance of insect and	38.3	33.2	ns	34	37.5	ns
importance of bird	92.8	96.2	ns	94.8	94.2	ns

ns = statistically not significant at p= 0.05

Annex 20: Percentage of correct answer on bio-diversity by gender difference of BRAC and government school

Knowledge	BRAC		Significance	Government		Significance
	Boys	Girls		Boys	Girls	
importance of tree for environment	97.1	99	ns	100	98.1	ns
required amount of forest for a country	15.4	17.1	ns	22.2	27.2	ns
importance of insect	35.6	41	ns	32.4	34	ns
importance of bird	91.3	94.3	ns	98.1	94.2	ns

ns = statistically not significant at p= 0.05

Annex 21: Mean of correct answer on biodiversity by gender difference of BRAC and government school

Knowledge	BRAC		Government	
	Boys	girls	Boys	girls
0	1	-----	------	------
1	5.8	3.8	1.9	5.8
2	53.8	45.7	51.9	48.5
3	31.7	45.7	38	32
4	7.7	4.8	8.3	13.6
Mean	2.3	2.5	2.5	2.5
Std. deviation	0.7	0.6	0.6	0.8

ns = statistically not significant at p= 0.05

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