

# Practical Application of the Knowledge on Environmental Education in Secondary Schools in Cuttack District, Odisha

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**Abstract:** Environmental Education is an integral component in the curriculum of secondary education. Students and teachers are also imparted training through different means. An attempt has been made. This paper presents the opinion, suggestions and responses of students and Teachers of secondary schools in two blocks of Cuttack district, Odisha. Implementation of suggestions in real life will definitely enrich the environment, reduce environmental hazards and reduce environmental problems.

**Keywords:** Environmental Education, secondary education, curriculum, practical application of knowledge.

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## 1. INTRODUCTION

Environment is defined by Sharma [1] as it encompasses every living and non-living objects, the interaction between these and the products of these interactions. Environmental Education is an educational intervention to meet the challenge of environmental crisis. It emphasizes on the need of working knowledge of environmental wisdom among people as well as the need of incorporating the environment and development education. It acts as an integral part of learning in the formal and non-formal education systems to maintain the sustainability of environment and ecological balance. The UNESCO has highly emphasized on arousing environmental awareness among people of the world all over through various ways and means of environmental education. Rebello [2] (1994) emphasized on the definition of Environmental Education given in final report of the Tbilisi conference 1977 as an integral part of the education process, centered on practical problems and to be of an inter-disciplinary character. Belgrade conference [3] (1975) defines the goals of Environmental Education as “to develop a world population that is aware of and concerned about the environment and its associated problems and which has the knowledge, skills, attitudes, motivational and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones.” Tbilisi conference [4] (1977) extended and developed the objectives of Environmental Education. According to Senapati and Sahoo [5] (2009) Environmental education is not a new subject of study. In fusion and intervention approaches it needs to be adopted to incorporate the concepts of environmental education in the curriculum.

In the present study, the roles of students and teachers had been taken in to consideration for practical applicability of Environmental Education in and outside of school environment. This study had been undertaken in Cuttack Sadar and Tangi Choudwar blocks of the Cuttack district, Odisha [6]. Students and teachers having insufficient knowledge on Environmental Education are imparted orientation, training and undergo refresher courses to enhance their knowledge in the field. When the knowledge gained by the students and teachers in particular and people in general is applied to real life, the environment is enriched and the hazards of the environment are reduced and environmental problems are less felt. Here in this article the students, teachers and environmentalists have given their opinions, suggestions and responses for the practical application of the knowledge on Environmental Education and its role in reducing the problems.

## 2. MATERIAL AND METHODS

Descriptive survey method had been adopted for the study. Participants of different categories like students and teachers had been selected on the basis of random sampling. They had been chosen from the schools of Tangi-Choudwar and Cuttack Sadar blocks of Cuttack district of Odisha. 120 students from each of the block had been taken for the study. At least 12 schools of each block had been chosen so that not more than ten students taken for survey from a particular school. Similarly, 60 teachers i.e. 30 from each block had been taken for study. The science teachers or the teacher involved with the Eco club or environmental issues had been selected. Besides the above participants, twenty environmentalist or educationist involved with environmental issues had been interviewed. The researcher had developed and validated the Questionnaire for the students and teachers for the study. An interview schedule for the Environmentalists or Educationists involved with environmental issue was also prepared.

## 3. METHODS OF DATA ANALYSIS

Data were analyzed to determine the percentages using Microsoft-Excel (Microsoft Corp., Redmond, WA, USA).

## 4. RESULTS AND DISCUSSION

### A. RESPONSES OF THE STUDENTS:

To know about the practical application of the knowledge on environmental education, which the students had gained through various training and orientation programmes, the investigator had invited their responses. The students had said about the different practical measures which would be taken to enrich the environment. The measures and responses for them in the two blocks were presented in the table I as follows.

**TABLE I: STUDENTS RESPONSE REGARDING VARIOUS PRACTICAL MEASURES TO BE TAKEN TO ENRICH THE ENVIRONMENT**

Sl. No	Measures to reach the environment	No. of responses in Tangi-Choudwar	No. of responses in Cuttack Sadar	Total
1	Tree plantation, Growing garden and its maintenance inside school campus/ nearby public places	71(59.17)	75(62.5)	146(60.83)
2	Starting of kitchen garden, maintenance of vermi-composting pits and medicinal plantation at home and school	72(60.00)	73(60.08)	145(60.40)
3	Construction of water harvesting structures in schools	41(34.17)	55(45.8)	96(40.00)
4	Recycling of paper, glasses and other materials	37(30.83)	40(33.00)	77(32.00)
5	Cleanliness and sanitation drive in schools, colony, public places, neighbourhood areas, ponds, wells and drinking water	56(46.7)	62(51.00)	118(49.00)
6	Mobilization of action against environmentally unsound practices like garbage disposal in unauthorized places, unsafe disposal of hospital wastes, etc. through NCC Cadets, Red cross volunteers, Scouts & Guide	58(48.3)	70(58.3)	128(53.3)
7	Formation of Eco clubs in schools	73(60.8)	64(53.3)	137(57.00)
8	Use of Gobar gas, smokeless chullah, solar cooker etc.	54(45.00)	69(57.50)	123(51.25)
9	Motivation for conserving/ care for Local bio-diversity, domestic animals, birds and wild animals	42(35.00)	40(33.33)	82(34.17)
10	Motivation for control of Noise pollution	72(60.00)	83(69.17)	155(64.58)

11	Motivation for abiding Environmental Laws	64(53.33)	61(50.83)	125(52.08)
12	Campaign for timely immunization, balanced food and health education	65(54.17)	57(47.50)	122(50.83)
13	Environmental concern in daily life e.g. conserving paper, electricity, water, litter, saving gasoline etc.	72(60.0)	59(49.17)	137(54.58)
14	All of the above	42(35.00)	57(47.50)	99(41.25)
	Total	120(100.00)	120(100.00)	240(100.00)

(Figures in parentheses indicate percentage)

Out of the above causes the students of Tangi-Choudwar had given more priority on the measures like tree plantation, raising of both general and kitchen garden, maintenance of vermi-composting, raising of medicinal plants both in- and outside the school, formation of eco-clubs in schools and environmental concern in daily life e.g. conserving paper, electricity, water, litter saving gasoline, etc.

The students of Cuttack Sadar on the other hand given priority on the practical measures like motivation for control of noise pollution, tree plantation, raising kitchen gardens and medicinal gardens, vermicomposting, mobilization of action against environmentally unsound practices through NCC Cadets, Red Cross Volunteers, scouts and Guides, formation of Eco-clubs in schools, use of non-conventional, renewable sources of energy e.g. Gobar gas, smokeless chullah, solar cooker etc. to enrich the environment.

#### **B. RESPONSE OF TEACHERS:**

The investigator had also invited responses from the teachers of Tangi-Choudwar and Cuttack Sadar regarding action based programmes which could be undertaken for practical application of environment related knowledge. The responses of teachers were presented below for analysis in Table II

**TABLE II: TEACHERS' RESPONSE REGARDING ACTION BASED PROGRAMMES WHICH CAN BE UNDERTAKEN FOR PRACTICAL APPLICATION OF ENVIRONMENT RELATED KNOWLEDGE**

Sl. No	Action based programmes for practical application of Environmental Knowledge	No. of responses in Tangi-Choudwar	No. of responses in Cuttack Sadar	Total
1	Tree plantation within and outside the school campus	28(93.30)	30(100.00)	58(96.70)
2	Growing kitchen garden, medicinal plants, maintaining vermi-composting pits, constructing water harvesting structures in schools, paper recycling etc	30(100.00)	30(100.00)	60(100.00)
3	Cleanliness and sanitation drive in schools, colony, public places, neighbourhood areas, ponds, wells and drinking water	28(93.30)	25(83.30)	53(88.30)
4	Maintenance of public places like parks, gardens both within and outside the school campus	27(90.00)	24(80.00)	51(85.00)
5	Mobilization of action against environmentally unsound practices like garbage disposal in unauthorized places, unsafe disposal of hospital wastes etc	20(66.70)	25(83.30)	45(75.00)
6	Use of Gobar gas, smokeless chullah, solar cooker etc.	21(70.00)	28(93.33)	49(81.67)
7	Conservation of bio-diversity, domestic animals, birds and wild lives	30(100.00)	30(100.00)	60(100.00)
8	Abiding environmental laws	12(40.00)	23(76.67)	35(58.33)
9	conserving paper, electricity, water, petrol saving gasoline in daily life	30(100.00)	30(100.00)	60(100.00)
	Total	30(100.00)	30(100.00)	60(100.00)

(Figures in parentheses indicate percentage)

In the TABLE No. 7-2 the teacher of both Tangi-Choudwar and Cuttack Sadar had suggested many *action based programmes for practical application of Environmental Knowledge*. Those *action based programmes which were suggested by cent percent teachers of both the blocks* were Growing kitchen garden, medicinal plants, maintaining vermi-composting pits, constructing water harvesting structures in schools, paper recycling etc., Conservation of bio-diversity, domestic animals, birds and wild lives and conserving paper, electricity, water, petrol saving gasoline in daily life

#### **RESPONSE OF THE ENVIRONMENTALISTS:**

The investigator had invited responses from the environmentalists of the state on the solutions of environmental problems. From their responses it was realized that 85 percent of environmentalists had given positive reply while 10 percent of them reply negatively. The environmentalists had suggested many measures to solve the environmental problems which were given in TABLE III.

**TABLE III: RESPONSE OF THE ENVIRONMENTALISTS ON THE MEASURES TO SOLVE THE ENVIRONMENTAL PROBLEMS**

Sl. No	Measures	No. of responses	Percent
1	Planting tree	20	100
2	Using natural resources in a judicious and planned manner	20	100
3	Avoiding use of hazardous commodities for the environment	20	100
4	Use of eco-friendly materials and appliances in day to day life	20	100
5	Avoidance of modern amenities harmful for environment	20	100
6	Aspiration for simple and comfortable life.	18	90
	Total	20	100

As far as the response of the environmentalists are concerned to solve the environmental problems they were planting trees, using natural resources in a judicious and planned manner, avoiding use of hazardous commodities for the environment, use of eco-friendly materials and appliances in day to day life, avoidance of modern amenities harmful for environment and aspiration for simple and comfortable life.

The researcher had again invited responses from environmentalists regarding the methods to bring awareness among students and teachers to save the environment. Their responses were given below in TABLE No. 7-4.

**TABLE IV: RESPONSE OF THE ENVIRONMENTALISTS REGARDING METHODS TO BRING AWARENESS AMONG STUDENTS AND TEACHERS TO SAVE THE ENVIRONMENT**

Sl. No	Measures to bring awareness	No. of responses	Percent
1	Organising awareness programme	20	100
2	Giving orientation and training	20	100
3	Incorporating environment related subjects in the syllabus	20	100
4	Giving incentives/awards/prizes through Government programmes	15	75
5	Any other method	01	05
	Total	20	100

From the table above it was known that the environmentalists had prescribed many methods by which awareness would be created among students and teachers to save the environment mostly emphasizing on organisation of awareness programme, impart of orientation and training and incorporation of environment related subjects in the syllabus.

The researcher had also invited the opinions of the environmentalists regarding Government's role for environment enrichment. Their opinions were presented in the TABLE V.

**TABLE V: ENVIRONMENTALISTS' OPINION REGARDING GOVERNMENT'S ROLE FOR ENRICHMENT OF THE ENVIRONMENT**

Sl. No	Government's role	No. of responses	Percent
1	Development of parks in urban areas	20	100
2	Incorporation of garden in house planning compulsory	07	35
3	Making eco-development through rural development programmes	14	70
4	Massive development of horticulture and cashew plantation	15	75
5	Undertaking of plantation programmes to check soil erosion	20	100
6	Stringent action against plunderer of forest and forest products	20	100
	Total	20	100

All the environmentalists agreed that Government should develop parks in urban areas, undertake massive development of horticulture and cashew plantation, undertaking of plantation programmes to check soil erosion and stringent action against plunderer of forest and forest products.

At last the researcher had asked the environmentalists to suggest for making the environment healthy and useful for future generation. Their suggestions were recorded in TABLE VI.

**TABLE VI: ENVIRONMENTALISTS' SUGGESTIONS FOR MAKING ENVIRONMENT HEALTHY AND USEFUL FOR FUTURE GENERATIONS**

Sl. No	Suggestions	No. of responses	No. of responses
1	Sustainable use of natural resources	15	75
2	Encouraging mass mobility on Environmental Education	10	50
3	Emphasis on renewable sources of energy	18	90
4	Ground water recharging	05	25
5	Efficient collection of waste	18	90
	Total	20	100

From the table, it is analyzed that 90 percent environmentalists had suggested emphasizing on renewable sources of energy and efficient collection of wastes, 75 percent of them advised on sustainable use of natural resources. Fifty percent of the environmentalists had suggested for mass mobility on Environmental Education and only 25 percent suggested for ground water recharge in every house.

## 5. CONCLUSION

The students, teachers and environmentalists had given their opinions, suggestions and responses for the practical application of the knowledge on environment which they had gained through training. The teacher of both Tangi-Choudwar and Cuttack Sadar had suggested many action based programmes for practical application of environment related knowledge. The environmentalists said that Government had a vital role to play in the field of environment enrichment. They had said that the Government should develop parks in urban areas, pass legislations to incorporate gardens in house planning, make eco-development through rural development programmes; undertake massive development of horticulture and cashew plantations to check soil erosion and stringent action against the plunderer of forest to enrich the environment.

At last the environmentalists had suggested for the use of renewable sources of energy and efficient collection of wastes, sustainable use of natural resources, mass mobility on Environment Education and ground water recharge in every house to make the environment healthy and useful for the future generation.

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