ORIGINAL ARTICLE

EVALUATION OF ENVIRONMENTAL STATUS IN SCHOOLS OF PUNJAB, INDIA THROUGH CONDUCTING SELF ENVIRONMENTAL AUDIT

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ABSTRACT

The main aim of the present study is to evaluate the existing environmental status in schools of Punjab with respect of water, air, land, energy and waste. Under this program schools perform self assessment of environmental practices i.e. water, air, energy, land, and waste in the schools using Green Schools Programme Manual for evaluation of environmental quality and management in the school. For this study environmental audit was conducted in 36 schools of Punjab and they were instructed for preparing self environmental audit report. Out of which only 26 reports were received. After critical analysis of these reports it was noted that 93.74% of the schools were doing water recycling. 30.6% had proper rain water harvesting system. As far as air parameter is concerned, most of the schools had well ventilated rooms. In land parameter most of the schools had scored maximum marks as they have good tree cover, biodiversity rich area and herbal/medicinal garden etc. Some schools were found highly efficient in conservation of land recovered and were not using pesticides in their schools. In energy audit, schools scored up to 99% and are making efforts to save energy. All schools showed proper waste management system having waste collection, recycling and disposal mechanism and were reducing their waste.

Key words: *Environmental audit, pollution, awareness*

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INTRODUCTION

Environmental pollution, degradation and conservation is a matter of concern in the world. Both developing and developed countries are facing serious environmental problems. Anthropogenic activities are the largest contributor to the environmental degradation. While some of the problems might be globally alike (e.g. global warming, depletion of the ozone layer), others are specifically local ones. There is a need to adopt some procedure to evaluate the status of environmental resources. Environmental auditing is a systematic process to evaluate environment management systems through minimization of waste generation, assessing compliance with regulatory requirements, promotion of alternative and renewable sources and estimation of cost for technology implementation. It also helps in identifying a problem and its mitigation. Sometimes it gives surprising results.

The detailed process of environmental audit in schools may involve the following steps (Fig. 1):

- Identification of the fields and environmental problem in the school so that it can be solved.
- Identification of the solutions
- Development of the strategies to solve the problem by allocating
- Responsibility for implementation of solution and monitoring schedule preparation. Duty of monitoring should be assigned to a person for proper implementation of solution.
- Creation of awareness by conducting of interesting awareness programmes
- Sensitization of the students about their environment and praise the environmental audit teams during assembly. A request should be made for students and teachers for assistance in this program.

In this way an environmental problem can be solved.

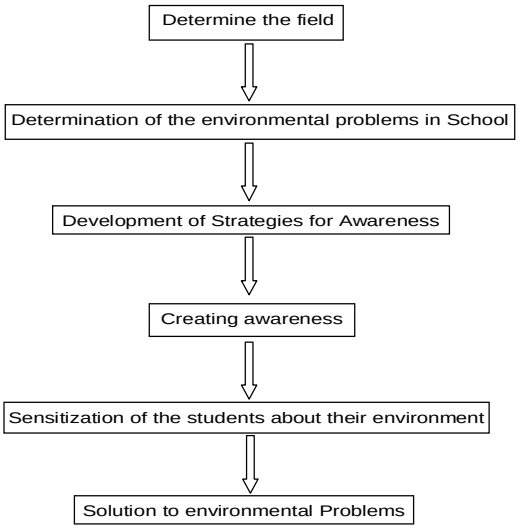

Fig.1. Procedure to mitigate Environmental Problem in School

This study may contribute and help the government and non government agencies in mobilization of the environmental awareness among public starting from school students. Therefore, this paper embarks on the following objectives:

1. to identify the status of environmental awareness in schools of Punjab

2. to determine the effectiveness of school-based environmental awareness programmes in order to enhance self-environmental auditing

3. to develop an environmental awareness suggestions.

METHODOLOGY

The whole process of environmental auditing in schools involves many steps for completion of task which includes five areas such as water, air, energy, land and waste. Initially, the whole Punjab State was taken into consideration for this programme. But only 10 out of 20 districts responded positively and finally 36 environmental audit reports were received from 10 districts *i.e.* Gurdaspur (8), Amritsar (1), Tarn Taran (6), Jalandhar (1), Hoshiarpur (1), SAS Nagar (6), Ludhiana (8), Barnala (3), Faridkot (1) and Ferozepur (1) shown in Fig. 3. Under this programme schools constituted five rteams of students according to the above stated areas to evaluate "How is the school managing these issues?" as the main motive of this study.

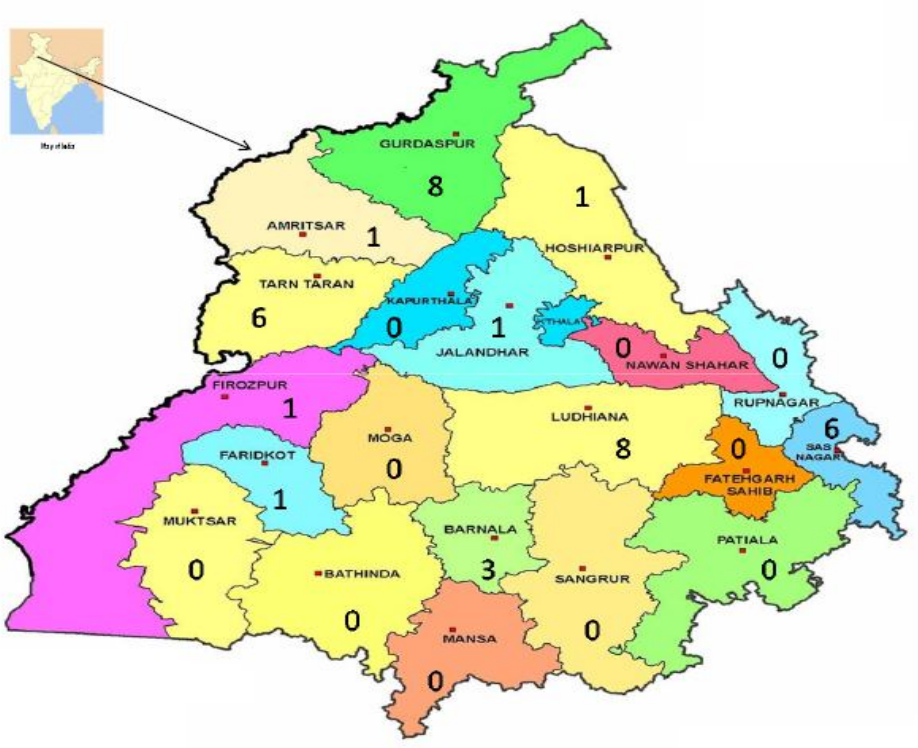

Fig.3. Map of Punjab showing districts wise number of reports received

All these schools were asked to prepare environmental audit report according to Manual of Green School Programme (CSE, 2009) that gives step by step guidelines to students on how to conduct an environmental audit in the school.

RESULTS

All 36 environment audit reports were collected from various schools of Punjab for critical analysis. Out of these, 21 reports were found prepared according to green School Manual of CSE (2009). Rest 15 reports were not according to manual hence, not considered in this evaluation. However, good initiatives for environment conservation like awareness, plantation, waste management, biodiversity conservation and rainwater harvesting etc are being taken up by all these 15 schools. All schools had assessed five parameters of environment audit such as water, air, land, energy and waste. On the other hand, two schools out of 21 namely Govt. Senior Secondary School, Sohal of District Gurdaspur and Govt. Primary School, Machaki Mal Singh of District Faridkot had evaluated only one parameter each i.e. water and land, and scored 59.4 and 85.4 marks out of 100, respectively. These two schools due to incomplete reports were also not considered in this program. Schools participated in environmental audit program are given in Table-1.

Table 1. Schools participated in Environmental Audit program

S. No.	Name of School
S-1	Govt. Senior Secondary School, Amritsar
S-2	Govt. High School, Bhotna, Barnala
S-3	Govt. Middle School, Dhab Kushal Joyia, Distt. Ferozepur
S-4	Govt. High School, Khunda, Gurdaspur
S-5	DAV Senior Secondary School, Batala, Gurdaspur
S-6	Arya Girls Senior Secondary School, Pathankot, Gurdaspur
S-7	Woodlands Overseas School, Hoshiarpur
S-8	Govt. Senior Secondary School, Hambran, Ludhiana
S-9	Govt. High School, Jawadi, Ludhiana
S-10	Govt. Senior Secondary Model School, PAU Ludhiana
S-11	Shaheed-E-Ajam Sukhdev Thapar Govt. Girls Senior Secondary School, Bharat Nagar, Ludhiana
S-12	Sat Paul Mittal School, Ludhiana
S-13	BCM Arya Model Senior Secondary School, Shastri Nagar, Ludhiana
S-14	Delhi Public School, Vill. Jhammat, P.O. Ayali Kalan, Ludhiana
S-15	Govt. Girls High School, Dakha, Ludhiana
S-16	Khalsa Senior Secondary School, Kharar, SAS Nagar
S-17	Govt. Model Senior Secondary School, Kharar, SAS Nagar
S-18	St. Stephen's School, Togan, Kharar, SAS Nagar
S-19	S.J.S. Govt. High School, Chamba Kala, Tarn Taran

Environmental auditing:

a) Water Audit

Water audit is a qualitative and quantitative analysis of water consumption to identify means of reducing, reusing and recycling of water. It helps to save money by reducing water bills, wastage and unnecessary use of

water in schools. It makes the students more aware and responsible towards water conservation. A water audit can be a student project that encompasses a number of subjects. All schools (100%) were trying to save water through less consumption of water. Proper sanitation facilities were available in 68.42% schools (Table 2). 78.95% schools were following water conservation practices such as inspecting toilets and washing points, reducing the flush water volume in toilets replacing single flush cisterns with dual flush, installing low flow fixtures for taps. Rain water harvesting systems were installed in 73.68% schools. Water recycling is in practice in almost all the schools (93.74%) for minimization of water consumption and are taking good initiatives to conserve water but 31.58% are most efficient and 68.42% are also trying water conservation practices. 89.47% school scored above 50% for self auditing of water parameter.

Table 2. Water audit in schools.

School	Water Saving	Sanitation facilities	Water Conservation practices	Rain water harvesting	Water recycling	School Initiatives	Water Total
S-1	15	15	6	21.45	9.31	6	**72.76**
S-2	15	NA	NA	24	26.2	5	**70.2**
S-3	11	15	7	0	13	5	**51**
S-4	15	15	4	0	0	2	**36**
S-5	7.5	12.8	9	15	14	9	**67.3**
S-6	12.05	5.39	10	0	19.8	6.5	**53.74**
S-7	14.53	15	9	21.45	22.02	10	**92**
S-8	15	15	8	10	20	7	**75**
S-9	15	15	10	25	.5	5	**70.5**
S-10	13.5	9.5	7	12	5.2	7	**54.2**
S-11	15	15.1	8	25	12.6	10	**85.7**
S-12	15	15	10	25	21.87	10	**96.87**
S-13	15	14.79	8	25	14.91	10	**87.7**
S-14	15	13	8	20.2	8	7.5	**71.7**
S-15	15	15	9	22.5	17.3	10	**88.8**
S-16	15	5	NA	2.8	6.65	6.5	**35.95**
S-17	15	14.97	7	25	13.38	6.5	**81.85**
S-18	15	5	NA	30	29	10	**89**
S-19	15	5	NA	0	27	7	**54**
Max. Marks.	**15**	**15**	**10**	**25**	**25**	**10**	**100**

*NA= Data not available.

b) Air Audit

As far as air is concerned, most of the schools showed oxygen balance and level of air quality with in prescribed limits. It was measured by schools as per methodology given in Green School Manual of Centre for Science and Environment. Besides, 36.84% schools have shown proper oxygen balance due to rich plant diversity in schools campus. Other schools also showed good oxygen balance except S-9, S-12, S-13 & S-17. Air quality was measured in schools as per their location like urban and rural.

Most of schools are located in villages and students uses bicycles, common pool vehicles and also come on foot. It gives an idea that eco-friendly and common pool vehicles may be promoted in schools to maintain healthy and clean environment. Out of 19 schools 41.11% were using eco-friendly vehicles while 3 schools have not provided any data. 78.95% schools had full ventilated rooms while 21% have also good ventilation in rooms. About 78.95 % schools scored marks above 70 % (Table-3).

Table 3. Air audit in schools

School	Oxygen balance	Air quality Status		Eco-friendly vehicles	Mode of travel	Ventilation in rooms	School Initiatives	Total Marks Obtained
		Urban school	Rural school					
S-1	10	10	NA	25	20.88	15	8	**88.88**
S-2	9	9	NA	NA	29	15	5	**67**
S-3	8	NA	10	NA	27.72	15	5	**65.72**
S-4	4	NA	4	NA	10	15	6	**39**
S-5	7.87	10	NA	15.54	19.29	15	7.5	**75.2**
S-6	9.81	10	NA	10	24.99	15	2	**71.79**
S-7	10	NA	10	10.06	17.06	15	10	**72.12**
S-8	10	NA	10	20	25	15	10	**90**
S-9	0.34	NA	7.08	25	23.91	15	5	**76.33**
S-10	10	7	NA	24.5	27.42	15	6.5	**90.42**
S-11	10	10	NA	25	20.56	15	10	**90.56**
S-12	3.22	10	NA	25	20.91	15	10	**84.13**
S-13	1.1	10	NA	25	18.6	15	10	**79.7**
S-14	7.4	NA	10	22	20.04	14.79	7.5	**81.73**
S-15	10	NA	7.8	17.82	27.3	15	10	**87.92**
S-16	10	NA	NA	25	27.77	12.5	4	**79.27**
S-17	1.58	10	NA	25	24.65	13.8	5	**79.41**
S-18	13	NA	NA	15.8	27.3	10	9	**27.86**
S-19	15	NA	NA	19.16	28.76	10.91	9	**82.83**
Max. Marks.	**10**	**10**	**10**	**25**	**30**	**15**	**10**	**100**

*NA= Data not available.

c) Land Audit

Land parameter included the biodiversity and its conservation measures. In land parameter most of the schools had scored maximum marks as they have good tree cover and biodiversity rich area. 68.42% schools had scored full marks in having green area; it indicates that they have good plant and animal diversity. Large tree cover is present in all the schools. 21% schools had scored full marks for biodiversity conservation, while 57.89% schools also showed good biodiversity conservation initiatives and having various animal and plant species. They have hanged artificial wooden nests on the trees to provide shelter for the birds. They have also constructed and

maintaining ponds to conserve aquatic diversity. Also, 52.63% schools doing very good with regard of biodiversity conservation. But S-13 was trying to improve status of biodiversity. 59% schools have good number of animal and plant species. Besides this, 84.21% schools were not using pesticides in their schools and got full marks; on the other hand, 15.79% schools are also using less pesticide. These schools were promoting use of bio-pesticides like Neem and Tulsi etc. All most all schools were taking good initiatives for land conservation. 100% marks in land audit were scored by S-7, S-8 and S-11 (Table 4), while, other schools are also taking good initiatives to conserve the biodiversity and green area.

Table 4. Land audit in schools.

School	% green area in school	Tree cover	Per capita construction and field area	No. of Plant and animal species	Pesticide use	School Initiatives	Total Marks Obtained
S-1	7.4	10	10	22.27	20	8	**77.67**
S-2	10	5	5	24	20	5	**69**
S-3	10	9	4	17	20	7.5	**67.5**
S-4	6	6	5	10	20	3	**50**
S-5	10	10	5	30	20	8	**83**
S-6	8.9	8.9	4.13	28.75	18	5	**73.68**
S-7	10	10	10	40	20	10	**100**
S-8	10	10	10	40	20	10	**100**
S-9	0.4	10	10	40	20	5	**85.4**
S-10	7	10	8	35	20	7.5	**87.5**
S-11	10	10	10	40	20	10	**100**
S-12	10	9.95	5.2	35.17	20	10	**90.32**
S-13	10	5	1.6	4	18	10	**84.6**
S-14	10	5.7	10	36.45	13.8	7.5	**83.45**
S-15	10	10	10	37.1	20	10	**97.1**
S-16	10	7.1	0	10.9	20	4	**52**
S-17	9.64	4.02	6.22	26.25	20	4	**70.13**
S-18	10	10	7.86	25.5	20	10	**83.36**
S19	10	6	10	27.7	20	9	**82.7**
Max. Marks.	**10**	**10**	**10**	**40**	**20**	**10**	**100**

d) Energy Audit

It is a survey and analysis of energy flows for energy conservation in a school to determine how and where energy is being used and to identify conservation opportunities in energy savings program. The identified energy conservation opportunities are analyzed in terms of the implementing cost of project versus benefits gained. All studied schools were aware of energy conservation/saving (Table-5). 100% schools were saving more energy by minimizing consumption. 89.47% schools were saving more energy by using of energy-efficient compact fluorescent lights etc. 36.84% schools scored 100% marks in implementing

energy conservation practices. However, no data for energy audit was provided by S-4; while S-7 has scored 99% marks followed by 95.76% by S-13 and 90.58% and 90% by S-15 and S-8.

Various energy conservation measures are being practiced by schools like:

- Use of existing renewable energy technologies
- Use of natural lights in classrooms
- Implementation of energy poster campaign
- Energy education tour for students to show where energy can be conserved and where it is being wasted.
- Implementation of "Turn off the light campaign"
- Use of energy efficient equipments

Table 5. Energy audit in schools

School	Energy consumption	Energy sources status(cleaning)	Energy conservation practices	Energy saving	School Initiatives	Total marks Obtained
S-1	30	8.27	7	35	8.5	**88.77**
S-2	30	8	10	0	5	**53**
S-3	30	9	4.5	35	5	**83.5**
S-4	0	0	0	0	0	**0**
S-5	30	8.35	7.5	35	5	**85.85**
S-6	30	6.57	6.45	35	3.5	**81.52**
S-7	30	15	10	35	9	**99**
S-8	30	10	10	30	10	**90**
S-9	30	4.5	8	35	5	**82.5**
S-10	30	7.5	7	20	10	**74.5**
S-11	30	4.02	7	35	10	**86.02**
S-12	30	3.6	10	35	10	**88.6**
S-13	30	15	10	30.76	10	**95.76**
S-14	30	3.59	7.64	35	7.5	**83.74**
S-15	30	7.015	8.56	35	10	**90.58**
S-16	30	10	0	20	4	**64**
S-17	30	6.41	7	35	7	**85.41**
S-18	21.2	8	0	31.8	10	**71**
S19	30	10	10	21.71	8	**79.71**
Max. Marks.	**30**	**15**	**10**	**35**	**10**	**100**

e) Waste Audit

A waste audit is a process of measurement of the quantity and types of waste being generated by a school. It also includes recycling and composting of waste material. A school can implement waste reduction program effectively for most efficient use of limited natural resources by conducting waste audit. All studied schools showed proper waste management system. They had waste collection system, recycling and disposal record system. Hence, they were generating less waste. 53 % schools have proper waste collection system i.e. separate bins to collect waste of different categories (biodegradable and non-biodegradable). About 48 % schools have developed facilities for recycling of waste. They have developed compost pits. Paper or any other material is being

sold to the kabaadiwala. Silt and soil are put back into flower beds and pots. These schools are also maintaining their waste disposal records. Marks scored by school S-7, S-13, S-18 and S-15 were 95%, 94.2%, 91.3 and 90%, respectively are given in Table 6.

Table 6. Waste audit in schools

School	Waste generation	Waste collection system	Waste recycling	Waste disposal record	School Initiatives	Total marks obtained
S-1	15	11.4	32.5	16.2	8.5	**83.6**
S-2	15	15	17	20	5	**72**
S-3	15	15	30	0	5	**65**
S-4	15	0	0	0	3	**18**
S-5	10	10	30	10	7.5	**67.5**
S-6	15	15	32.16	7	5	**74.16**
S-7	15	15	35	20	10	**95**
S-8	10	10	20	20	10	**70**
S-9	15	10	0	0	5	**30**
S-10	14	15	17.4	14.2	7.5	**69.1**
S-11	15	9.13	32.7	19.2	10	**86.03**
S-12	15	15	29	8	10	**77**
S-13	15	15	35	19.2	10	**94.2**
S-14	15	5	34.85	18.40	7.5	**80.75**
S-15	15	15	30	20	10	**90**
S-16	15	15	33.58	6.75	6.5	**76.83**
S-17	15	5	31.1	20	4	**75.4**
S-18	15	11	37.8	17.5	10	**91.3**
S19	15	10	19.03	17.44	7	**68.47**
Max. Marks.	**15**	**15**	**40**	**20**	**10**	**100**

From the above comparative study it is inferred that results obtained from land audit were most striking, as schools scored maximum marks (up to 100%). While, in energy and waste audit schools also scored good marks. Values recorded in water and air audit shows much variation (Fig. 2).

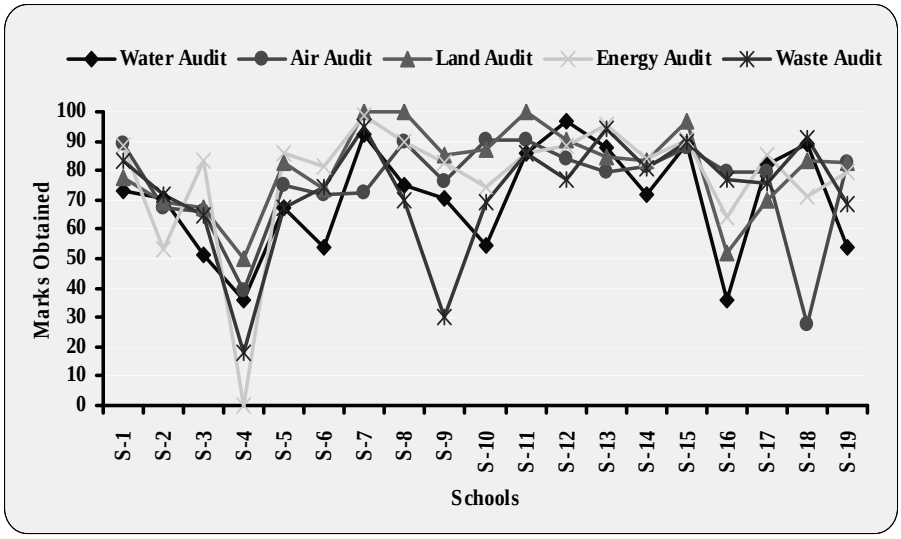

Fig.2. Marks obtained by Schools during Self Environmental auditing Program

DISCUSSION

In the schools, it is necessary to take some practical measures to improve environmental quality within the vicinity in many ways, like monitoring of water and electricity bills, maintenance and care of the schoolyard's garden areas, and making and maintaining containers for waste collection (Conde and Sánchez, 2010). These activities contribute to the school's environmental management practices. A good example was shown by Toronto District School Board (TDSB) by introducing waste minimization and energy conservation standards during 2002-03 and launched an EcoSchools program that provides an EcoTeam Guide; in addition posters, resource materials, strategies, staff support and workshops to help teachers get their schools involved in working towards these environmental standards (www.acer-acre.org). Environmental Audits were recommended in the NSW Environmental Education Policy for Schools (2001) because it improves school's efficiency and environment.

a) Water Audit

The results of water audit indicates that large numbers of schools are taking good initiatives in direction of water conservation, while others are also trying to do well by using drip irrigation, plantation of native plant species that require less water, growing vegetation cover and shrub fencing to control run off in the school grounds. A good example of water audit was shown by Keone'ula Elementary School in Hawaii. In this school water usage was reduced by installing ultra-low flush toilets and urinals (Trevenna *et. al.*, 2010). A pilot study was also conducted at the University of Hawaii in Sustainable Saunders project. They discovered that 80% of students chose to use the closest stall when entering a bathroom. Using this assumption for Keone'ula Elementary, only the closest urinals and toilets should be retrofitted. In this scenario, 353,822 gallons of water could be saved a year, creating $1,055 in annual savings (Trevenna *et al.*, 2010). However, to make school children aware about water conservation, various national and international organizations

are running water conservation projects. Groundwater Surveys and Development Agency (GSDA) carried out Jal Saksharta programme for over 350 schools across the state of Maharashtra in India (Punekar, 2009).

b) Air Audit

From the above results of air audit, 36.84% schools have shown proper oxygen balance due to rich plant diversity in schools campus. Of which, maximum schools are located in rural area showing good oxygen balance, where maximum natural plant diversity exists. Clinton township school board was also planning to conduct an environmental air quality audit of Patrick McGaheran Elementary School (www.nj.com). Toronto District School Board has launched another program named 20/20, The Way to Clean Air, as a part of Ontario EcoSchools learning package (www.acer-acre.org). It is also to be noticed that Greece has given serious consideration to the quality of air in classrooms, green lofts and "smart buildings", as well as to the use of solar energy (www.oecd.org).

Out of 19 schools studied, 41.11% are using eco-friendly vehicles like bicycle and tricycle. Some schools are developing ecofriendly biofuels for the school buses. For example in Ontario schools were developing fuel content from soybeans. This type of fuel is both cleaner for the air and healthier for bus passengers (www.acer-acre.org).

c) Land Audit

Results shows that 68.42% schools have scored full marks in having green are as large number of trees and other plantations are practiced in these schools. Strategically placed trees, the creation of food and habitat gardens, water conservation, and the elimination of pesticides, school grounds can be good places to study sustainability. Natural plantings of trees and shrubs can diminish air and noise pollution and assist in cooling classrooms (Sustainable School: Best Practice Guide, 2010). 21% schools have scored full marks, for biodiversity conservation, while 57.89% schools also showed good initiatives in the direction of biodiversity conservation and having various animal and plant species. Many schools develop butterfly gardens, fish ponds, organic food gardens, small habitats for animals to conserve biodiversity.

d) Energy Audit

All studied schools were much aware towards energy saving. 100% schools were saving more energy by minimizing consumption. 89.47% schools were saving more energy by using of energy-efficient compact fluorescent lights. Substituting energy efficient compact fluorescent lights (CFL) for standard incandescent bulbs will save on average up to 6,000 megawatts of electricity each year (www.earthday.net). That is a savings equivalent to the annual energy output of ten large coal-fired power plants or about seven average nuclear plants. 36.84% studied schools scored 100% marks in implementing energy saving practices which help the earth by reducing resource use and environmental pollution. Green Building concept is very effective for energy saving. Keone'ula Elementary School of Hawaii, showed a good example of energy conservation as it was designed with green building features such as natural daylight sunroofs, a significant amount of electricity is used for air conditioning. Most schools in Hawaii are not faced with this cost because they do not have air conditioning on their campuses. In order to increase the school's energy rating, electricity costs must be reduced by using less electricity or renewable energy sources such as solar panels (Trevenna *et. al*., 2010). Some schools have been designed to use natural lighting so effectively in common rooms, such as the library, to reduce their lighting bills (www.nrel.gov).

While, some other institutions are working in order to find best plan for energy conservation. In this direction, Toronto District School Board has been setup new paper-saving photocopy machines for all 650 schools and offices (www.acer-acre.org), while other are using least expensive alternatives of energy like oil or natural gas operating equipments for saving money (Energy audit workbook and training manual, 2009). To encourage and involve everyone in turning off unneeded lights, computer monitors and peripherals (printers, scanners) when not in use, where possible, and in purchasing energy efficient equipment for energy conservation is good practice is being followed in many schools (www.acer-acre.org).

e) Waste Audit

Large quantities of waste are generated every day in a school. A waste audit can help to find out how much, and what type of waste, is generated. Present study reveals that all schools showed proper waste management system like waste collection, recycling and disposal record system and out of which, 48 % schools have developed recycling facilities which is one of important way to save energy at school through recycling. This can be done all over the school. By recycling paper, cartons and other materials, schools are able to reduce the amount of waste they produce. This can garner significant savings as well as benefit the environment (www.earthday.net). The same practices for waste minimization are undertaken by TDSB in Ontorio, include reducing, reusing and recycling paper; reducing food-related waste,

avoiding disposable items where possible, and reusing furniture and equipments (www.acer-acre.org).

The practices of waste minimization are also depends on the type of waste being generated. If the waste is mainly paper then a campaign of re-use and recycling would be appropriate. If the waste is mainly organics then the school could consider a worm farm or perhaps some chooks (www.wetlandseec.schoolwebsites).

A survey, conducted at Hawaii, on recycling, showed that 44% respondents were following the practice in school, 47% at home and very few (only 9%) respondents throw the recyclable material in the rubbish bin (Trevenna *et. al*., 2010). This presents an opportunity to increase on-campus recycling, which would increase recycling revenue for the school. Most of respondents have also developed compost pits. The largest economic and environmental benefit can be obtained by composting garbage.

CONCLUSION

On the basis of above analysis it can be concluded that the schools are well aware about their environmental protection and are taking good initiatives for its conservation. They are adopting various strategies and eco-friendly practices installation of rain water harvesting systems, energy efficient equipments, plantation and constructing and maintaining ponds for conservation of aquatic biodiversity. In land audit some of the schools have secured 100% marks and found most efficient in land conservation. However, most of schools are conserving parameters such as air, land and energy very effectively as they have bio gas plant, rich biodiversity, herbal/ medicinal garden etc. in their schools. Performance of schools for water and energy parameters was found to be good.

Implications

We believe that the data obtained in this study reflected great progress in various aspects related to the greening of the school. However, lots of work remains to

be done to further improve the situation of environment in schools.

Schools tend to have some main issues when creating awareness:

- In some schools it will be difficult to engage most of the students into the awareness activities.
- In some schools teaching and other school staff is not much cooperative.
- Some times schools also face financial problems.

The possible ways to resolve these issues during implementation of such programmes in the schools are as following:

- Environmental activities should be the part of school curriculum. It will help in engaging them in environmental awareness activities.
- Environmental training should be conducted for teachers and other staff of school.
- By developing genuine concern for the environment among students through some cost effective tasks like minimizing energy and water consumption inside and outside the schools; planting trees in the school premises and the neighborhood; and using organic pesticides produced internally in the school; adopting "3-R" concept (recycle, reuse and reduce), whereby students devised innovative ideas to recycle/reuse of unwanted materials like plastic bottles, plastic bags, cans, CDs, magazines and newspaper into useful items such as magazine holders, key chains, boxes and home decoration accessories etc.

However, it is felt that we have considered only few schools of Punjab in our study and situation of environmentvary from school to school. More schools may be focused for further study.

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