



The SHUNYA Audit

Towards Greener Schools



Schools Help Understand & Nurture Youth Action
for Environment

SHUNYA for Environment

Central Board of Secondary Education

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SUSTAINABLE SCHOOLS

Why is sustainability an important concern today?

The environment around us is perhaps the most important component of our lives. For a healthy life, we need good quality air, water, ample energy resources and bountiful fauna and flora. In the recent past, we have frequently witnessed signs of environmental degradation - landslides, rogue weather: heat waves, cold storms, flash floods, forest fires etc. leading to global warming, depletion of the ozone layer, loss of biodiversity, and scarcity of resources- an unfortunate reality.

Consumption of resources at an unsustainable rate - more than nature can regenerate, along with creation of waste and emissions, in quantities more than mother Earth can absorb, are issues of grave concern. With the world population projected to reach 10 billion by 2050 (UNEP 2021), even more resources would be required.

There is a growing realization that if environmental degradation goes unchecked, it may endanger our planet and the existence of human beings itself.



Over the past few decades, people have become conscious of the importance of preserving and sustaining the earth's resources. It is now recognized that we need to adopt practices and conduct our ways in harmony with nature-respectful of humanity's symbiotic relationships with the Earth's natural ecology and cycles. Sustainable living implies taking actions in our life to reduce their environmental impacts.

What does sustainable development have to do with Schools?

Sustainability is essentially concerned with sound environmental management that requires a change in thinking and practice. Such changes require understanding, commitment and some modelling of an alternate future. Schools have key role to play in that. They are best placed to raise awareness, generate knowledge and create understanding of the sustainability issues facing future generations.

Sustainable schools will not only be beacons of public spirited behaviour but also energy efficient high performing institutions respected by the communities they serve.

By preparing young people for the future, schools will also be defining and shaping the future.

We have the power and the responsibility to make a difference.

Issues of Concern:

Global warming is likely to be the greatest cause of extinctions in this century. The United Nation Intergovernmental Panel on Climate Change (IPCC) says a 1.5°C average rise may put 20-30% of species at risk of extinction.

Coral reefs are projected to decline by a further 70-90% at 1.5°C increase in temperature. At a warming of 2°C, virtually all coral reefs will be lost. Sub-Arctic boreal forests are likely to be particularly badly affected, with tree lines gradually retreating north as temperatures rise. In tropical forests such as the Amazon, where there's abundant biodiversity, even modest levels of climate change can cause high levels of extinction.



Source: <https://www.wwf.org.uk/learn/effects-of/climate-change>

Our future generations may never experience the awe that comes from viewing coral reefs, the backwaters or native luxurious flora and fauna in all their majesty.

The Global Risks Report (WEF,2021) classifies climate change as catastrophic risk and emphasizes that a shift to a green economy cannot be further delayed.

What are the major challenges that we face today?

We are witnessing an existential environmental crisis as a consequence of over-consumption of natural resources including critical non-renewable resources. This has reduced the effectiveness of our ecosystem leading to an increased risk from disasters and natural hazards.

- **Availability of Clean Air:** According to the WHO, one of the biggest environmental threats to human health is air pollution. The rising Air Quality Index (AQI) levels, in severe and hazardous zones, in most Indian cities, is a reality of grave concern.

Data informs that today, globally, we are emitting 50 million tons of CO₂, an increase of over 40% from 35 million tons in 1990. Apart from that, the 2.4 billion people who cook and heat their homes with wood (biomass), kerosene fuels, and coal, are at the risk of severe health danger due to indoor pollution in addition to outdoor air pollution.

- **Access to Safe Drinking Water:** The second most important component of our environment which is crucial for human survival is water. Nearly 25% of the world population (2 out of 8 billion population) lives in water stressed countries (WHO, 2022). Both the quality and quantity of the water are issues of great concern to India.

- **Proper Disposal of Waste:** Improper waste removal and disposal often leads to air and water contamination. Open dumping and burning of waste, releases effluents in water bodies, and toxic gases and chemicals released during the decomposition of waste present a major health hazard. Hazardous waste in the environment leeches into the ground impacting all living species including marine life.



- **Depletion of non-renewable sources of Energy:** Along with scarcity, huge consumption of non-renewable sources of energy has resulted in manifold increase in Greenhouse Gas (GHG) emissions, leading to global warming and climate change. These GHGs, are the major culprit behind extreme weather changes that the world is experiencing. According to United Nation's Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming, with (only) a 1.5°C increase in global warming over the next two decades, extreme climatic changes are inevitable.
- **Loss of Bio-Diversity:** Biodiversity loss as a consequence of deforestation, over-exploitation of species, pollution and global warming leads to imbalances in the ecosystem-restricting stabilization of climate, protection of soil and recovery from unpredictable events. Biodiversity loss impacts not only the human health directly, but also effects livelihood, and migration patterns.

A time to remind ourselves that there is Only One Earth and we must live in harmony with nature.

What needs to be done?

A more sustainable model of production and consumption is necessary to satisfy the fundamental needs of an expanding population while staying within the bounds of the Earth's finite resources. Recognizing the symbiotic links between mankind and the natural ecosystem and cycles of the Earth, we must adopt behaviors that are in harmony with nature. ***We have the ability to change things and also an ethical duty to do so.***

As the generation that will inherit the Earth, you face a unique challenge- to satisfy your requirements, fulfill your needs, and meet the demands of an aspirational developing society with lesser resources.

You will need to join hands in thinking out-of-the-box, and coming up with collaborative solutions for tackling issues such as poor air quality, landslides, desertification, etc. And the foundation for such solutions couldn't be found in a better place than here, in India. With communities that have thrived in the deepest deserts, the highest mountains, and have survived hundreds of years of harsh floods and droughts, we have much to learn from the ancestors of this land -especially the rural and tribal elders in our community.

What is Sustainable Development?

A widely used and accepted definition of sustainable development is **development which meets the needs of the present without compromising the ability of the future generations to meet their own needs.**

The concept of sustainable development was initially introduced and explored in the United Nations 1987 Publication, **Our Common Future**, which called upon nations to work together to achieve this. Sustainability requires that human activity uses nature's resources only at a rate at which they can be replenished naturally.

The environment impact depends, in complex ways, on what resources are renewable and the scale of human activity relative to the carrying capacity of the eco-system. The impact can be considerably reduced by not only consuming less but also by making the cycle of production, use and disposability more sustainable.



Sustainability is essentially concerned with sound environment management that requires a change in thinking and practice.

While sustainable living is to adopt more eco-friendly practices, sustainable development encourages us to conserve and enhance our resource base, reduce one's 'carbon footprint' and achieve an environmental equilibrium. In its ideal form, sustainability is '**net zero living**', i.e. return to the earth whatever you take from it.

What is Net Zero?

'Net Zero' means cutting greenhouse gas emissions, and bringing our non-renewable resource consumption to as close to ZERO as possible, with any remaining emissions reabsorbed from the atmosphere by oceans and forests for instance. It's a state in which greenhouse gases going into the atmosphere are balanced by their removal out of the atmosphere. This is a state at which global warming would stop.

Net Zero denoted by terms carbon neutral or climate neutral is the internationally agreed upon goal for mitigating global warming in the second half of the century. The IPCC has advocated the need for Net Zero CO₂ by 2050 in order to remain within 1.5 °C temperature rise & reduction of emissions by 45% by 2030.

How do we reach Net Zero?

Achieving Net Zero calls for a complete transformation of how we produce, consume and move about.

A large number of countries, communities and organizations are taking immediate actions to half global emissions by 2030 in their race to zero. The countries are revisiting and strengthening their Nationally Determined Contributions (NDCs) towards 2030 targets and taking bold immediate steps towards reducing emissions.

How is Zero or Shunya significant to India?

Zero or SHUNYA, is India's contribution to the world. Zero is an enigmatic element with unseen or unfathomable existence. It gets value only when kept next to another number. When we add zero, after a number, its value grows ten times. SHUNYA has both a philosophic and a spiritual significance. It is symbolic of eternity, evolution, infinity or nothingness.

'SHUNYA' attempts to go beyond the 'Net-Zero approach propagated internationally and aims to rediscover our local codes and standards that have inherent greenness in them. A number of indigenous strategies that reduce the impact of vagaries of nature have been a part of our tradition. The history of different regions of India is replete with the ancient wisdom of rain water harvesting, sacred grooves, preserving and enriching biodiversity, sharing and recycling resources etc.

What is SHUNYA for Environment @ the CBSE?

Aligned to the global agreement to Net Zero, the CBSE proposes the endeavor SHUNYA for Environment, which aspires to go beyond net zero. The project SHUNYA is being initiated with the mission of empowering students to be the sensitive and responsible world citizens who would create more sustainable spaces, schools and communities.

This is in consonance with our national commitment of Mission LiFE movement (Lifestyle for the Environment) launched by the Honorable Prime Minister in 2022 that calls for individual and collective action to **protect and preserve the environment in the period 2022-23 to 2027-28.**



SHUNYA aims to raise awareness of students regarding various aspects of sustainable living, equip them with necessary skills, provide insights into the mechanisms and ways that facilitate modifications and changes in behavior.

In the broader context, visualized are green schools guided by the principles of environmental sustainability - a deep understanding of environmental processes, their inter-relationships and issues of concerns as well as fostering of attitudes, values and the sensitivity towards environmental concerns in various stakeholders.

What is the focus of this movement?

While sustainability centers on not harming the planet and ceasing to irresponsibly consume its resources, the focus is on **regeneration**. The aim is to go beyond sustainability, striving not only to prevent harm but to **redress** that which has already been done and **regenerate** what has been lost.

To achieve this, we must take regenerative actions that address climate issues aiming at the transition to a circular model. We must not only pursue de-carbonisation and zero CO2 emissions, but also undertake initiatives that seek a net positive impact by removing the emissions that have already been released into the atmosphere. Today, we need to replenish and restore what the planet has lost- in terms of clean water, air and biodiversity.

The sustainability framework of SHUNYA (CBSE) aims to sensitize learners and help them appreciate sustainability in the hyper-local context. The students would examine their local spaces and learn to apply various interventions that are more sustainable and regenerative.

India as a Climate Action Leader

India has been championing the cause of environmental protection since the first ever UN Conference on the Human Environment in 1972. Listed below are some important policies, legislations and actions initiated in the past.

1972: The National Council for Environmental Policy and Planning within the Department of Science and Technology was set up.

1974: Enactment of The Water (Prevention and Control of Pollution) Act.

1976: Article 48A was added through 42nd Amendment to the Indian constitution which directs the states to protect and improve the environment and safeguard the country's forest and wildlife.

1976: Article 51A was added to prescribe the fundamental duty of every citizen to protect and improve the natural environment and have compassion for living creatures.

1980: Enactment of Forest (conservation) Act.

1981: Introduction of Air (Prevention and control of Pollution) Act was introduced

1985: Constitution of The Ministry of Environment and Forests.

1986: Environmental Protection Act (EPA).

1992: Adoption of The UN framework convention on climate change (UNFCCC).

2010: Setting up of the National Green Tribunal up to apply natural law like 'pre- cautionary principle' or 'polluter pays principle'.

1997: The Kyoto protocol under the UNFCCC was agreed upon.

2008: In agreement to the Bali Action plan of Dec, 2007 envisaging all countries to take climate under the principle of equality and CBDR, India announced its National Action Plan on Climate change (NAPCC).

2015: Submission of India's Intended Nationally Determined Contribution (INDC) submitted to the UN Framework Convention on Climate Change (UNFCCC) on Oct 2, 2015. The NAPCC has an essential domestic focus. The INDC is a statement of intent on climate change action announced in the run up to the Paris Climate Change Summit in 2015.

2021: India presented the Panchamrit of India's climate targets at the 26th session of the Conference of the Parties (COP26) to the UNFCCC, held in Glasgow, UK. This includes 500 MW/ GW non-fossil energy capacity, 50% energy requirement from renewable energy, reduction in one billion tons of carbon emissions, and 45% reduction in the carbon-inter use energy by 2030 and to achieve net-zero emission target by 2070.

2022: Launch of Mission LiFE (Lifestyle For Environment) where there is a connect with the young citizenry to trigger strong social and environmental awareness and providing supportive platforms for integration of climate knowledge and skills into existing education system along with various other non-formal integration.

THE SHUNYA AUDIT

SHUNYA is an attempt of the board to partner with school and students in a move towards a sustainable future. Schools are microcosms of our society and have the potential and power to adopt policies and initiate actions that can protect the ecosystem, produce less waste, prevent loss of nature, inspire students, parents and the communities to take climate action and make our schools and the world more planet-friendly. In the onward journey towards sustainable schools, the attempt is to sensitize and educate school personnel, students and the community members towards a more sustainable and harmonious existence.

Essentially, it is a whole-school approach that includes and engages students, teachers, support staff, administrators, parents and the community at large to address the climate crisis.

As a starting point in the journey towards greener practices, an in-depth school audit needs to be undertaken to examine and understand resource usage, waste management practices and the school eco-system. This could be done by looking deeply into the areas of energy, water, waste, transportation and bio-diversity of the school. This would provide the baseline data and help students and schools to find out how green are their schools.

The audit is envisaged as a student led initiative where they are engaged in observing, reviewing and understanding resource usage, existing gaps and the possible areas of improvement. This would lead them to develop action plans, both short-term and long-term, for better and efficient use of resources along with development of awareness and commitment of all stakeholders. The focus is to promote behavioral changes that would create a culture of environmental sustainability in the school and in the larger community.

Objectives

After the SHUNYA school audit, the students would

1. document the status of utilization of natural resources and sustainable practices being observed in the school;
2. identify inefficient use of natural resources in the school and comprehend its impact on the environment;
3. formulate strategies for more efficient use of resources (water, energy etc.) and effective management of waste in schools;
4. work towards a net zero carbon, water and resource footprint (SHUNYA) for the school; and
5. build an awareness and commitment towards sustainable lifestyle.

Scope

In consonance with India's commitment to Sustainable Development Goals (SDGs), this green audit of SHUNYA is the first step to ensure a clean and healthy environment within and outside the schools. This audit would provide an insight to various stakeholders in the school regarding existing practices culminating in identification of gaps in the optimal utilization of resources. This exercise would also enable students and the school to find solutions and adopt practices for their efficient use. The effort of 'SHUNYA' is to have a zero-carbon footprint of the school.

The SHUNYA audit is a student led initiative. The deep involvement of students in this initiative is important to generate awareness, develop a holistic and an integrated understanding of environmental concerns, take ownership and evolve a conscious approach to making this initiative a success by adopting sustainable practices.

The section below provides an answer to the frequently asked questions with reference to SHUNYA Audit.

❖ What is the SHUNYA Audit?

SHUNYA Audit is an exercise to be undertaken by **students** to sensitize members of the school community towards the efficient use of natural resources and make schools more planet friendly.

❖ What are the areas of SHUNYA audit?

The five core areas of the SHUNYA audit are: Energy, Water, Waste Management, Transportation and Flora and Fauna.



❖ Who should conduct the SHUNYA audit?

The audits are to be conducted by students. Students of the Eco-club can take the lead and involve other interested student volunteers. Students of different classes (VI to XII) may form teams for different areas of an audit under the expert supervision of the Eco-club Teacher In-charge. Other members of the teaching staff may be co-opted for guidance. Teachers would guide and support students at various steps, provide technical details, clarify the procedure, and provide assistance as and when required by students.

How long would the SHUNYA audit take?

There is no optimal time limit for any area of the audit. The time for different areas of audit would vary and depend on the expanse of the campus and the size of the team.

What are the different steps in SHUNYA audit procedure?

The audit process has three stages:

Pre-Audit Stage

The task essentially here is to form groups of students, clarify purposes and procedure and identify key personnel from support staff whose assistance would be essential to complete the audit for respective areas.

- **Formation of audit teams:** Eco-club members and other interested members from different classes would comprise the team for a particular area. The team may consist of 5-12 members.
- Identification of support personnel or school staff. For the energy audit, the electricity bills need to be collected from the concerned office or staff. Such members of the staff and departments should be identified.
- A request mail to all concerned persons office/department to provide support may be sent through the Eco-club Teacher in-charge of the school.
- Review of the audit form to gain clarity regarding the data requirements and recording procedures. Students may decide to divide the various tasks in the audit form and subteams may be formed to undertake the audit. This is likely to expedite the process.

Audit Stage

The important task of students at this stage is to collect requisite information by visiting sites, carefully observing and securing relevant documents.

- **Visit to the concerned sites:**

The audit team should visit the concerned premises- classrooms, playground, offices, departments, library, lawns etc. in order to have a clear idea of the various locations and activities being undertaken there. A preliminary visit to the concerned premises would provide the groundwork required to generate a mental readiness for the sub-sequent data collection for the audit.

- **Collection of Data**

Observation of sites, interactions and discussions with concerned stakeholders i.e. teaching staff, administration and other support staff are important processes for collection of data.

Meeting with specific support staff identified at the pre-audit stage should be conducted for securing the data. Scheduled visits could help ease the process.

Good communication skills and a humane approach (humility) would go a long-way to establish good inter-personal relationship amongst the various members of the school.

- **Review of previous documents, records, procedures and policies**

Examination of office records, registers, utility bills, purchase orders, policy documents, school prospectus, magazines and other published materials is important to get information regarding the targeted area.

Post-Audit Stage

This crucial step would help students to identify the gaps in the optimal utilization of resources, suggest remedial actions and propose alternate solutions towards sustainability.

- **Preparation of the Audit Report**

Analysis of the data collected for the concerned area needs to be done to check for efficiency of the resources used. The lacunas and the gaps ought to be identified. A report should be prepared and presented to the school community. The data must be presented in an effective manner suitably illustrated with graphs, visuals and photographs.

The team must present its findings of the audit to the whole school community. Such an exercise can be done in the school assembly or in an Eco-club meeting. The report can be published in the school magazine and should be uploaded on the website. Posters, charts etc. may be posted at relevant spaces in school for information and awareness of all school personnel.

- **Preparation of an Action Plan**

An action plan must be prepared on the basis of gaps identified during the post audit stage. The products that need to be replaced and the processes and procedures that need to be reworked to optimize efficiency must be clearly spelt. A detailed plan with specific recommendations and procedures must be prepared for continuous improvement. The focus should not only be on short term improvements but on sustainable changes that would ensure reducing the carbon footprint of the school. Specific roles & responsibilities of students and other school personnel must be clearly indicated in the action plan.

When creating an action plan, let your goals be guided by the SMART Framework

- ❖ S → Specific (Who & What)
- ❖ M → Measurable (How)
- ❖ A → Attainable (Realistic, Which & Where)
- ❖ R → Relevant (Aligned, Expected -Why)
- ❖ T → Timely (Targeted Timeframe, When)

- **Execution of the Action Plan and Review:**

Cooperation of the concerned staff must be secured to ensure implementation of the suggested alterations in equipment. Stakeholders must be informed about desirable practices. Advocacy workshops, placing of visual material across the schools can be explored. Continuous monitoring is likely to support proposed initiatives for sustainability.

- **Submitting Data to the CBSE**

To begin with, the school Eco-club needs to be registered with the CBSE. Next, some data points of the school SHUNYA audit need to be submitted to the Board. The purpose of this exercise is not to evaluate but to understand school practices and encourage schools to undertake the SHUNYA audits regularly. The data submitted by schools would enable CBSE to ascertain the sustainability status of schools. A collective view would also facilitate and exchange of dialogue about effective practices from one set up to another.

- **Re-auditing**

The audits have to be done again the following year. This would help students to monitor and evaluate the progress of their school towards sustainability. The audit data of the previous years can be compared with new audit data to examine the extent to which school has moved towards efficient use of resources and sustainability.

The SHUNYA audit is a tool that provides the ground work for change to be made in schools for an environmentally friendly future. We hope that the schools and students would embrace SHUNYA for Environment and make it their own; focus is on each student's contribution to better understand our surroundings and make life more in sync with nature.

01. ENERGY AUDIT

Q1. What are the various source(s) of energy used in school? (Please tick in the box)

A. Electricity

Electricity (from Municipality/Electrical Company)

Electricity from generator

If a generator is used, specify the fuel used...

a. Amount of Fuel used in a month...

b. Generator Capacity...

c. Frequency of use of the generator

Only in an emergency (in case of electricity supply failure)

Regularly (Specify purposes and duration)

(to source this data, take help of the administrative staff)

B. Gas

Gas cylinders

Piped National Gas (PNG)

Q2. Does your school have any alternative sources of energy generation? If yes, indicate the alternate source.

A. If Solar Energy is used

Yes

No

a. Are Solar Energy panels used to generate electricity?

Yes

No

b. Do some devices run directly on solar energy? Specify...

Yes

No

c. What other purposes is solar energy used for? Specify...

B. Bio- fuel

Yes

No

C. Wind

Yes

No

D. Electric

Yes

No



Solar Energy Panels



Wind Energy Turbines

Q3. Does your school get bills for consumption of electricity and other energy sources?

Yes No

If yes, procure information regarding the energy/ units consumed and their cost(s).

(You would need the help of school administration to calculate the energy consumption. Bills for electricity/ diesel/gas may be paid at different intervals. Estimate the annual consumption by accessing various bills paid)

I. Calculate the total energy consumption of the school

| S. no. | Source | Units Consumption (Monthly/Yearly) | Total Cost | Energy used in the year |
|--------|---|------------------------------------|------------|-------------------------|
| a. | Electricity bills from regional electricity board/distribution company (KWh) (please specify) | KWh | | |
| b. | Diesel HSD/ LDCY/ LSHS/ LSFO | Litres | | |
| c. | Piped National Gas | Kg | | |
| e. | Solar Energy (Estimate generated cost) | SCM | | |
| f. | Any Other (specify) | KWh | | |
| Total | | | | |

* Put NA if school is not using that particular source.

2. Average consumption per person

- i. Annual Energy consumption per person value (you would need to do the following calculations)

Formula for conversion

- HSD (diesel) = 1liter of HSD = 10 KWh of electrical energy
- 1 KG of LPG = 14.5 KWh of energy
- SCM of PNG = 11 KWh of energy

- ii. Cost per person (calculate average cost per person by the school by dividing Total Cost a-f) by no. of people in school (teacher, students, other employees of the school.

- iii. Net Energy consumption values

(You would get it by subtracting the renewable energy generation value from the total consumption)

Annual per person Energy consumption can be calculated by dividing the total value of kWh consumed by number of people in school.

Net Energy _____ Renewable _____

Q4. I. Air-Conditioned School

- a. Is your school fully air-conditioned? Yes No

If No, which spaces are air-conditioned? Please tick.

- Classrooms – Junior/Senior
- Auditorium
- Multipurpose Hall
- Science Lab
- Teachers' room
- Closed Gym
- Music Room
- Computer Lab

- Maths Lab
- Office space
- Any other (Specify) ...

b. What is the thermostat setting of the air-conditioner _____ (on on average) ?

c. Are exterior doors and windows of air-conditioned space properly sealed and closed?

Yes No

d. Are ceiling fans used along with AC?

Yes No

Q4. II. For Non-Air Conditioned School

a. Does the school have openable windows?

Yes No

b. Do the windows allow natural/cross-ventilation in the:

- Classrooms
- Auditorium
- Multipurpose Halls
- Lab/s
- Office space/s
- Any other (Specify)



c. Are the occupied spaces comfortable with ceiling fans?

Yes No

Q5. Light Sources

a. **Is day light available** in most of the:

Classrooms

Yes No

Office Spaces

Yes No

Gymnasium/Indoor Sport Spaces

Yes No

Other spaces in school

Yes No

- b. Do windows let in natural light and does it fall in the work area? Yes No
- c. Are there provisions for curtains/blinds to be kept open when there is enough day light? Yes No
- d. Do any of the classrooms need addition of:
- i. Artificial/ electrical lights to supplement day light? Yes No
 - ii. If yes, are they sufficient in number? Yes No
- e. Are there sufficient windows, doors and ventilators that permit cross-ventilation? Yes No
- f. What directions are windows facing?
- g. Are window panels clean? Yes No
- h. What type of light sources are used in your school in the following areas-
- (i) Classroom
 - (ii) Auditorium
 - (iii) Multipurpose Hall
 - (iv) Lab/s
 - (v) Office space/s
 - (vi) Corridors
 - (vii) Outdoor play areas
 - (viii) Indoor play areas
 - (ix) Entrance gate / boundary
 - (x) Any other (Specify)

Possible lamp types include:

Incandescent bulbs, fluorescent tube lights, LED, Halogen, Compact Fluorescent Lamps, Metal Halide lamps, Sodium Vapour Lamps, Mercury Vapour Lamps, Any other, please specify.

Q6.

1. Energy Conservation Practices of school

- a. Does school make conscious efforts to avoid wastage of energy and conserve energy? Yes No
- b. Are lights in the *not-in-use areas* switched off, when not needed (activated when required, e.g. reception, lobby, sports field lights, hallway corridors etc.)? Yes No
- c. Are lights fixed with automated sensors? Yes No
- d. Is there a dedicated person/energy monitor whose responsibility is to turn off electrical switches when students leave the classroom and other areas? Yes No
- e. Are the schools computers and printers programmed to save energy? (sleep/shutdown mode when it is not in use) Yes No
- f. Any other (please specify)

Q6.

2. Green practices

- a. Are awareness programmes regarding sustainable practices environmental consciousness organized? Yes No
- i. If yes, specify the campaigns/ workshops/poster/slogan completed
/Debates and other co-curricular activities:

- ii. How many such programmes are organized in a year? Please specify:

2. Annexure for Energy Audit

| S. no. | Area | Lights | Fans | Computer Monitors | Printers | LCD | Other Appliances | Total <input type="checkbox"/> | Total X |
|--------|------------|--------|------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------------|---------|
| 1 | Classroom | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4 | 2 |
| 2 | Music Room | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6 | 3 |
| 3 | Canteen | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 8 | 4 |

Record Key

= off (when not required)/positive energy use (on when required)

= on with no people- negative energy use (on when not required)

Instructions

- Schedule a particular hour of the day viz.12.00 pm to 1.00 pm to visit the classrooms.
- It would be interesting to observe classrooms before or after school hours.

Use these observations to substantiate your conclusions.

- Make similar observations on a weekend/holiday/vacation period if you happen to visit school for some other purpose.



Time Period 12pm to 1 pm

Energy Survey of Non Classroom Areas

| Room | Lights | Fans | Computer Monitors | Printers | LCD | Other Appliances | Total \square | Total X |
|-----------------------------|--------|------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------|---------|
| Computer Room/Lab | X | X | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4 | 2 |
| Labs | | | | | | | | |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| Library | | | | | | | | |
| Sport Areas/ Playgrounds | | | | | | | | |
| Gymnasium | | | | | | | | |
| Other open areas | | | | | | | | |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |



02. BIODIVERSITY AUDIT

Flora and Fauna Audit In your race for 'Zero'

Q1. Does your school have a natural green ambience? Yes No

Q.2. Each plant, animal and micro organism contributes to the diversity of an area. Which one of the following productive areas are present in your school? (Please tick and specify the approximate area)

| | Upto 10 trees | 10-50 trees | 50- 100 trees | 100-200 trees | 200-500 trees | Above 500 trees |
|--|---------------|-------------|---------------|---------------|---------------|-----------------|
| Estimate the number of trees in the school campus and Tick any one | | | | | | |
| Approximate Area | | | | | | |

- a. Gardens with bushes &/or shrubs Yes No
- b. Vegetable garden Yes No
- c. Spaces with vertical gardens and hanging Yes No
- d. Indoor/ covered spaces interspaced with potted plants. Yes No
- e. Pavement/passages/paths lined with potted plants. Yes No
- f. Seasonal or perineal water bodies (Ponds etc.). Yes No
- g. Medicinal plant/ herb area or garden houses disrupt the innate ability of avian species to fend for themselves) Yes No

- Q.3. Are there adequate spaces with plants and trees besides lawns in sufficient numbers in the school campus? (For eg. Rows of trees etc.) Yes No
- Q.4. Do you find a greater number of native and indigenous plants/ trees non-native plants/ trees in the school campus? (Refer 1.3.4) Yes No
- Q.5. How many native trees are there in the school campus? (Native trees are indigenous to a given region or ecosystem). Specify number.
- A. None (no trees on the campus)
 - B. Less than 5-10 trees per acre of area
 - C. About 5-10 trees per acre of area
 - D. More than 10 trees per acre of area
- Q.6. How many non-native trees are in the school campus?
- A. None (no trees on the campus)
 - B. No non-native trees, only indigenous trees
 - C. Less than 5-10 trees per acre of area
 - D. About 5-10 trees per acre of area
 - E. More than 10 trees per acre of area (Discuss)
- Q.7. Approximately what percentage of the passages, paths and pavements in the school are made of concrete? (Refer 1.3.3)
- A. 25%
 - B. 50%-75%
 - C. 75-100%
 - D. Nearly All



Q.8. Do you see weeds in your school campus If yes,how frequently?

- A. Very frequently
- B. Rarely
- C. Seldom
- D. Never

Q.9. What procedure is adopted to remove weeds (Please tick)

- A. Manual removal of weeds
- B. Use of pesticides/herbicides
- C. Any other (specify)

(To answer questions 10 to 14 you would need the help of school gardener/other school personnel)

Q.10. What type of manure/fertilizers are used for plants? (Refer 1.3.6)

- A. Only Compost (prepared at school)
- B. Mostly Chemical fertilizers
- C. Organic compost purchased

Q11. Does the school make use of indigenous methods (washing/ neem cake/ oil/ bio enzymes) to tackle pests? **Yes** **No**

Q12. Is green waste composted in your school? (Refer 1.3.7) **Yes** **No**

Q13. Is there a possibility/ scope for converting rooftops and other concrete/barren spaces into green areas? **Yes** **No**

Q14. Is there a possibility to replace open concrete surfaces with permeable pavements for percolation of rain water into the ground? **Yes** **No**

Q15. Does your school organize any talk/interactive session to emphasize interdependence of living creatures and encourage values and virtues of cooperation and cohabitation? **Yes** **No**

Q16. Do the school authorities/ personnel prefer to gift potted plants/ saplings/ cuttings to guests, visitor and awardees? **Yes** **No**

03. WATER AUDIT

In your race for 'Zero'

Q1. Does your school have one source of water? Yes No

Q2. What source/s does your school draw water from

Municipal water Yes No

Ground water (Bore well) Yes No

Packed water Yes No

Tanker Yes No

Any other{please specify}

Q3. Does your school use the same source of water for drinking and sanitation? Yes No

Q4. What process/procedure has your school adopted to make water potable (fit for drinking)? (Refer 3.2.2.)

Q5. Is drinking water tested for potability in accredited labs? Yes No

If yes, how often?

Once a year

Twice a year

Quarterly

Any other periodicity, Please specify _____

Q6. What is the total water consumption of the school?

- a. Municipal water Cubic /meters
(Calculate using annual water bills from the municipal authorities.
Average annual water bills to find out mean consumption per month.)
- b. Ground water-Bore well (borewells are banned in most states in India) _____
(Calculate no. of hours the pump runs for, calculate the volume of bore well outlet.)
- c. Tankers _____
(Calculate the capacity of tankers and multiply them into the number of tankers.)
- d. Packaged drinking water _____
(Quantity purchased per month/ quarter)
- e. Calculate average consumption per person of the school _____
(Divide the total volume by the no. of people in school (Students + teachers +other workers/employees in the school.) to arrive at the per-capita (per person) water consumption of your school/ as well as per capita cost)

Q7. Does your school have a water conservation policy? **Yes** **No**

Q8. If YES, then what water conservation practices does your school adopt?

- A. Do majority of taps in your school have fixtures that minimize loss of water (low flow taps, self-closing taps, use of sensors, timer shut off devices, use of low regulators etc.) **Yes** **No**
- B. Do you have dual flush system in your school toilets to minimize loss of water? **Yes** **No**
- C. Are float-valves fixed in various water tanks to avoid water wastage? **Yes** **No**
- D. Is there a mechanism for grey water recycling (reuse of water used for washing, AC water) in your school? **Yes** **No**
- E. Is rain-water harvesting done in the school? **Yes** **No**

Q9. How quickly are leaking taps of toilets/overhead tanks etc. repaired?

Promptly

In a day or So

Q 10. Are the lids of the water tanks secure? Yes No

Q11. How often are storage tanks cleaned?

Once a year

Twice a year

Quarterly

Any other periodicity? please specify _____

LANDSCAPE AND HORTICLUTURE ON YOUR CAMPUS

Q12. What is the approximate area of lawns with green grass in your school that requires regular watering? _____

(Take help of the google maps to calculate the area of lawns) Provide units

Q.13 Which of the following methods of irrigation is used for watering of grass and plants in the school? (Tick the ones that are appropriate.)

Manual watering using a garden hose pipe

Sprinkler system with long range sprinklers

Sprinkler system with short range sprinklers

Drip irrigation system

Any other type of system

RAINWATER- HARVESTING IN YOUR SCHOOL CAMPUS

Q14. What system does the school use to harvest rainwater?

Direct storage

Rain-water harvesting tanks

Direct storage to raw water storage tanks

Recharge into the ground aquifer

Q15. Are unpaved/green surfaces available in school for percolation of rain water?

 Yes No

Q16. What is the capacity of rain water storage tanks?

.....

Q17. How many tanks/structures and their locations?

.....

Indicate the location of rain water storage tanks

.....

Q18. How is the water harvested utilized?

Internal recycling in school campus applications such as-

Not required

Gardening

Toilets

Cleaning of school

Q19. Is Ground water recharged through trenches

 Yes No

External recycling:It is recycled into the main supply

 Yes No

EDUCATION AND AWARENESS

Q19. Are awareness campaigns conducted for conservation of water in your school?

 Yes No

Q20. Are gardeners,cooks,safaisevaks and others in your school aware of the need and ways to conserve water?

 Yes No

Q21. Are water conservation stickers/signs/posters fixed in bathrooms, canteens, classrooms and other places to remind students of good practices?

 Yes No



04. WASTE AUDIT

In your race for 'Zero'

Q1. Campus Survey:

Is your school campus litter free?

Yes

No

(Litter: Used items such as paper, cans, and bottles left lying in an open or public place)

Know your Dustbins:

Q2. As you walk in the schoolcampus do you find dustbins at all places/regular intervals?

Yes

No

a) If yes, is their number adequate?

Yes

No

b) How often do you see dustbins overflowing or students overcrowding dustbin areas?

NEVER

RARELY

FREQUENTLY

Q3. Are there different dustbins for different types of waste?

Yes

No

If yes, specify how are they identified?

Color Coded

Labeled

Other

Do the dustbins have proper covers/lids?

Yes

No

Q5. Tick the categories into which waste is segregated into your school:

Dry waste

Wet waste (Biodegradable)

E-waste

Hazardous waste from the labs

Chemical waste

- Paints
- Sanitary waste
- Garden waste
- Miscellaneous

Q6. Is dry waste segregated in your school? Yes No

If yes, then in how many categories? **(Dustbin & dumpsters)**

- Plastic and stationery waste
- Electronics
- Metal
- Thermocol
- Food packaging
- Tetrapack
- Wood'
- Any other

Q7. Kitchen/Canteen waste

i} What kind of food is served in your canteen/kitchen?

- Fresh food only
- Packaged food only
- Both fresh and packaged food

ii} What kind of cutlery is used in your canteen / kitchen?

- Steel/utensils
- Plastic plates & disposables
- Wooden cutlery
- Bring your own cutlery
- Any other

WASTE DISPOSAL

Q8. How frequently are dust/waste bins emptied?

- Daily
- Two times a day
- Weekly
- Any other

Q9. How does your school dispose-off dry waste :-

| Method of disposal | Type of waste | | | | | | | |
|---|---------------|-------------------------|-------------------|---------|-------------------|--------------|-------------|------------|
| | Dry waste | Kitchen/cafeteria/waste | Packaged material | E-waste | Bio medical waste | Garden waste | Paper waste | Land fills |
| Burnt/disposed | | | | | | | | |
| Sold to an authorized dealer | | | | | | | | |
| Compost | | | | | | | | |
| Recycled | | | | | | | | |
| Put in a dustbin and handed to municipality | | | | | | | | |
| Sold to local scrap dealer | | | | | | | | |
| Used for art and decorative purpose | | | | | | | | |
| Donated to an NGO | | | | | | | | |
| Any other purpose | | | | | | | | |

Q10. a) Is composting an organized activity and encouraged for students and staff in your school? Yes No

b) Is the compost prepared used for gardening in the school? Yes No

Q11. Does your school advocate and provide information to reduce waste in school?

Yes No

Q12. Are posters/slogans placed at various points in school to remind students of proper ways of waste disposal? Yes No

Q13. Paper waste

Please tick mark the practices which your school encourages for encouraging the reduction in use of paper:

a. Does your school encourage use of single side paper for printing and other purposes? Yes No

B. Does your school administration practice double side printing and photocopy? Yes No

c. Does your school discourage the use of paper decorations and other promotional materials? Yes No

d. Does your school encourage use of digital / electronic version of assignments, reports, newsletter etc.? Yes No

e. Has your school encouraged/tried making Paper-Mache items? Yes No

Q14. Is there a student appreciation/recognition reward system for observing efficient waste management practices? Yes No

If yes, specify its nature...

05. TRANSPORT

In your race for 'Zero'

(You would need the help of the school transport department/ teacher in-charge to undertake this audit)

Q1. What is the total strength of the school?

01. Number of students

02. Number of teachers

03. Administrative staff

04. Support staff (in the Labs.Library,Sports.Security, Maintenance etc.)

Q2. Write the approximate percentage of the school students who travel to and from school by various modes of transportation.

01. Walkers

02. Bicycle

03. School transport

04. Private transport/ personal vehicle

05. Public vehicle

06. Any other (specify)

(You will need to do a survey in school by asking the students You can as well use a google form or survey monkey to get estimates) For ..Junior student please visit the classrooms and talk to the students regarding the same.)

Q3. Write the approximate percentage of the school teachers and other staff who travel to and from the school by various modes of transportation.

01. Walkers %

02. Bicycle %

03. School transport %

- 04. Private transport/ personal vehicle %
- 05. Public vehicle %
- 06. Any other (specify) %

Q4. 01. Does your school have transport facility (buses/ cars/ vans/ matadors etc.) available for students and staff? Yes No

02. If yes, what is the number of vehicles in the school?

| Type | Number |
|--------------------|--------|
| Buses | |
| Vans | |
| Cars | |
| Matadors | |
| Any other, specify | |

03. If no, is your school ...

- a. Provided free transport by the local municipality Yes No
- b. Hiring buses through a private contractor Yes No
- c. Hiring buses from state transport authorities Yes No
- d. Any other

Q5. If the school has its own transport vehicles:

01. How would you rate the condition of buses/ school transport?

- Very good Good Average Bad Very Bad

02. Are buses and other vehicles provided with horns, lights, reflectors, reversing lights and other safety features?

- Yes No

03. Is the preventive maintenance of school transport done regularly?
 Yes No
04. Are pollution checks regularly done for school buses and other vehicles? (you can verify by looking at the records)
 Yes No
05. Is there adequate parking space for vehicles in the school campus?
 Yes No

Q6. What is the number of buses and other vehicles that school owns and the fuels used by them? (You would get this information through the school transport in-charge/ school office records)

| Vehicles | Number | Use | Fuel (Petrol/ Diesel/ CNG/Electricity) |
|----------------------------|--------|-----|--|
| Buses | | | |
| Vans | | | |
| Cars | | | |
| Matador | | | |
| Others (please specify) | | | |

Q7. Calculate the quantity of fuel consumed and the cost of different fuels used by your school transport per month.

(You would need to average depending on the frequency of the bills paid)

| Vehicles | Amount of Fuel | Cost |
|-------------------------|----------------|------|
| Buses | | |
| Vans | | |
| Matador | | |
| Others (please specify) | | |

Q8. Calculate the per person consumption of fuel and cost by dividing the liters consumed/ amount spent by number of persons in the school.

01. Fuel consumed per person (Total fuel consumed/ Number of persons in the school) *(You would need to convert the fuels used into a common unit such as kilojoules or kilocalories before calculating the per person fuel used by your school. Take help of your science teacher and your senior students)*

02. Cost of transport per person

*This excludes the use of personal car/ public and other private transport.

Q9. 01. A) Does the school organize any programs to encourage the use of public transport, carpooling etc and to sensitize regarding the minimum use of non-renewable fuels?

Yes

No

02. If yes, what is the nature of these programs and how frequently ore they organized.

| Program | Target Group | Frequency Regularly/ Frequently/Ocasionally/Rarely |
|---------|--------------|---|
| | | |
| | | |
| | | |
| | | |

