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Green Technology

Keerthana Kona[1,*], Sritej Karri[1], Aparna Yerramilli[2]

Abstract

Green technology is a technology that is eco-friendly technology and was developed in such a way that it does not disturb our environment and helps to conserve natural resources; ultimately, Green Technology leads to the development of sustainability development or in other words it can be defined as sustainability technology. The main aim that is followed by green technology is that: (i) It minimizes the deterioration of the environment; (ii) It enhances the utilization of renewables; (iii) It saves the natural resources; and (iv) It reduces greenhouse environment. Many inventions are about to take place in the path of green technology, including examples like LED, Electric Vehicles, Wind energy, Wastewater treatment, and Solar panels. The use of these inventions may help to increase efficiency and there will be less environmental impact and we will have a pollution-free environment.

Keywords: Reuse, recycle, reduce, sustainable development, environment friendly

INTRODUCTION

Green technology, also called clean technology, involves in reduction of Carbon dioxide (CO_2) emission, biodiversity conservation, reduction of waste, chemical substances management, and prevention of environmental pollution [1–3].

We, humans, are the only reason for all the disasters which are caused in all different ways, whether natural or manmade. More specifically, usage of unwanted materials and emission of harmful gases, threatens the wellbeing of humans and nature alike. This idea of developing green technology is very helpful to increase the life span of humans and nature. Uses of Green technology include Green Architecture, Clean coal, and carbon capture technology, solar technology, molten salt storage etc. [4, 5].

As we have discussed earlier, we have faced many disasters before using green technology like Groundwater pollution, the Burning of fossil fuels, Air pollution from cars, Plastic waste, and many more. For having better earth and a safer future ahead we have to follow the 5Rs says “recycle, responsibility, reducing, renewing and rethinking [6, 7].

***Author for Correspondence**
Keerthana Kona
E-mail: 19131a0239@gvpce.ac.in

[1]Student, Electrical Engineering, Gayatri Vidya Parishad College of Engineering (A), Visakhapatnam, Andhra Pradesh, India
[2]Faculty, Department of Management Studies, Gayatri Vidya Parishad College of Engineering (A), Visakhapatnam, Andhra Pradesh, India

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According to a survey taken, 2.12 billion wastes globally each year and 99% of stuff people buy is trashed within 6 months! To control this, green technology is the only solution for us. Our future is in our hands, how we design it is the question that we have. There are many innovative methods to have an eco-friendly product [8–10].

Examples are: LED; compared to conventional light, LED has more efficiency and electric

consumption is low and it glows bright, whereas conventional light has mercury within it which is hazardous to humans as well as the environment. Another example is electric vehicles which use electric energy which is having less environmental impact. Wind energy, Wastewater treatment, and Solar Panels are a few examples of this technology [11, 12].

TYPES OF GREEN TECHNOLOGY

1. Green Chemistry,
2. Green Energy,
3. Green Information Technology,
4. Green Building, and
5. Green Nanotechnology.

Green Chemistry

It is commonly known as sustainable chemistry; it is chemical research that encourages the design of products to minimize the hazardous substances that are harmful to humans as well as the earth as a whole [13, 14].

Green Energy

It is a type of energy that is continually replenished like sunlight, rain, wind, and tides. About 16% of global tidal energy consumption comes from renewable resources, along with 10% of energy from biomass, which is mainly used for heating purposes. The share of renewables in electricity generation is around 19%, with 16% of electricity coming from hydroelectricity and 3% from new renewables [15–17].

Green Information Technology

- Develop innovative energy-saving technology.
- Promote using more energy-efficient products.
- Improve productivity through the introduction of IT.
- Introduce IT-driven energy-saving measures.
- Sustainable green IT Society.

Green Building

Commonly referred to as green construction or sustainable building. It is a process in which environmentally responsible and resource-efficient throughout a building's life cycle. The green building practice expands and complements the classical building design concerns of economy, utility, and comfort [18, 19].

Green Nanotechnology

Use of products of nanotechnology for the enhancement of nanotechnology. Making green nano products in support of sustainability.

ADVANTAGES OF HAVING GREEN TECHNOLOGY

Environment is the support system for all the living things on this planet. It contains both natural and man-made components. Natural components are like air, water, land, living organisms and manmade components are roads, industrial building etc. [20, 21].

Environment is based on interaction between the different components. Humans have a huge role in making and breaking of the environment. The impact of environment is said to be proportional to the way they treat. Every living creature in this planet largely depends on this environment for their existence, so having a clean environment is in the hands of human beings. Recycling the waste material formed is also cost efficient.

Conservation of energy is done with the help of green technology, and it is environmentally friendly [22–24].

WHY IS IT NECESSARY

Currently, environment is very much poor that it cannot be imagined. We have spoiled the environment by using the resources in a wrong way. Pollution has been increasing day by day. Pollution may be in the form of poisoning soils, muddy landscapes, waterways, etc.; humans also have been regularly harmed by pollution. Chronic respiratory diseases, lung cancer and other diseases are few examples where there is an exposure to air pollution [25]. The main aim of green technology is to control global warming and reduce the greenhouse effect. Innovative inventions were developed which do not affect natural resources. If there is a will there is a way to have a solution to this problem. The major contribution to the earth we can provide is only the usage of this green technology successfully. In the last 100 years, the global surface temperature has increased between 0.4 and 0.8°C [26].

Finally, green technology is proven to be very crucial to our future lives and healthy earth. Stop polluting our mother earth and make it clean; it is our responsibility to see the earth healthily. Let us make this a Green Earth.

METHODOLOGY

This research is mainly based on two divisions; they are as follows.

Primary Survey

The primary survey is done by us by asking about our views on the topic of green technology to some of the people. They are as follows.

K. Sridhar, Manager, Coromandel International

The earth is so far the only planet known to be endowed with a conducive environment that can support life forms. It is our responsibility to make this clean by not polluting it. The main aim of this green technology is to protect the environment and also to rebuild the damage caused in the past and to conserve the earth's natural resources (Figure 1). Some of the other components of green technology like energy and water efficiency, waste reduction, and air quality should also be taken care of on large scale to improve quality of life [27, 28].

P. Krishna Rao, Retired Deputy Collector

India is becoming the world's most populous country by the end of the decade by overtaking China and its certainly high time to explore the subject of Green Technology on a big scale. In India, 70% of its rural households still depend primarily on agriculture and henceforth India should, among other sectors, focus mainly on environmental healing technology that reduces environmental damages and

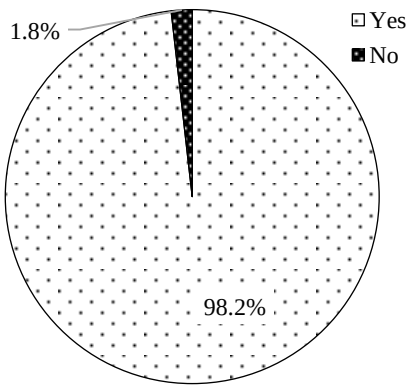


Figure 1. Importance of green technology.

contributes to both poverty reduction and sustainable and considerable agriculture development in the near future (Figures 2 and 3(a–c)).

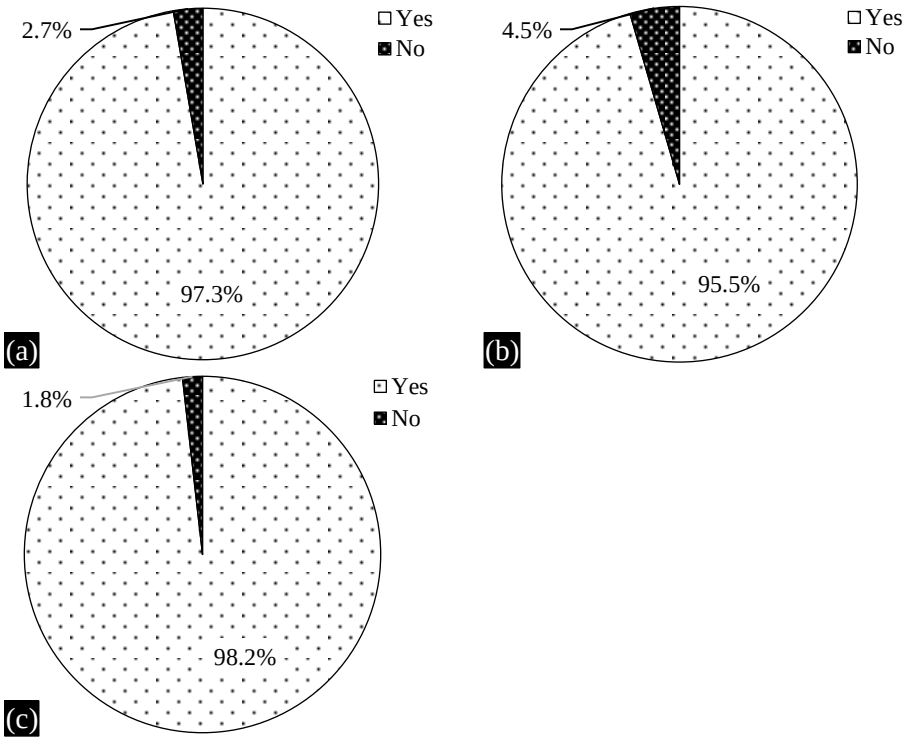


Figure 2. (a) Awareness of the benefits of green technology, (b) green technology - reducing emissions, (c) green technology as an energy source.

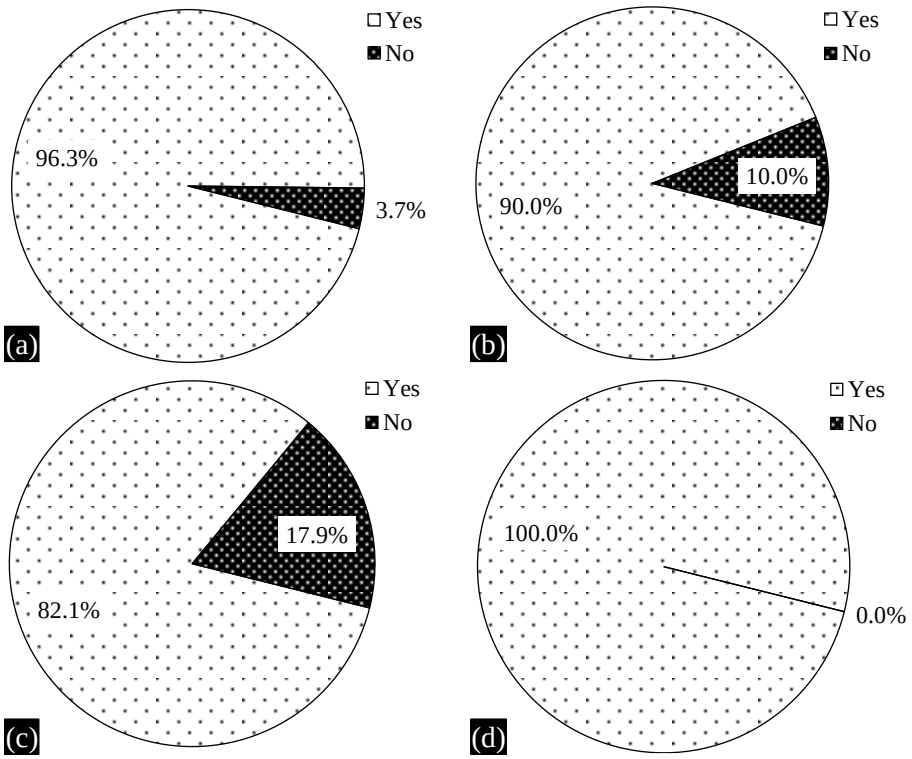


Figure 3. (a) Expenditure related to eco-friendly products, (b) wastage of electricity, (c) usage of electricity at night, (d) need of electricity.

Prof. R. Satya Raju

The most predictable one in the future is green technology. The energy-saving light bulb and electric car inventions are most popularly used to control pollution and save the earth from it after many consequences faced. Governmental agencies tend to promote regulations that encourage this technology in various industries. When the pollution continues further, there may be a risk or threat to the environment. The use of biodiesel is being encouraged by governments around the world, as a way to reduce emissions (Figures 4 and 5(a–c)).

K. Suresh Kumar, Professor

Pollution has become threatening to millions and billions of people worldwide. We need to save our earth by following this green technology, we can do it together. I hope this is the best technology to have a healthier life and environment ahead (Figure 6(a) and (b)).

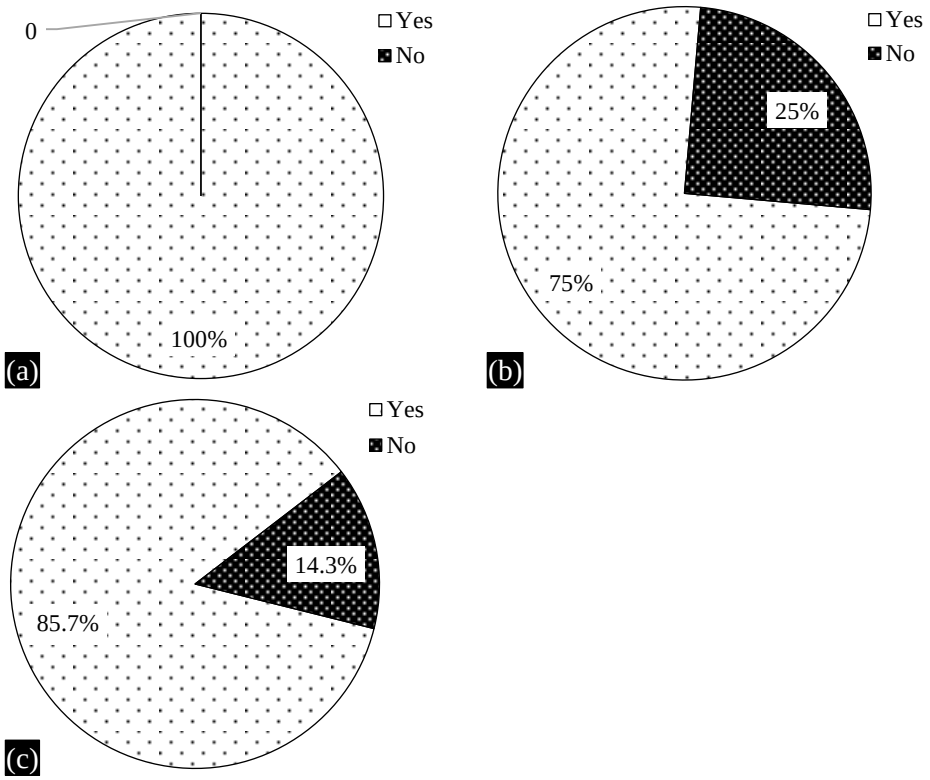
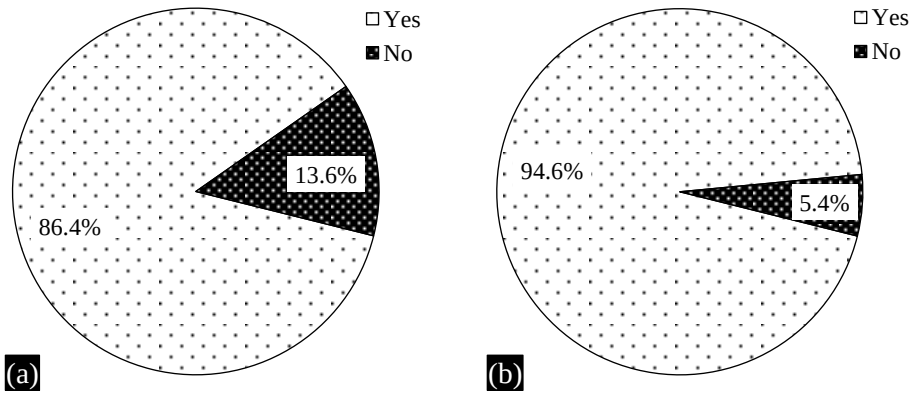
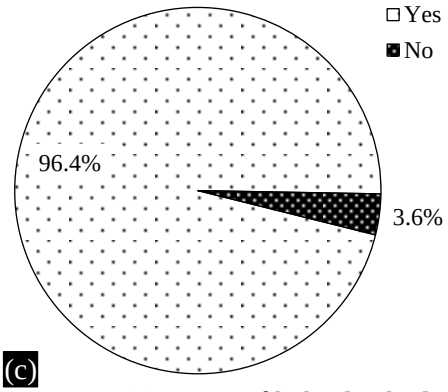


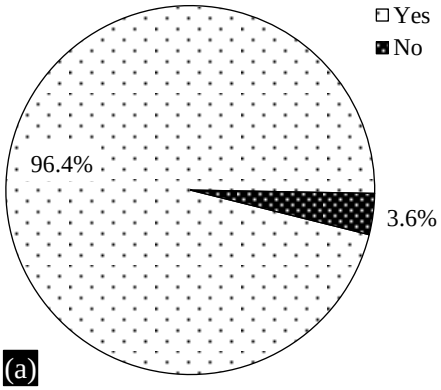
Figure 4. (a) Use of green technology reducing negative impact of human activity,
(b) types of green technology products or equipment available in the market,
(c) government implementation of the green technology.



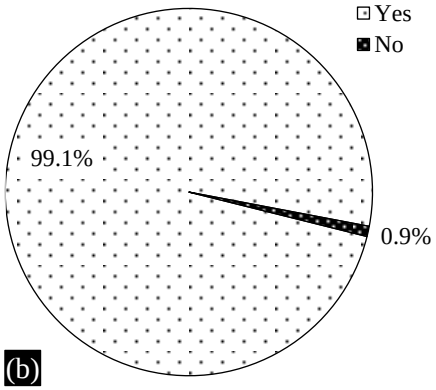


(c)

Figure 5. (a) Usage of hybrid vehicles, (b) reduction in usage of air conditioning at home, (c) harmless usage of product and equipment with reference to the environment.



(a)



(b)

Figure 6. (a) Human activities negative effect on the environment, (b) green technology can guarantee a healthy and good environment.

J. Akanth, Student

This technology should be used in such a way that there will be no emission of harmful gases and make this earth look in the purest form without any pollution. The primary step to be taken is to reduce the use of plastic. The waste from plastic may cause major damage (Figure 7).

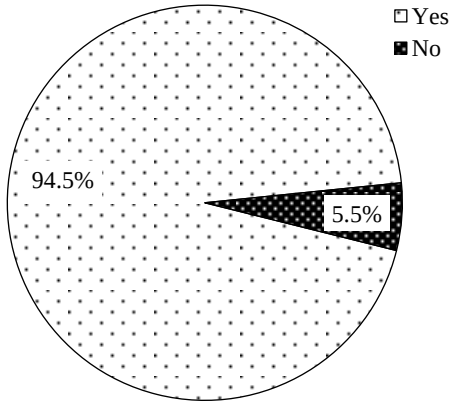


Figure 7. Concepts of green building and go green have links with green technology.

Literature Survey

The literature survey is the survey that we did by reading many articles and doing small research and making this study. This study is all about the green technology which came into existence after

many hurdles faced. Many new innovative inventions are made to progress in the new environment which is a pollution-free zone. Successfully it should be used. Our future is in our hands. Let us make this possible (Figures 8(a) and (b), and 9) [29, 30].

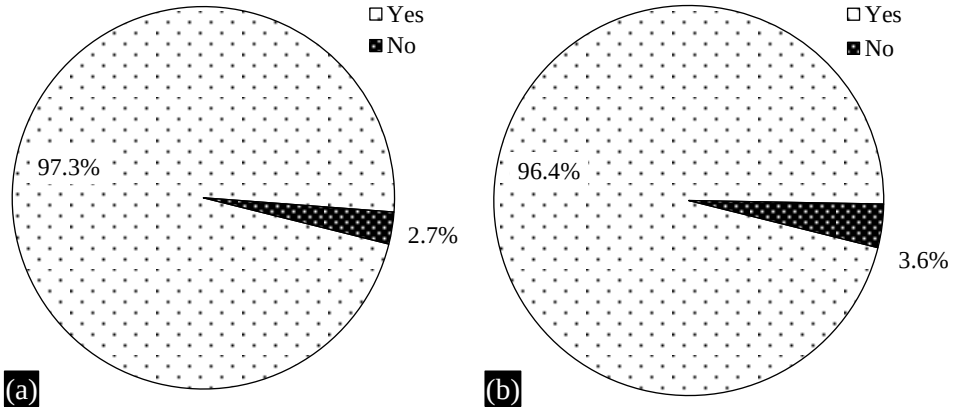


Figure 8 (a) Green technology as a source of renewable energy, (b) purchase of green technology products or equipment.

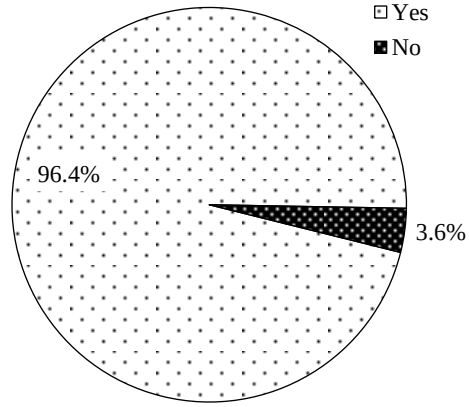


Figure 9. Energy saving with regard to electrical appliances.

We have done a small survey to know how students are aware on this green technology; they are shown in the pie charts (Figures 10(a) and (b), and 11(a–c)).

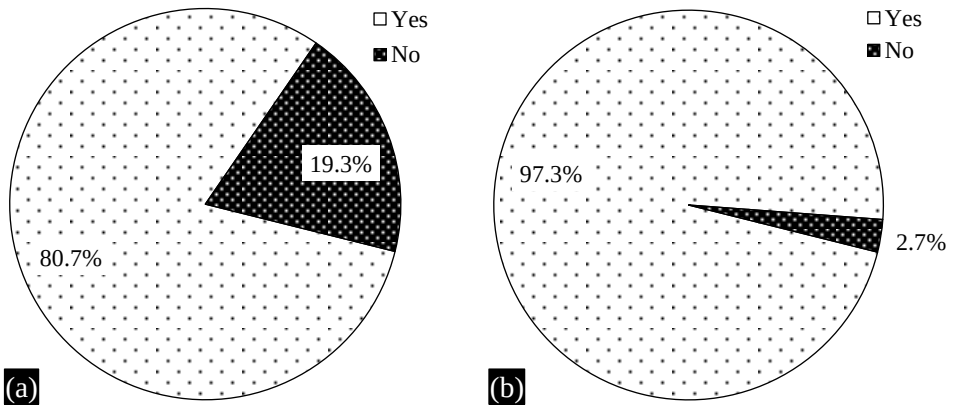


Figure 10. (a) Usage of green technology products, (b) positive impacts of green technology on the future generations.

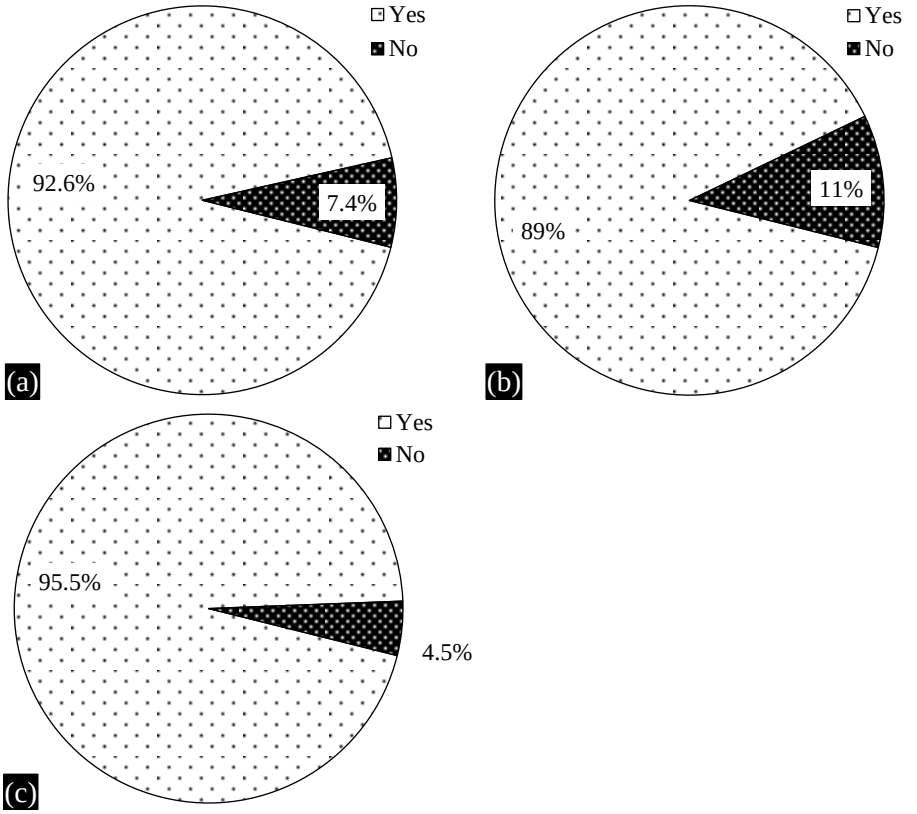


Figure 11. (a) Usage of energy- efficient equipment at homes, (b) awareness regarding energy saving sticker on electrical items, (c) electricity billing on a monthly basis.

CONCLUSION

Our planet earth is completely immersed in pollution. As, we are facing many disasters like groundwater pollution, burning of fossil fuels, air pollution from cars, and plastic waste; to overcome this, the market of green technology came into existence. The future came into our hands. The best example that we have come up with is electric vehicles as it is having less impact on the environment and does not even cause any pollution to the environment.

Healthy environment is nothing but the balanced eco-system. In other words, everything that surrounds us on this earth is referred to as the environment. It includes living and non-living organisms, natural and human made things as well.

We are aware that ancient humans, rights from Neanderthals lived closer to the natural environment while, at present, we the people in the civilized society with different cultures and advanced ways of life are totally surrounded by and artificial environment besides being suffered with pollution explosion in a developing country like India. To correct the situation, even at this late hour, people should change their mindset and play a major role to maintain the healthy environment by:

- Saving water,
- Saving power,
- Using reusable (recycle) material,
- Using public transport,
- Growing more trees and plants,
- Reducing pollution,
- Saving natural resources, and
- Participating Swatch Bharat related programs etc. on a large scale.

Finally, for a pollution-free environment, we have triumphed and many more inventions are yet to come to make this environmentally friendly.

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