

## Standard VI

# Action Research Project Topic for 2017–2018

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### Where does it all go?

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#### Introduction

- Environment, sustainability are the keywords for human welfare today. We talk a lot about greenhouse gases (GHG), carbon emissions and waste. It is time we realise that ecology considers ‘everything is connected to everything else’.
- In this way, what we call as waste is a product of all activities that we do during the day for weeks, months and years to go! In nature, we see the cyclic exchange of materials taking place between living and non-living resources.
- With advancement of science and technology and change in lifestyle, problem of waste, its production, handling and environmental effects has become more severe. The ideal situation would be ‘Zero Waste’ approach. Though it may appear to be too ideal, it’s not too many years ago, we were almost close to zero waste! Plastic weren’t used to wrap foods and materials like cloth or paper were used repeatedly to save money and resources.

#### Major environmental problems can be categorised as:

##### Emission, rains and climate change:

Climate change is expected to result in rise in the sea-level and affect rains. India is having a vast coastline and majority of the population is dependent on monsoon (rains) for agriculture. The climate change may affect India in a big way.

#### Land degradation:

Land is being used as a commodity and not as community to which we belong. Soil pollution, loss of fertility of soil are major issues caused due to chemical fertilizers, insecticides and dumping of waste.

#### Pollution of fresh water resources:

Major rivers as well as ground water resources are polluted due to sewage and industrial toxic waste. Here we must remember that we have been dumping waste in the sea considering it a bottomless pit. This has destroyed marine ecosystem to a greater extent.

#### Deforestation:

We have been planting trees to get timber and firewood and even to earn carbon credits. However, we have never realised that by cutting trees to use it for such purposes, we are actually losing forests thereby destroying biodiversity and livelihood of natives.

#### Urbanisation:

- Rapid urbanisation has led to concentration of population in small areas where there is tremendous pressure on resources. To provide for basic amenities in these areas, staples are being brought from outside and dumps of wastes are taken away. This is adding to the pollution!

Thus, we need to address the problem of

waste and its disposal to get rid of these problems. In order to combat the situation 3Rs are suggested - Reduce, Reuse and Recycle.

But it's time we stop and think. Have we actually reduced harvesting resources at least in any one activity? E. g. Have we actually started reducing water consumption? Buying less clothes?

Do we really recycle? Do we actually reuse? This actually reduces load on landfills and waste management systems. It is very important to notice the 4th R i. e. Review. We need to review our actions as well as review the entire process of handling of waste.

### **Why this review is important?**

- The environmental impact associated with waste, mainly result from its disposal. So, less waste that needs to be handled, lesser the damage that is caused.
- Some items for disposal are made from materials which are limited in supply. Therefore, reducing the amount of waste produced and keeping the same material in circulation is important.
- Poorly controlled landfills can cause pollution in terms of release of toxic gases on land and in water resources. We are also aware of accidents like sudden fire at dumping grounds. Foul smell, leaching and spread of diseases are a few other issues.
- Increase in environmental and health impacts of landfills have resulted in limiting availability of dumping sites and increase in cost of disposal.
- For certain wastes, suitable sites are needed. E. g. For radioactive waste.
- Wherever possible proximity principle should be applied. It means, waste has environmental, social and economic cost. So, as a general rule, waste should be dealt with as near to the place of production as possible.

### **Array of waste materials produced:**

- Chemicals like cleaners, medicines, cosmetics,

laboratory chemicals and chemicals used in processing.

- Organic waste like waste food, clothes made of natural fibres, papers, farm waste, undigested waste etc.
- Biomedical waste, nuclear waste.
- Electronic or E-waste.

### **A few examples of waste:**

Asbestos, batteries, carcasses of dead animals, cooking oil, greeting/invitation cards, furniture, glass, printer cartridges, light bulbs, mercury and dental amalgam, paint, wrappers/packets of chips/biscuits etc., disposable goods like used tissue papers, nappies, paper dishes etc. The list is endless.

### **Possibilities of major waste creation:**

Social gatherings, outings and travel, refurbishing/demolition activities, change of residence, festivals, railway stations, malls, hospitals, production industries etc.

### **Do we think of what happens to -**

- the water that goes down the drain?
- the wrapper of chips or chocolate that is casually thrown from moving vehicle or while walking on the road?
- the household waste that is dumped in municipal vehicle?
- the disposables dumped at picnic sites?
- the magnitude of waste created in our own building/school etc.?

It is time we take a look as step two and further of waste disposable so that we realise unknowingly how we are increasing our carbon footprint merely by handling waste! Also, we are putting pressure on environment by virtue of huge waste disposable infrastructure like pipelines, dumping grounds, waste collecting vehicles, waste processing machinery and several

other things which we are unaware of.

We must remember, future belongs to those who understand that doing more with less is compassionate, prosperous and enduring and this is more intelligent and even competitive.

### **Improved designs that will reduce wastage:**

#### **Some examples:**

- Recyclable waste handling by rag-pickers
- Fate of water used in artificial immersion ponds during Ganesh festival.
- Segregation and disposal by raddiwala.
- Drainage system of any building - Its maintenance and problems.
- Recycling of paper/plastic - Actual process.
- Waste created at water treatment/waste water treatment plants.
- Parts of vegetables like stems of cauliflower, outer leaves of cabbage etc. in vegetable market.
- Rain water that falls and flows away.
- Waste from wet waste and dry waste bins.
- Water used in cooling plants.
- CFL bulbs.
- Water used in fish farming.
- Water from cooling plants.
- Waste created during refurbishing of a house/building redevelopment.
- Medicines/foods stocks left after expiry date.
- Innovative waste handling projects - Nisargruna at BARC.
- Use of fly ash

These are just examples. Students can select any one topic that fits into main theme and study it.

Remember, we have to study step 2 and ahead of waste handling i.e. what happens after we have discarded it, so that we gain an insight about need of reducing waste.

### **What students have to do?**

- Read this text/pamphlet carefully.
- Observe at home, school, workplace, native place or neighbourhood.
- Select any one aspect/possibility of waste creation and its disposal and possibility of hazardous outcome of disposal.
- Find out what happens to the disposed waste, its transport, handling and disposal at least for details of the next step.
- Study all aspects of disposal, methodology, technology, transport, immediate threats to environment and economics.
- Think of any better methodology, if possible.
- Try to implement.
- Check feasibility.
- Write report.

*(Reference: www.google.com)*