FAQ's

How can soil pollution be reduced?

1) **Reduce the use of harmful products to the environment.** Ways to reduce pollution in your home:

- Buy biodegradable products.
- Store all liquid chemicals and waste in spill-proof containers.
- Eat organic foods that are grown without pesticides. Look out for fertilizer or pesticide free products when you go to the market.
- Don't use pesticides if you can.
- Use a drip tray to collect engine oil.
- Buy products that have little packaging.
- Don't dump motor oil on the ground.

2) **Reduce the amount of plastic you use.** Researchers fear that such plastic bags may never fully decompose; instead, they gradually just turn into smaller and smaller pieces of plastic. How to reduce the amount of plastic you use in your home:

- Don't use garbage bags—just empty your trash into the garbage bin.
- If you don't like that approach, get yourself some recycled or biodegradable, compostable garbage bags.
- Request that your daily newspaper not be wrapped in plastic when delivered. (Or cancel your newspaper subscription and go totally online for your news fix–you'll save hundreds of trees as well.)
- Take your own plastic or metal container to the restaurant to take home your leftovers when you're eating out. Sure they'll look at you funny, but remember you're an eco-trend-setter!
- Remind your favorite take-out place to leave out the plastic utensils when they pack your food to go. Your

drawers are full of them already! And politely decline the bag if you only have one or two items to carry home.
- Ask your favorite dry-cleaners to eliminate the plastic wrap on your clothes. Don’t forget to choose an eco-friendly, non-toxic dry cleaner too.

3) **Reduce your garbage amount.**

- Properly maintain all underground storage tanks, like oil, septic, and sewer lines. Have your septic tank pumped on schedule and look for signs of leakage, such as soggy areas in the yard, odor, slowing and backups in the home, and excessive plant growth over a particular area. Most septic systems need pumped every three to five years.
- Be diligent about picking up and disposing of trash. Dispose of animal waste into a septic or sewage system as promptly as possible--do not leave it on the lawn or place it in a storm drain.
- Do not burn trash, particularly plastics or tires, because the residue in the smoke will settle and pollute the soil.

4) **Reduce paper use.**

- Choose digital subscriptions.
- Say no to receipts.

5) **Plant native species and plan your plantings in a way that minimizes runoff.** This will help reduce the amount of water and lawn chemicals needed to maintain your yard.

With the help of an example, explain how soil pollution can affect the ecological balance?

It is observed that residential zones, hospital as well as industrial belt near Balkum, Saket, Akashganga and Kalwa Bridge are the major sources of solid waste pollution. The

domestic sewage channels often bring a lot of solid waste in the form of plastic bottles; carry bags, etc into the creek.

It was observed that plastic balls and toys were some of the other plastic NBDSW materials most commonly collected at the above six different sampling stations along the Thane Creek. Tidal as well as wind action carry most of the solid waste which gets accumulated in the creek. In last many years, there has been extensive growth of residential area and industrial belt along the Thane creek. Some of the plastic bags and thermocol (polystyrene) from these residential and industrial areas also find their way into the creek.

NBDSW accumulated in the mangrove have changed the physico-chemical environment of the sediments by restricting the entry of sunlight and air. This has affected the nutrient recycling process of the entire mangrove ecosystem.

Solid wastes spread on the mangrove area prevent the development of seedlings from propagules.

Solid waste accumulation has affected the benthic fauna, the most important component of detritus food chain in the mangrove swamps.

Accumulation of solid waste destroyed the aesthetic beauty of the creek. The continuous process of accumulation of these materials has widened and strengthens the mudflats, which results in the narrowing of the channels.

Due to their varied sizes and colours, plastics and thermocol are wrongly taken as food by fishes, birds and crabs. This can prove to be fatal to these organisms. Such examples are frequently observed and also documented in urban environment.It has created the severe threats to the existing mangrove plants and also has affected the regeneration process of the mangrove ecosystem.

Therefore, the technical aspects for a sustainable NBDSW management would have to take into account the following points for planning and implementation of strategies.

(1) Provision of facilities for primary collection of waste from curbside/community bins and adequate storage

facilities in the urban areas based on the population density.
(2) Transportation of waste from the community storage facilities at regular intervals and improvement in the waste collection fleet.
(3) Transfer stations (at optimal distances from residential areas) should be constructed wherever necessary with provision for weighbridges.
(4) There must be a separate system for hospitals, health care establishments and industries to prevent the infectious and hazardous non-biodegradable solid wastes from entering the municipal waste stream.

What is marine pollution?

Marine pollution occurs when harmful, or potentially harmful, effects result from the entry into the ocean of chemicals, particles, industrial, agricultural and residential waste, noise, or the spread of invasive organisms. Eighty percent of marine pollution comes from land. Air pollution is also a contributing factor by carrying off pesticides or dirt into the ocean. Land and air pollution have proven to be harmful to marine life and its habitats.[1]

The pollution often comes from non point sources such as agricultural runoff, wind-blown debris and dust. Nutrient pollution, a form of water pollution, refers to contamination by excessive inputs of nutrients. It is a primary cause of eutrophication of surface waters, in which excess nutrients, usually nitrogen or phosphorus, stimulate algae growth.

Many potentially toxic chemicals adhere to tiny particles which are then taken up by plankton and benthos animals, most of which are either deposit or filter feeders. In this way, the toxins are concentrated upward within ocean food chains. Many particles combine chemically in a manner highly depletive of oxygen, causing estuaries to become anoxic.

When pesticides are incorporated into the marine ecosystem, they quickly become absorbed into marine food webs. Once in

the food webs, these pesticides can cause mutations, as well as diseases, which can be harmful to humans as well as the entire food web.

Toxic metals can also be introduced into marine food webs. These can cause a change to tissue matter, biochemistry, behaviour, reproduction, and suppress growth in marine life. Also, many animal feeds have a high fish meal or fish hydrolysate content. In this way, marine toxins can be transferred to land animals, and appear later in meat and dairy products.

Discuss major causes of marine pollution.

Causes of Marine Pollution:

Following are major causes / sources of marine pollution:

(a) Oil:

It is a sea-based pollutant which is probably worst of the pollutants of the marine environment. Oil in the marine environment come from a variety of sources. These include natural submarine seepage, natural decay of marine plant and animal life, shore based industries and transport activities, off-shore drilling wrecked oil tankers and other ships, and discharges from ships which pump out cargo and ballast tanks with sea water.

Of the two natural sources sub-marine seeps may be controllable but plants and animal decay is not. The oil discharges on the oceans first forms slicks which float on the surface. If the oil becomes absorbed on solid particles it may sink. The floating and suspended oil is absorbed by billions of tiny phytoplankton, organisms which act as a biological blotter.

Since these organisms are the building blocks of the food chain the other higher forms of marine life feed upon them and successively pass the oil pollutants on to still higher organisms.

Consequently the concentrations reach higher levels in predators such as marine mammals birds and man thus the food chain is adversely affected and water birds often float shore to die with their feathers soaked in oil. In short, oil can cause damage to both marine life and the recreational potentials of coastal areas.

In the recent Iraq-Kuwait (and earlier Iran-Iraq) conflict, good deal of oil was allowed to flow into the sea leading to marine pollution and death of sea-borne life On account of oil ship wrecks a good amount of oil spills into the ocean. In January 1969, there was a blow out from an oil well in the Santa Barbara Channel in South California, USA.

It caused a heavy oil spill into the sea and covered 400 sq miles of ocean surface and smeared 40 miles of beaches with 2 inches layer of crude oil. The accident caused huge health hazards to the living resources of the sea, human health and coastal amenities since the oil leak continued for more than a year.

In March 1978 about 2, 30,000 tonnes of in shipment through the English Channel spilled from the hold of super tanker Amico Cadiz. It resulted in spreading an oil blanket of 120 km long and 6 kms wide. The wreck of the Amico Cadiz became the world's worst maritime oil pollution incident. There have been many such accidental oil spills in sea and it seems these will continue.

(b) Wastes Disposal:

Wastes are often divided into two major categories, i.e. domestic and industrial wastes Domestic wastes include domestic sewage, wastes from food processing detergents and run of from agricultural areas. Industrial wastes include heavy metals, radioactive nuclides, inorganic chemicals and heated water.

The extent and variety of wastes spewed out by industry is tremendous. To take the American example, every year the US discards 7 million automobiles, 20 million tonnes

of paper, 48 billion cans, 26 billion bottles and jars. Much of this material is made of aluminum and plastic.

The mining industry discards more than 3 billion tonnes of waste rock and mill tailing. According to an official estimate every year, the American lakes, rivers and estuaries receive some 50 trillion gallons of hot water used for cooling by the power industry, and unknown millions of tonnes of organic and chemical pollutants from cities, plants and industrial plants.

Chlorinated hydrocarbons are another land-based pollutants which have drawn the attention of international community. The chlorinated hydrocarbon pesticides — including DDT, dieldrin and endrin are known to be important pollutants in the marine environment.

These pesticides, used extensively for agricultural pest control, enter the marine environment through water runoff from agricultural areas from the atmosphere. It is estimated that nearly half of the pesticides sprayed over agricultural land is carried off by winds into the atmosphere. DDT and its residues have been found in penguin in the Antarctic and in petrels in Bermuda.

This form of marine pollution is quantitatively greater than oil discharges on the sea. And, consequently it appears to be more harmful because ocean dumping takes place in and around a region which is vital for the marine eco-system, that is, the neritic epipelagic province.

Plankton, the microscopic forms of animal and plant life, which are the basic food upon which higher forms depend, thrive in this very province and damage done to the marine eco-system by the wastes disposed is too much.