

Save the Food Chain Save the Earth

Food chain governs an ecosystem in a natural environment where each living organism depends on others for survival. The sunlight is essential for the majority of food chains because it provides the energy to the producers to create food through photosynthesis. A “food chain” is a fundamental concept that depicts how energy and nutrients flows in a natural ecosystem. It illustrates the feeding relationships between different organisms, showing who eats whom and how energy is transferred from one level to another. On the other hand, a “food web” is a complex network of interconnected “food chains” providing a comprehensive representation of the feeding relationships within an ecosystem. A deteriorating “food chain” means deterioration of the ecosystem in a natural environment which may potentially cause extinction of living organisms and the loss of biodiversity.

At the present scenario, mixing of non-biodegradable solid waste and different toxic wastes along with the biodegradable solid waste are developing huge ‘waste land’ and ‘toxic land’ day by day. In this process, accumulation and sedimentation of toxic waste on the earth surface along with the plastic, glass and metal waste deteriorates the natural biological system and finally leads to soil and water pollution and harms both terrestrial and aquatic habitats as well as life. The situation is aggravated after the use of chemical pesticides and excessive use of inorganic manures that negatively impact soil microbial life, which is essential for healthy soil and water systems. These processes are responsible for the loss of soil fertility and developing dead soil and contaminated water that are also responsible for the loss of biodiversity and **affecting the kingdoms of biodiversity**. Under these situations natural “food chain” systems are deteriorating day by day and also severely affecting both ‘producer’ and ‘consumer’ which are ultimately affecting the entire ecosystem of the earth.

It is to be noted that there is a big role of compostable waste to maintain the “food chain”. In the natural process, both producers and consumers after the end of its life mixed with the soil due to the natural biological degradation and produced nutrients for the producers (plants).

On the other hand, at the present situation, plastic waste and other non-biodegradable waste like glass, aluminium foil and can etc. has changed the topography of the earth and created a threatening condition to the “food chain”.

Moreover, solid wastes which are usually non-recyclable in nature are creating major problems on the present solid waste management system. For example, **laminated papers, dish, plate and cup made up of Thermocol (Polystyrene foam), ‘tetra-paks’, different multilayered plastics etc. are usually non-recyclable and always remain in the landfill. Nobody is collecting these non-recyclable materials which are often mixed with the biodegradable solid waste and prevent the natural microbial digestion of the biodegradable solid waste and developing ‘waste land’ day by day which is directly affecting the “food chain”.**

Due to the present condition of indiscriminate dumping of solid waste, “food chain” is deteriorating day by day both in the terrestrial and aquatic ecosystem of the Earth.

Deterioration of terrestrial ecosystem:

Nowadays plastics are scattered everywhere in the land forms even on the agricultural land which prevents the microbial growth on soil and prevents the natural biological degradation process of the soil. In this process biodegradable solid waste available on the land cannot be decomposed and cause loss of soil fertility and even in some cases formed dead soil.

Due to the plastics, glass and metal (example: aluminium foil and cane) in the soil; plant roots cannot penetrate to take the nutrients and water from the soil which is directly affecting the producers.

In nature, soil has a life due to the availability of the microbes, insects and earthworms which also act as decomposers in the natural “food chain”. These organisms break down dead plants and animals including biodegradable waste, transforming it into simpler molecules and releasing vital nutrients back into the soil. This process enriches the soil, making it fertile and provides nutrients to producers (plants) to grow and thereby maintaining the natural “food chain”. Whereas, the extensive use of inorganic fertilizers and chemical pesticides lead to a decline in essential soil organisms like microbes, insects, and earthworms, ultimately degrading soil health and creating "dead soil" or a "hot soil". This is because these chemicals can persist in the soil, disrupting the delicate soil food web, reducing organic matter and adversely affecting soil structure and fertility, thus hindering the natural processes that sustain life in the soil.

Pollutants, such as plastics, heavy metals and pesticides, can seep into the ground, harming the “food chain” and accordingly ecosystems and posing risks to human health.

Deterioration of aquatic ecosystem:

The garbage/solid wastes which pollute rivers, lakes, streams and creeks may be termed as “aquatic solid waste”. Most of the solid waste that ends up in waterways comes from land-based activities. In reality garbage can easily become aquatic solid waste if it is not properly managed or disposed of in a scientific way. When solid waste is littered on the ground rather than placed in a recycle, compost or garbage bin; rain and wind often carries it into storm drains, streams, canals, and rivers. For example, a sachet of “Pan-masala and Tobacco” or a pouch pack of “Chips and Kurkure” tossed on the ground might wash into a storm drain and travel through the storm water system, which in some cases, leads directly into waterways. **Sachet of “Pan-masala and Tobacco” and the pouch pack of “Chips and Kurkure” are the multilayered plastic that remains in the environment for several hundred years.**

The habitat as well as “food chain” disturbances that are caused by the solid waste in rivers and ocean also includes submerged benthic (at and near the bottom of rivers and oceans) habitats which is far more severe than the surface level. In this process solid waste causes severe degradation by altering physical structures, reducing oxygen levels, and depleting resources, which is often worse than surface-level impacts. This debris, which includes

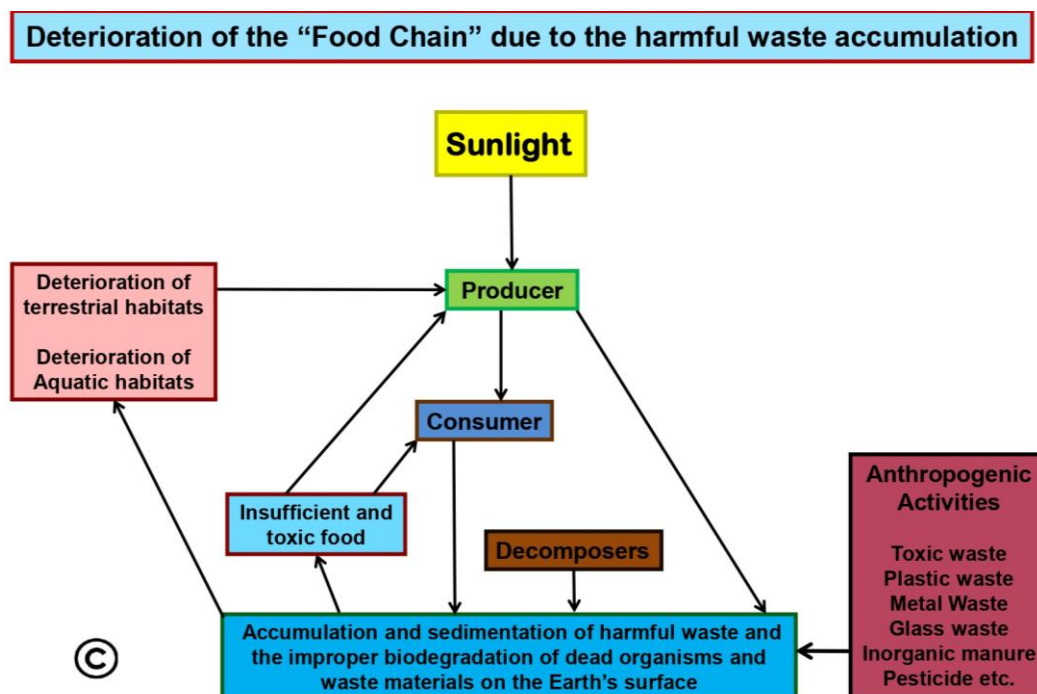
microplastics and larger items, can smother organisms, block light, introduce toxins and disrupt the entire benthic “food web” by affecting the creatures that live in or on the bottom of these aquatic ecosystems.

Conclusion:

Thus due to the continuous dumping and accumulation of toxic waste, plastic glass and metal waste along with the use of chemical pesticides and inorganic manures kills the biological life of the earth surface which also gradually affects the natural biodegradation process of biological waste. In this process not only natural ‘food chain’ systems are deteriorating but also cause severe effects both on producer and consumer which is ultimately affecting the entire ecosystem of the Earth. **Therefore, solid waste pollution is impacting not only our planetary health, but also human health.**

It should be noted that, if the present condition of unscientific solid waste management and “throwaway culture” is continued, the magnitude of the problems will be severely enhanced in the near future along with the increased waste generation. Considering the fact, “**solid waste may be responsible for the global food chain destruction**” and if the situation is continued there will be no way to save our Earth.

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Carcass of seabird consumed plastic waste (Credit: Chris Jordan)



Dumping of solid waste deteriorating both terrestrial and aquatic habitats