

Impact of Persistent Organic Pollutants on the Environment: Assessing Ecological Consequences and Implications for Ecosystem Health

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ABSTRACT

The growing industrialization and globalisation are the major components of growth which not only brought a new era but also meets the human needs in one click. The advancement of technologies all around us took us to a new world but at the same time they resulted pollution to the environment which release hazardous and toxic gases. These gases detriment the environment as well as put its impacts on human health. One of the highly toxic gases which becomes a talk of the world and poses threat to the human environment are Persistent Organic Pollutants (POPs). Persistent Organic Pollutants are nothing but chemical compounds that remain stable in the environment for a long period of time. Simply it can be said that they originate from the disposals of organic or chemical products which are hazardous to the nature. This research focuses on investigating the impact of POPs on the environment also emphasizing their adverse effects on ecological systems.

Keywords: Industrialization, Globalisation, Persistent Organic Pollutants, Chemicals etc

INTRODUCTION

The Persistent Organic Pollutants are a group of toxic chemicals that persist in the environment for a long period of time and bio accumulate the living organisms which poses a serious threat to human health and the environment. The POPs has the ability to remain in the environment for an extended period as they can resist degradation through natural processes. The POPs can released into the environment through various ways which includes not only industrial activities but also through using of certain products such as pesticides , electrical equipment. The POPs has become a serious topic which is discussed globally as they can spread and travel a long distance through air and water currents.

Some of the impacts of POPs in the environment are :

- **Soil and water contamination:** The POPs can contaminate the soil and water bodies which leads a long lasting effects on the resources. It also impacts the plant growth which directly leads to contamination of food crops.
- **Loss of Biodiversity:** the POPs has the ability where they can accumulate in the fatty tissues of living organisms which results the declination of certain species including birds , marine animals and fish. The chemical also effects the wildlife, leading to reproductive and behavioural abnormalities , declination of population and ecosystem disruption.

- Human health risks: POPs may expose severe health consequences for human beings. These chemicals are associated with a range of health issues such as neurological disorder, dysfunction of immune systems and influences the reproductive health etc.

CONVENTIONS ON PERSISTENT ORGANIC POLLUTANTS

1. Stockholm Convention of Persistent Organic Pollutants:

Recognizing the environmental and health risk associated with the Persistent Organic Pollutants, the International Agreements such as the Stockholm Convention on Persistent Organic Pollutants, a global treaty have been established to eliminate and regulate the production and the uses of these substances. With an aimed to protect the human health and the environment from the harmful effects of Persistent Organic Pollutants, the treaty was signed in Stockholm, Sweden in the year 2001 which came into force on 2004. The convention includes significant provisions on monitoring and reporting of POPs as well as capacity building, technical assistance and financial resources to help developing countries to meet their obligations under the treaty. Some of the key provisions of the Stockholm Convention are:

- a. The convention includes a list of specific chemicals that comes under the meaning of POPs which includes substances such as polychlorinated Biphenyls, Dioxins, Furans and certain pesticides namely dichlorodiphenyltrichloroethane (DDT)
 - b. The Parties associated with the Convention are obligated to take measures to eliminate or reduce the production, and use of POPs. They are also required to initiate action plans and strategies actively for managing the POPs including measures for monitoring, reporting and controlling their stocks and waste.
 - c. The Convention has also listed down some restrictions and prohibition on using the POPs. The parties are required to take necessary measures to reduce or eliminate the production and use of listed POPs. For instance, for some specific cases the DDT is allowed to use for disease vector control.
 - d. The convention establishes mechanisms for information exchange among parties which includes reporting on the production, import, export and release of POPs. The Parties are also required to submit detailed information or reports on their implementation of the Convention.
 - e. The Convention has also established financial mechanisms and assistance to parties. Recognising the uses and needs of financial aid and support, the provisions were made to assist and provide financial resources and technical help to the parties, particularly for developing countries.
- ### 2. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade: