

Name: _____

Date: _____

Class: _____

IB ESS

1.5 Humans and Pollution

Significant Ideas:

Pollution is a highly diverse phenomenon of human disturbance in ecosystems

Management strategies can be applied at different levels.



What is pollution?

1. Define "pollution"

2. Pollutants can be categorized as "primary" and "secondary" pollutants. Using **examples**, explain the difference between these two terms.

3. The table below lists a number of different examples of pollution. From the list, choose the matching pollution type.

light, sound, inorganic substances, organic substances, heat

Pollution Type	Example
	Sulphur dioxide from a factory entering the air
	Manure used as fertilizer on farmland washing into a lake
	A bright garden light shining into the neighbour's house
	Disruptive noise coming from a busy road near a housing estate
	Warm water entering a river from a factory



4. a) State one example of point and non-point source pollution

Point source pollution:

Non-point source pollution:

b) Explain how point and non-point source pollution differ

5. Air quality in Beijing is particularly poor as a result of coal-burning amongst other pollutants. This is an example of **chronic** pollution. Using an example of **acute** pollution to support your answer, explain why Beijing air pollution is an example of chronic pollution.

6. Some pollutants are considered **persistent**, while others are **biodegradable**. Using an example of each to support your answer, explain what these terms mean.

Persistent Pollutant

Biodegradable Pollutant



DDT

1. State **two** uses of DDT

2. With reference to biomagnification, describe the harmful effects of DDT on birds.

3. List some of the potential impacts of DDT on humans.

4. Summarise the effect that Rachel Carson's *Silent Spring* book had on public opinion on DDT use.

5. Evaluate the use of DDT, and justify your own opinion on its use.



Pollution management

Plastics are a major source of pollution with many negative consequences, particularly for aquatic organism and marine birds if the plastic enters the oceans (and it often does). Plastic can enter the environment in a number of ways. Poor waste management as well as littering adds plastic to the environment, and drinks bottles in particular are a major problem. Micro-beads, which are tiny balls of plastic added to shower gels and cosmetic products, are washed down the sink and enter water ways directly. Another source is micro-fibers which are degraded from clothes and are washed away in the laundry.

Plastics that enter the ocean can affect some marine birds; the Laysan Albatross, for example, feeds by skimming the surface of the water with its beak, meaning it will scoop up and swallow any plastic that is floating. This often results in the death of young albatrosses, as they are not able to regurgitate the material. Fish can be harmed by ingesting microplastics, which are bioaccumulated and then biomagnified through the food chain to higher organisms such as larger fish, birds and even humans.

1. Using the pollution management model (figure 1.5.6), summarise possible management strategies for plastics at each of the three levels. You're expected to make your own sensible suggestions.

Process of pollution	Level of pollution management	Possible strategy for plastic pollution
Human activity producing pollutant	Altering human activity	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Release of pollutant into the environment	Controlling release of pollutant	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Impact of pollutant on ecosystem	Clean-up and restoration of damaged systems	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

