

# Risk

by Sophia



## WHAT'S COVERED

In this lesson, we will discuss the topic of environmental risk. We will explore the assessment of risk from environmental issues and discuss how it is addressed in policy. We will explore challenges with addressing risk, and the difference between voluntary and involuntary types of risk. Lastly, we will discuss how environmental risk is managed, such as the standards set by the Food and Drug Administration. Specifically, this lesson will cover the following:

## 1. Environmental Policy and its Challenges

Almost all environmental policy is essentially the assessment of risk from human activities on ecological and human health. There is a lot of uncertainty in assessing health risks from environmental issues in order to develop policies. This is because lab tests cannot adequately represent real-world conditions. Lab tests have the following limitations:

- They cannot accurately guess how much exposure an individual or population will eventually be exposed to, or who will be exposed.
- They cannot predict the pathway through which a human or organism will interact with, or ingest, the potential danger.
- They cannot determine the duration of time a subject or population will be exposed.
- They cannot identify individuals' sensitivity to certain dangers because each individual may have different susceptibilities.
- It is difficult to infer from testing animals how humans will respond.
- It is difficult to infer how high doses will affect people by experimenting with low doses.

In general, there is a lack of data to determine health effects from environmental issues.

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## 2. The Concept of Threshold

When discussing challenges to assessing and mitigating risk, it is important to know the concept of threshold. Most contaminants have a threshold, or the point when the level of contamination changes from safe to harmful. It can be difficult to determine what a contaminant's threshold is because below a certain level, there might not be any negative impacts.



#### THINK ABOUT IT

It is common for human health risks to be misunderstood because it is hard to comprehend the risk of 1 in 20,000, as there are few activities that humans do 20,000 times. Would you treat a risk of 1 in 20,000 with the same level of caution as a risk of 1 in a million? Because of such misunderstandings, people do treat them with the same level of caution, despite the fact that the two levels of risks are very different.

## 3. Voluntary and Involuntary Risks

Risks can be either voluntary or involuntary. Risks are voluntary when risks to an individual are incurred because they have performed an action that causes the risk, while risks are involuntary when an individual incurs risk as a result of someone else's actions.

It is possible for individuals to control voluntary risk by changing their behavior. But in general, people are more interested in addressing involuntary risks. Governments tend to regulate involuntary risks, leaving behavioral changes up to the individual.



#### BIG IDEA

Humans decide whether or not to take on the risk of potential harm from an activity or substance, depending on potential benefits gained and the individual's temperament. Science can only aid in explaining the causes of and the impacts from environmental issues, but it is up to humans to decide what amounts and types of risk they are willing to take.

## 4. The Food and Drug Administration

The U.S. Food and Drug Administration (FDA) sets standards for acceptable levels of contaminants, such as pesticides, that can be present on or in foods. However, it is difficult to establish appropriate amounts of risk because it is challenging for people to understand and/or predict risk probabilities. Also, perceptions of risk may not match true probabilities of harm, and willingness to accept risk depends on the individual consuming the food.



#### SUMMARY

In this lesson, we learned about risk and **environmental policy** associated with it. We learned about the **challenges** to assessing and mitigating risk, including the **concept of threshold**. We learned about

**voluntary and involuntary types of risk**, as well as organizations, like the **FDA**, which manage risk at a national level.

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