Solving an Environmental Problem
• **Environmental Sustainability** is the ability of the **ENVIRONMENT** to function indefinitely without going into a **DECLINE** from the stresses imposed by human society on natural systems that maintain life.
Steps to follow....

1. Scientific Assessment

   a. Gathering of **INFORMATION** or **DATA** thru experiments and simulations.

   b. Scientific **method**
2. Risk Analysis

a. Using results of scientific investigations to analyze the potential effects of intervention

b. What could happen if a course of action were followed – including any ADVERSE effects that might be generated?
3. Public Education

a. When a clear choice can be made, the public MUST be informed.
- Explain the **problem**

- Present available **alternatives** for action

- Probable **cost**

- Results of each choice
4. Political Action

a. Through the elected officials, the public selects a course of action and implements.

b. Wealth of legislation governing the environment.
5. Follow-through

a. Results should be monitored to see if it is solving the problem

b. Evaluate and judge if the solution is working or the initial evaluation and modeling of the problem needs to be improved.
• **Risk Assessment**

• Estimating the **risk** involved in a certain action

• Compare and contrast the risks involved with other **actions**
• Once **risk assessment** is done, results are evaluated with their relevance to the political, social and economic consideration
• The evaluation which includes the development of laws to regulate an problem is called risk management.

• Helps us estimate the probability that an event will happen.
• Let’s us set **priorities**.

• Risk is inherent in all of our actions and in the environment.
• Example: 180 times more likely to get cancer from smoking than from drinking well water.
Risk assessment for Health

1. Hazard identification

• Does the exposure to a substance cause an increased likelihood of an adverse health effect such as cancer or birth defect?
2. Dose-response assessment

• What is the relationship between amount of the dose and the seriousness of the adverse health effect?
3. Exposure Assessment

- How much, how often, how long?
4. Risk Characterization

- What is the probability of an individual or population having an adverse health effect?
Cost-Benefit Analysis

• Some highly publicized environmental problem have been found to cost an astronomically amount of money to solve but do not pose a great threat as some less publicized problems.
As a result the **EPA** is beginning to use this cost-benefit analysis to address environmental problems that involve human health and safety.
• Helps politicians form the laws to regulate the problem.
• Only as good as the data used
• How do you put a price on clean air?
• Process is useful but has limitations.