

Environmental Ethics

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Type: Case study
Time: Three weeks
Location: Take home

Summary

Project goals are to introduce engineering students to the ethical problems in engineering. This ethics problem deals specifically with environmental issues at Prince William Sound, Alaska; and is based on the Exxon Valdez spill. The students are given the history of the spill and an alternative process. They are then asked to make a moral decision.

ABET Descriptors

Engrg. Sci. Content: First Year Engineering
Type: Process
Elements: Synthesis, evaluation, and establishing objectives
Constraints: Open-ended and alternative solutions
Effort: Individual

Environmental Ethics

Problem Statement:

One of the greatest environmental disasters of our time (X-generation) occurred in March 1989. The largest tanker oil spill in U.S. history began at 12:04 a.m. Alaskan time (5:04 a.m. Eastern Standard Time) March 24 when the Exxon Valdez, loaded with 1,260,000 barrels of crude oil, ran aground on a reef (Bligh Reef) in the Gulf of Alaska, 25 miles (40 km) from Valdez, the southern terminal of the Alaska pipeline. The Exxon Valdez case was a rare example of an environmental disaster that went through a full trial.

After the spill, environmentalists around the world called-out to government agencies for a quick and effective clean-up. There were baby seals covered in oil that could no longer stay afloat. Beautiful birds that once lighted the sky with their flight, now lay still, unable to move about in the oil. This the environmentalists suggest is the greatest crime by humanity. These species will soon be placed on the engendered species list.

However, many people believed that the a minimum clean-up will be sufficient. Some wild-life will be lost, but the money is needed elsewhere ...

That elsewhere is Chicago, Illinois (south-side). On March 24, 12:04 a.m., Elizabeth Walkins (alias) gives birth to her first son, Anthony. Elizabeth is thirteen years old, homeless, and poor. She is cleaning after-birth debris off Anthony with water that she collected from a near-by puddle. Anthony was borne in an alley, alone with only his mother present. Anthony is crying ... possibly very hungry. Elizabeth, who has not eaten in three days (lack of money) has not started lactating due to nutritional deprivation.

Two days prior, Elizabeth was thrown out of her home. Her mother did not want the responsibility of yet another mouth to feed. Elizabeth, with nowhere to go, tried desperately to get financial help. Each government agency told her the same thing, 'there is simply no money available'.

Your assignment is simple, write an essay on the topic "How much money should the government spend on environmental issues?"

Design Constraints:

At first, this assignment may seem trivial. However, this assignment is about ethics and moral obligations of engineers. Did you know that the National Society of Professional Engineers has an established code of ethics? The fundamental canons are:

1. Hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Perform services only in areas of their competence

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3. Issue public statements only in an objective and truthful manner.
4. Act in a professional matters for each employer or client as faithful agents or trustees.
5. Avoid improper solicitation of professional employment.

Develop an essay that discusses the following issues:

- Examine the laws that are designed to protect the environment at the local state and national levels.
- Determine their effectiveness.
- Discuss alternatives to the regulatory approach.

Product:

Essay

Environmental Ethics

Engineering Notes:

Since the beginning of time, engineers have played a paramount role in the development and synthesis of new technology that has increased our ease of living (e.g., automobiles, homes, etc.) and protected us from invasions (e.g., aeronautical engineering, weapons development, etc.). However, we are growing increasingly aware of the 'detrimental effects' of our technology. We now need to teach the next generation of engineers ethical and moral responsibility for their design.

Do we continue to design technology with destruction as its sole purpose? There is no correct answer to this question, but rather ethics in engineering provides us with guidelines.

Objectives/comments:

Introduce engineering students to ethics.

Discussion/follow-on activities:

Reference on Engineering Ethics;

Ethics in Engineering, Martin, M., and R. Schinzinger, 1983 (ISBN: 0-07-040701-0)