

Florida 4-H Environmental Education Activities

ENVIRONMENTAL IMPACT STUDY

Grade Level 7-12

Sunshine State Standards

Science	SC. G. 2. 3. 2. SC. H. 3. 4. 3. SC. H. 3. 4. 6. SC. D. 2. 4. 1.
Social Science	SS. B. 2. 3. 6. SS. B. 2. 4. 1.

Major Instructional Goal To help students understand the process involved in evaluating a proposed project from ecological, economic and social perspectives by preparing an environmental impact statement.

Associated Concepts

A. Environmental Assessment	F. Cost-Benefit Analysis
B. Economic Benefits	G. Short-term Use vs. Long-term
C. Social Factors	H. Productivity and Planning
D. Homeostasis	
E. Land Use	

Educational/
Instructional
Objectives

Upon completion of this activity, students should be able to:

1. Describe three physical changes to the environment that would result if the project is constructed.
2. Hypothesize what the area will be like after the project is completed and ways the construction phase may be altered to reduce environmental impact.
3. List at least three positive effects and three negative effects that would result from this project.
4. Name the major factors that should be evaluated when con-



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Background Information

ducting an environmental impact statement.

5. Explain how the public may have input in the decision-making process.
6. Outline the environmental impact statement process and discuss how this process helps ensure that the final decision or project best meets the needs and desires of society and the environment.
7. After weighing the positive and negative aspects of the proposal, identify his/her value position and defend it against other positions.
8. Evaluate a complex proposal and surrounding issues using a quantitative scheme to determine the overall merit of the proposal and alternatives to it.

In today's society, land use issues are becoming topics of great concern. As both population and standard of living increase, greater demands are placed on natural resources. Americans can no longer view the United States and its resources as unlimited as was the view of our ancestors. To ensure wise land use, a proposed project or change must undergo an assessment evaluating its merits and drawbacks.

In 1970, the National Environmental Policy Act (N.E.P.A.) set up a framework for land use decisions on federal lands. Many states have also adopted similar legislation for state owned lands. N.E.P.A. created a new mechanism for dealing with environmental concerns and other factors often overlooked in the decision making process concerning new projects and other land use issues. All federal agencies must prepare a detailed statement on: 1) environmental impact of the proposed action including any adverse environmental effects which cannot be avoided should the proposal be implemented, 2) alternatives, 3) relationship between local short-term uses and the maintenance and enhancement of long-term productivity; and, 4) any irreversible and irretrievable commitments of resources which would be involved if the proposed action be implemented--for legislation and other major federal actions significantly affecting the quality of the human environment.

Specifically, these statements, known as environmental impact statements (E.I.S.) are intended to assess the impacts of a proposed action. Projects must be analyzed for the impact on economic development, environmental quality, regional development and other social factors/effects, as well as technical considerations. Environmental quality is analyzed with the help of an environmental inventory and environmental assessment which is also



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required by N.E.P.A. Because of the in-depth approach required, an E.I.S. is prepared and submitted for review by appropriate federal, state and local agencies, and the public. After review, any comments received must be addressed. A final statement incorporating all comments and any resolutions must be made public at least 30 days prior to the proposed action. A court injunction may be filed if any participating group(s) feel that the final E.I.S. is inadequate. The courts then decide the case. This process allows for extensive review and opportunities for modification. In the end the proposed action may be carried out as originally stated, undertaken in the form of an alternative found in the E.I.S., modified and re-submitted for evaluation or the proposed action is dropped.

The Activity

A. Information

1. Learning Site – Visit the site of a proposed project for the data collection if possible. A fictitious proposal could be used for a site that is readily accessible. Another option is to conduct the entire activity in the classroom by presenting adequate background information about the site that has some natural characteristics so the environmental factors are part of the evaluation.
2. Materials – Environmental Impact Statement Work sheet, background information on the proposed project, maps or other information concerning the site for the proposal, and pencils.
3. Preparation by Instructor – Decide what proposed project will be presented to the students. Some examples might be a dam to create a lake, lodge or hotel, shopping center, or strip mine site. Prepare a summary sheet on the proposed project that includes the technical aspects of the project, agencies involved, reasons to implement the proposed action and any other information of use to the students (be specific providing details so the students do not have to guess about the proposal). If the students are unfamiliar with the study area, an outline or summary of the history of the area may be beneficial. If a field trip is planned, preview the site noting any unique characteristics or points of concern. If the students are unable to visit a site, prepare and/or gather information for the specific site.
4. Critical Vocabulary – Environmental impact, physi-



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cal environment, social factors, cost-benefit analysis, watershed, endangered species, infrastructure.

5. References: Often, E.I.S. are available from the agency proposing the project, or may be found in the public library, county Extension office, or other pertinent state agencies. A sample E.I.S. would help students understand the process and the amount of work involved.

B. Directions for Actual Activity (Time varies, but 1½ hours minimum.)

1. Focus – Briefly give an overview of the proposed project. Do not list any problems that may be associated with it. Poll the students as to those in favor of the proposed action, and those opposed.

Ask the students what considerations should precede the implementation of a project on federal or state owned land. List these according to major headings, i.e., economic, technical, primary and secondary benefits, environmental, social, political, etc. Note that economic and technical considerations were of primary concern before 1970.

Explain how N.E.P.A. and E.I.S. came into existence and altered the planning process for projects or other federal actions which could significantly affect the quality of the environment. Note how the new procedure allows for both public input and consideration of a wide variety of factors that may be affected by the proposal.

Now expand on the proposal introduced to the students. Provide the necessary details so that they can picture the completed project in the study area and understand the steps involved in its construction. Discuss the agencies involved and their reasons for the project, ways it will directly or indirectly involve the local community and other background information necessary to complete the environmental impact statement worksheets.

2. The Activity – 30 – 40 min.
Distribute the environmental impact statement worksheets. Explain how the students are to use them to evaluate the proposed project, emphasizing that



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more than just environmental considerations are to be examined. Define and explain any terms and procedures in the worksheets, especially sections 4 and 5.

If the group is able to visit the site of the proposed project, define the limits of the study area and show the students where and how the project is to be located. Let the students complete the worksheets, either individually or in small groups. If outside, allow them to move freely through the study area. Be prepared to help the students identify the flora, fauna or land forms present. It may be necessary to regroup the students and clarify any of the sections (it would be unusual for all of the students to adequately complete all the items).

3. **Synthesizing Strategy** – After the students have completed the worksheets, ask how many of them have changed their minds concerning the proposed project. What factors caused them to reverse their position? Were any of these factors ones which were overlooked when you first took a position on the proposal? If so, which ones? Environmental impact statements offer the opportunity to use a more comprehensive evaluation and therefore the results may be different than first anticipated.

Using the worksheets, have the students discuss and compile the impacts and benefits for each heading. Record all of the information and have the students edit this data and compile a group E.I.S. Do not eliminate statements because they conflict with one another. This offers the chance to explore different value perspectives within the group. This is often the case within a local community where economic and social factors concerned in a proposed action result in heated debates at public hearings, and informally within everyday life.

Examine and discuss any alternatives suggested by the students. How do these alternatives reduce negative impacts, and/or bring more benefits? As a group, decide if any of these alternatives or components of the alternatives should be implemented instead of the proposed project. Discuss the fact that many times, alternative proposals are



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included in the original proposed action for evaluation. In some cases, E.I.S. must be modified after having been submitted for review. In either case, alternative ideas may become an integral part of the final action being incorporated through the E.I.S. process.

Review the entire E.I.S. process, emphasizing the way the public or other interest groups may have input in the decision making process. Compare this process to that used before 1970 for public projects. What merits does an E.I.S. offer to the planners, users, public at large and future citizens?

4. Suggestions on Time and Problems – A natural extension, if time allows, is to conduct a simulated public hearing in which one of the E.I.S. is presented by a “consultant firm” to the rest of the class (panel and various interest groups). Students assume the different roles with the panel moderating the proceedings. This can help illustrate the next step in the decision-making process.

When presenting the proposal to the group, do not let personal bias influence the students. If anything, assume the role of the agency proposing the project. Initially, this is the view the public hears, and often base their feelings upon. When synthesizing the worksheets, remain value-neutral when asking the students to clarify their feelings. Let other students assume the role of critics, but moderate discussions carefully.



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ENVIRONMENTAL IMPACT STUDY WORKSHEET

Name(s): _____

Introduction: The 1970 National Environmental Policy Act (N.E.P.A.) is a landmark piece of legislation which created new mechanisms for dealing with environmental problems and maintaining environmental quality. An important component of N.E.P.A. is the section outlining environmental impact statements (E.I.S.). All federal actions which significantly affect the quality of the environment must complete an E.I.S. conducted and submitted to the appropriate agencies. (Most states require similar procedures for state-owned land and agencies.) The purpose of an E.I.S. is to ensure that project planning and decision-making include considerations of technical, economic, environmental, social and other factors. Prior to N.E.P.A., technical and economic aspects were the primary considerations.

Environmental impact statements are not intended to justify a proposed project or action. They are detailed presentations of impacts and alternatives to a proposed project. E.I.S. examine the proposed project from different perspectives and areas of concern. Often, a cost-benefit analysis is conducted in which each area examined is assessed a numerical value so an overall rating for the proposal and alternatives is made. This helps the decision-makers determine if, for example, the benefits of creating a new water reservoir outweigh the effects of displacing farmers, lost crops and loss of wildlife habitat or historical sites.

Objective: The purpose of this activity is for you to evaluate a proposed project using a similar process to that used in conducting an E.I.S. You may find it useful to assign each factor a value from -3 (detrimental effect) to 0 (neutral) to +3 (large benefit), so that the overall value of the project can be ascertained.

1. Environmental Assessment
 - A. Discuss ways the physical environment (air, water resources, drainage patterns, soil and geological formations) may be altered and impacted.



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- B. Discuss vegetation changes that will result from the proposed project. Note which, if any, species or community types will be eliminated from the locality and how the subsequent landscape is integrated back into the surrounding area.

 - C. Discuss changes that will occur to existing wildlife populations. Note threats to endangered species, changes in the status of wildlife in the area, effects on aquatic species and the effects of implementation any management or pest control schemes.
2. Discuss methodology to be used to minimize adverse environmental impacts. Note if these abatement measures reduce adverse impacts to acceptable levels.
3. Economic Considerations
- A. Discuss any monetary issues or hardships that would be incurred by the local community and/or other people.



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- B. Discuss the existing infrastructure (transportation network, energy supply, waste disposal needs, etc.) and additional support required in relation to the proposed project and local community.

- C. Discuss any economic gains to the local community or other involved parties.

4. Social Considerations

- A. Describe past, present, and proposed land use, noting any problems or conflicts that may arise.

- B. Note any hardships that the proposed project may impose on individuals.

- C. Note any historically or culturally significant sites that will be affected.

- D. Note any social, cultural or recreational benefits that will result from the proposed project.



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5. Land Use Planning
 - A. Discuss impacts, costs and benefits, as they relate to short-term use and long-term productivity. Note if actions taken now will limit choices for future generations.

 - B. Discuss resources to be used and how this commitment of resources affects other uses or potential uses.

6. Recommendations
 - A. Offer any alternatives and/or changes to the proposal that would achieve the same benefits.

 - B. What action should be taken? Should the project continue as planned or be modified in some way? (Include an explanation for this recommendation.)

