

**NEW JERSEY INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING**

EnE 671 – Environmental Impact Analysis		Spring 2017
<b>Text:</b>	No Text Required	
<b>Instructor:</b>	Dr. Robert Dresnack, 264 Colton Hall, 973-596-2469, <a href="mailto:dresnack@njit.edu">dresnack@njit.edu</a>	
<i>A graduate course dealing with physical aspects of the environment. Overview of environmental problems, federal and state standards, methodology for developing impact statements, case studies based on recent experience, basis for assessment and decision making.</i>		
Week	Topics	
1	Introduction – N.E.P.A., Executive Order 11901, Contents of an Environmental Impact Statement	
2	Standards (Air, Water, Noise, Traffic, Wildlife); Role of Professionals in Impact Statement Preparation; Expert Testimony	
3	Land Use Planning – Law, Tradition, Growth	
4	Traffic Impact Studies-Sources of Data and Data Needs	
5	Noise Impacts	
6	Classroom Workshop for Environmental Report Development	
7	Air Quality Impacts	
8	Typical Water Quality Assessment – Data Needs	
9	Quantitative Methods for Decision-making, Hearing Process	
10	Socio-Economic Considerations	
11	Classroom Workshop for Environmental Report Development	
12	Biological Impacts – Terrestrial and Aquatic and Archaeological Considerations	
13-14	Group Oral Reports of Environmental Assessment	

READING ASSIGNMENTS: Will be given during conduct of course.

REQUIREMENTS FOR THE COURSE: Development of an Environmental Assessment Report.

N.E.P.A. ACT – 1969

Required all Federal agencies to prepare an environmental impact statement on any proposed action that would significantly affect the environment before the action is taken. These statements must be submitted to the Council of Environmental Quality (C.E.Q.) and other Federal agencies, and must be made public.

Federal agencies review environmental assessments to determine if a proposed action would have adverse effects on public health, or welfare, or environmental quality. In evaluating the assessments, the Federal agencies consider the total environmental consequences including how they might affect environmental standards.

### Types of Actions Covered by the ACT (N.E.P.A.)

Included, but not limited to:

1. Recommendations or favorable reports relating to legislation, including requests for appropriation.
  - a) Agencies recommending their own proposals for legislation.
  - b) Agency reports on legislation proposed elsewhere.
2. New and continuing projects and program activities; directly undertaken by Federal agencies or supported in whole or in part through Federal contracts, grants, subsidies, loans, or other forms of funding assistance (except where solely as general revenue sharing funds; or involving a Federal lease, permit, license, certificate or other entitlement for use).
3. The making, modification, or establishment of regulations, rules, procedures and policy.

### CONTENT OF ENVIRONMENTAL STATEMENTS BASED ON SECTION 102C OF THE N.E.P.A. ACT

And expanded by the Council on Environmental Quality in August 1973

1. A description of the proposed action, a statement of its purpose, and a description of the environment affected, including information, summary technical data, and maps and diagrams adequate to permit an assessment of potential environmental impact by commenting agencies and the public. The statement should also distinctly describe the environment of the area affected as it exists prior to a proposed action. The amount of detail provided in such description should be commensurate with the extent and expected impact of the action, and with the amount of information required at the particular level of decision-making (planning, feasibility, design, etc.).
2. The relationship of the proposed action and land use plans, policies and controls for the affected area. A discussion should be shown on how the proposed action may conform or conflict with the objectives and approved or proposed federal, state, and local land use plans, policies and controls, if any, for the area affected.

Where a conflict or inconsistency exists, the statement should describe the extent to which the agency has recognized its proposed action with the plan, policy or control, and the reasons why the agency has decided to proceed notwithstanding the absence of full reconciliation.

### 3. The Probable Impact of the Proposed Action on the Environment

- a) PRIMARY IMPACTS: Attention should be given in the statement discussing those factors most evidently impacted by the proposed action.
- b) SECONDARY OR INDIRECT: The consequences for the environment should be included in the analysis.

Many major federal actions; those that involve the construction or licensing of investments such as highways, airports, sewer systems, water resources projects, etc. stimulate or induce secondary effects in the form of associated investments and changed patterns of social and economic activities.

The secondary impacts may in some cases be more substantial than the primary effects of the original section itself, e.g., effects or proposed action on population growth, which in turn, affects land use, water and public services of area in question.

#### 4. Alternatives to the Proposed Action, Including Where Relevant, Those Now within the Existing Authority of the Responsible Agency.

A rigorous exploration and objective evaluation of the environmental impacts of all reasonable alternative actions, particularly those that might enhance environmental quality or avoid some or all of the adverse environmental effects, is essential.

Examples of such alternative include:

The alternative of taking no action or the postponing action pending further study.

#### Size of E.E. Draft Statement:

Really a function of magnitude of project and amount of controversy regarding it, e.g., L.N.G.

Storage tanks, nuclear power plants.

Environmental Assessment Group: Personnel may include:

Environmental Engineers, Geologists, Biologists (Marine, Fresh Water); Ornithologists, Hydrologists, Historians, Traffic and Land Use Planners.

Sociologists, Archaeologists, Zoologists, Oceanographers.

#### ENVIRONMENTAL ASSESSMENTS

Need for Qualifications – Related to Quality “Standards” (Problem: not well advanced save for air, water, traffic standards).

#### General Requirements of Standards (Environmental)

1. It protects human health and welfare, and the environment, from harm.
2. Based on the soundest possible scientific and technical information.
3. Meets all requirements of the law under which it is issued, and that it is legally enforceable.
4. That the standard reflects sound public policy.
5. When social decisions and value judgements must be made, and when risks must be balanced against benefits, that the standard contains a margin of safety on the side of public health and welfare.