Community Environmental Assessment Fact Sheet Series

#8 – How to Set Up the Impact Assessment Process

Where to begin

Begin by reviewing Factsheets #6 and #7. Understand development impact analysis and how to use it as part of the approval process. Consider which features of the proposed development that you want to assess. Study *Table I – Construction Practices*, in Factsheet #7, to build your understanding of the type of impacts that might occur. Use *Table II – Environmental Impact Assessment Grid*, in Factsheet #7, to note results of your investigations.

Impacts of developments

Keep in mind that the impacts of each proposed development are unique. They will vary depending upon:

- The size and nature of the development.
- The character of the natural environment being impacted.
- The social and economic character of the community.

Exactly what questions should be asked depends on the type of project. Each phase of the project will also have its own unique set of potential impacts. An environmental consultant can assist the community to identify concerns specific to their project.

What Kinds of Impacts Should Be Evaluated?

Development should be evaluated in terms of local policies for environmental preservation and enhancement. It is important to create these

COMMUNITY ASSESSMENT FACT SHEET SERIES

#1 – OVERVIEW OF COMMUNITY ENVIRONMENTAL ASSESSMENT

#2 – TAKING STOCK
A questionnaire to summarize information about the community and consider how to manage environmental resources.

#3 – INFORMATION IN LAND USE PLANNING
Describes how to integrate environmental information into community land use plans

#4 – THE ENVIRONMENTAL RESOURCES INVENTORY
A one page overview useful for explaining the inventory process to potential users.

#5 – INVENTORY WORKSHEETS
Inventory the community environment, open space lands, and land in consideration for changed uses. Worksheets identify what questions to ask, and are best completed with the assistance of a technical advisory. Fact sheets for some topics are included in #9, Support Resources.

#6 – DEVELOPMENT IMPACT ANALYSIS
What is it and how to use it?

#7 – POTENTIAL IMPACTS FROM DEVELOPMENT PRACTICES
Provides a worksheet to guide review of potential impacts from a proposed development along with an example, summarizing potential impacts from construction activity.

#8 – HOW TO SET UP THE IMPACT PROCESS
The Leopold Matrix and instructions.

9 — SUPPORT RESOURCES
Provides background information about air quality, cultural features, floodplain protection, groundwater, shorelands and wetlands, the Wisconsin Environmental Policy Act (WEPA).

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policies in advance of a development proposal. This can help community decision makers to be fair and consistent in the evaluation process.

Steps in the Impact Analysis Process

STEP 1. Start with a list of possible environmental factors that are relevant to the selected project. See *Factsheet #7* for suggested topics.

STEP 2. Identify activities that will take place during the construction process and after the project is completed. What other community qualities are likely to be impacted? The American Planning Association has provided a Checklist of items to consider, examples listed in *Factsheet #7*.

STEP 3. Review information about the proposed development needs in a systematic way.

Step 3 Review Methods

Information about the proposed development needs to be reviewed in a systematic way. One method is to focus on examining ***two factors*** for each activity – the *magnitude* of the impact and the *importance* of the impact. An expert will need to evaluate the magnitude of the impact, but the community can be involved in assessing its importance. This method is known as the Leopold Matrix (Leopold, 1971).

A community's ability to rate the degree of impact from an activity depends, in part, on data it has already collected through its "resource inventory" process, as described in earlier Factsheets in the series. As part of the inventory, the community can establish background information about the current use and quality of each resource.

There are many aspects to consider. For example, a community may choose to protect a resource which is currently "useful" or "high quality" from even the most minimal impacts. Other resources may lend themselves to a variety of functions without noticeably degrading the local environment. Some types of development may improve the local quality of life. Each resource may be affected by certain types of development pressures, but not by others.

A simple grid, as illustrated in *Table II in Factsheet #7*, and also provided here at the end of the Factsheet, can be used to summarize preliminary impressions. *Table II* provides a list of eleven environmental factors and for each, a place to note: use or quality of the resource at the site under consideration; a rating of potential impacts, on a scale from beneficial to severe; and comments about whether the development activity is acceptable.

A more intensive evaluation can be completed using a matrix to compare a checklist of topics with a list of anticipated activities. While this system can only allow a general comparison among the impacts of specific alternatives, it can help a community to visualize, discuss, and consider various options. A sample *Construction Project Impacts Worksheet* is provided in Factsheet #7 to show how information from a site inventory and a list of potential site activities could be combined to analyze potential impacts.

Using the Leopold Matrix, the assessor indicates two measures for each category and activity, as mentioned above: magnitude of impact (1 - 10) and importance of impact (1 - 10).

Magnitude is a measure of the general degree, extensiveness, or scale of the impact.

Importance is a measure of the significance of the action in the specific instance under consideration. High numbers imply a greater or more significant impact.

> For example, a highway development project will significantly alter an existing water drainage pattern (7), but the impact has small importance (2) because either the proposed highway is short or the ultimate impact on drainage is minimal (Holling, 1978).
>
> The numbers can be multiplied together to give a "total" impact (7 x 2 = 14), which allows comparison of different alternatives.

Highway Development Project *— water drainage impacts —*	
Magnitude of impact	7
Importance of impact	2
TOTAL IMPACT ESTIMATE	**14**

Usually the "magnitude" of the impact would be estimated by an engineer or other appropriate professional which the "importance" can be determined both by a trained professional and the community.

References:

Leopold, Luna, F. Clarke, B. Hanshaw, J. Balsley. 1971. A Procedure for Evaluating Environmental Impact. Geological Survey Circular 645, Winter.

Holling, C. S., editor. 1978. Adaptive Environmental Assessment and Management (Vol. 3 in International Series on Applied Systems Analysis). John Wiley & Sons.

TABLE II - ENVIRONMENTAL IMPACT ASSESSMENT GRID **duplicated from Factsheet#7 in this series*							
Existing Environmental Characteristics and Conditions		***Expected Impact from Proposed Development***				***Acceptability of Proposed Development***	
		Current use and quality of resource	*Short Term Impacts (yes/no)*	*Long Term Impacts (yes/no)*	*Impacts: -beneficial -none -slight -moderate -severe*	*Acceptable (yes/no)*	*Needs Modification (comment)*
L A N D	*Geographic Setting, i.e. drainage, soils, topography*						
	Agricultural Lands, i.e. activities, soil capacity						
	Plant Associations, i.e. unique plant communities, wetlands						
	Wildlife and Wildlife Habitat, i.e. feeding and resting areas						
W A T E R	*Water Resources Supply, i.e. agricultural supply, domestic supply*						
	Water Resources Features, i.e. lakes, streams, recreation opportunities						

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C U L T U R A L	*Human Health*						
	Environmental Hazards, i.e. air quality, noise						
	Aesthetic Qualities, i.e. landmarks, views						
	Cultural Features, i.e. architectural, historical						
	Waste Management						