

## **Chapter 15**

### **Impact Assessment**

#### **A. Introduction**

Impact assessments can be a key tool for communities to utilize when making decisions on important planning proposals. Too often, communities are forced to react to the impacts of a development after they have already occurred. This can leave communities unprepared to address any negative impacts once they arise. It is much more beneficial for a community to assess possible impacts ahead of time. By doing so, future problems or opportunities can be identified and can be used to develop policies, plans, programs, and projects. Environmental impact assessments, health impact assessments, and social impact assessments all provide communities with a tool for dealing with various harmful impacts of development in the planning process, before these problems become a reality.

The current practice in the use of impact assessments in the United States varies quite widely. At a minimum, any major federal project or action, even if implemented with or by state or local governments, is subject to the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, which requires preparation of an Environmental Impact Statement if it may significantly impact the human environment. A few states require environmental impact statements for certain land development permits, zoning amendments, or project approvals, even if they are for private developments. However, local governments are increasingly using impact assessment tools to evaluate various land use policies, growth scenarios, public infrastructure projects (even if not federally funded), revisions to comprehensive plans, or watershed planning and protection options. This chapter aims to describe three types of assessment tools, plus principles of integrated assessment, that can be used by Kentucky communities to ensure that land development, growth, and water-resource protection decisions are well-grounded in information and analysis.

#### **B. Environmental Impact Assessment**

An environmental impact assessment (EIA) is used to predict the possible impact of a proposed project on the natural environment. The International Association of Impact Assessment (IAIA) defines an environmental impact assessment as “the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.” (IAIA 1999, p. 2) An EIA includes both analyzing the need for a project and identifying possible alternatives of the proposal.

An environmental impact assessment can be an important planning tool. By conducting an EIA, communities can ensure that potential problems are recognized

and addressed at an early stage in the planning and design of a project. Both environmental and economic benefits can be achieved by using environmental impact assessments, including reducing the costs and time of project design and implementation, avoiding treatment costs, cleanup costs, and impacts of laws and regulations (GDRC). The EIA process should be applied as early as possible in the decision making process, and should be used for all development proposals that may cause potentially significant effects (IAIA 1999, p.4).

An EIA has the following objectives:

- support environmental protection and sustainable development that optimizes resource use;
- ensure that environmental considerations are addressed and incorporated into decision making processes;
- predict the environmental consequences of a proposed activity;
- ensure projects suit the local environment;
- provide predictions and options to decision makers;
- anticipate, avoid, minimize and offset the adverse environmental impacts of a proposal;
- provide for the involvement of all stakeholders, including the public (GDRC; IAIA 1999, pp. 1-4).

Steps in the EIA process include:

1. Screening: determine whether or not an EIA is required for a particular proposal, and if it is required, then at what level of detail.
2. Scoping: identify all of the issues and impacts that are likely to be important in the EIA process.
3. Examination of Alternatives: establish all development alternatives, including those that are preferred and those that would be more environmentally sound.
4. Impact Analysis: identify and predict the probable environment impacts of the proposal
5. Mitigation and Impact Management: establish the measures that can help to avoid, minimize, or offset potential adverse impacts of the proposal.
6. Evaluation of Significance: determine the relative importance and acceptability of the predicted impacts so that focus can be placed on the most significant adverse impacts.
7. Preparation of Environmental Impact Report: document the impacts of the proposal, possible mitigation measures, the significance of the impacts, and the concerns of the interested public affected by the proposal.
8. Decision Making: approve or reject the proposal and establish the conditions for its implementation.

9. Follow-up: ensure that the conditions of approval are met and monitor the impacts of development and the effectiveness of mitigation measures (IAIA 1999, p. 4).

The EIA Course Module is an online learning resource that provides an overview of the theory and practice of environmental impact assessment. It helps to provide understanding of the application and limitations of an EIA. The module allows communities to customize the course material to address their particular issues. The resource covers such issues as the purpose and aims of an environmental impact assessment, EIA administration and practice, elements of the EIA process, undertaking an environmental impact assessment, the role of public participation, the costs and benefits of undertaking an EIA, and the strengths and limitations of an EIA. It contains structured informational materials, self-administered questions, and assignments that cover certain aspects of the module. The course module can be found at <http://eia.unu.edu/>.

The U.S. Environmental Protection Agency offers a program that provides an introduction of a variety of environmental issues and decisions that affect small to medium-sized communities. It is designed to help communities judge their own needs and preferences, and to inform their decision making processes. The program includes information on environmental laws and regulations, self-assessment, planning and comparative risk analysis, financial tools and financial self-analysis, and case studies. Each section provides a number of interactive tools. The program is available at <http://www.epa.gov/seahome/trilogy.html>.

The Environmental Assessment Resource Guide (EARG) can assist communities in conducting environmental assessments on a wide variety of project types. The EARG addresses scoping, generation of alternatives, impact identification and analysis, mitigation, decision making, and post-decision analysis. The tool can be found at <http://www.purdue.edu/envirosoft/earg.html>.

One type of environmental impact assessment deals with assessing water quality. Each state is required by federal law to create a Source Water Assessment Program (SWAP) for all of their public drinking water systems (U.S. EPA). As part of the source water assessment, states delineate or map the land area that could contribute water and pollutants to the water supply. They then conduct an inventory of potential contamination sources in the area and determine the susceptibility of the water supply to contamination. Communities can use information from the state's assessment to help strengthen their own source water protection programs. The assessment allows communities to plan how to manage potential contamination sources that have been identified and how to prevent new contaminant threats in the source water assessment area (U.S. EPA).

### **C. Health Impact Assessment**

Health impact assessments help to identify and objectively evaluate the health impacts of a proposed development before it is implemented. The World Health Organization defines an HIA as “a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.” (European Centre for Health Policy 1999) The assessments can be used to produce recommendations that help to maximize positive health effects and minimize negative health effects within an affected community.

Water resource planning decisions can have major implications for the health and well-being of a community’s residents. The health consequences are often not anticipated unless an HIA is undertaken, and thus the health impact assessment process can help to bring public health issues to the attention of decision makers. An effective health impact assessment should not only predict the overall health consequences that a project will have on the entire population, but also the distribution of health impacts on different groups within that population. This helps communities identify those groups that will benefit from the proposal, and those that could be harmed. Thus, decision makers can evaluate how projects will affect health inequality and can use this information to make more equitable choices.

An HIA includes assessing the degree and probability of identified positive and negative impacts on health, as well as the distribution of impacts. It also includes the recommendation of mitigation measures to help maximize any positive health impacts and minimize the negative. To complete an HIA, a wide range of evidence sources are utilized. These include public perceptions and experiences, as well as public health, epidemiological, toxicological, and medical information (University of New South Wales Centre for Health Equity Training, Research and Evaluation 2007).

Health impact assessments help to improve planning and policy development by:

- identifying the potential health risks of a proposed development;
- reducing or eliminating these health risks and ensuring communication of the risks that cannot be mitigated;
- identifying, and possibly strengthening, the ways that a proposal can “promote and enhance health”;
- identifying and addressing the social, environmental and economic impacts of the development that will have impacts on health; and
- reducing or eliminating possible health inequities that could occur as a result of the proposal (University of New South Wales Centre for Health Equity Training, Research and Evaluation 2007).

There are six major steps involved in a health impact assessment:

1. Screening: Determine whether a proposal requires a health impact assessment and if an HIA is appropriate.
2. Scoping: Plan and design the HIA by establishing the parameters of the health impact assessment, such questions to be answered by the HIA, health effects to be considered, and how the assessment will be carried out.
3. Identification: Develop a profile of the community and residents that will be affected by the project, and collect information that helps to identify potential health impacts of the development.
4. Assessment: Assess the information gathered and prioritize health impacts.
5. Decision Making and Recommendations: Develop recommendations for acting on the findings of the health impact assessment.
6. Evaluation and Follow-up: Evaluate the health impact assessment and its impact, and follow-up the assessment with monitoring and a plan for the management of any potential health impacts (University of New South Wales Centre for Health Equity Training, Research and Evaluation 2007).

Kentucky communities seeking to use health impact assessment methods may wish to consult *Health Impact Assessment: A Practical Guide* (University of New South Wales Centre for Health Equity Training, Research and Evaluation 2007). The guide includes a detailed description of the steps of a health impact assessment, including information on how to complete each step. It also provides a screening tool for HIA, a checklist to determine the level of depth appropriate for a HIA, and a Comprehensive Assessment Matrix.

Another resource is the Health Impact Assessment Clearinghouse Learning and Information Center, <http://www.ph.ucla.edu/hs/hiacllc>. This Center is a project of the UCLA School of Public Health, which has designed a web site to collect and disseminate information on health impact assessments in the United States. The site is an excellent comprehensive resource that provides a wealth of information on HIAs. It includes case studies of health impact assessments that have been conducted in the U.S., information about HIA methods and tools, and HIA-related news. Users can learn how to do a health impact assessment, determine whether an HIA is feasible, find out about laws pertaining to HIA, and learn how public policies in different sectors affect health.

Furthermore, the American Planning Association and the National Association of County and City Health Officials have developed a free online course "Planning for Healthy Places with Health Impact Assessments," which is a how-to guide for conducting health impact assessments. The course describes the value of HIA's and details the steps involved in conducting an HIA. Examples of health impact assessments are also included. See American Planning Association and the National Association of County and City Health Officials, "Planning for Healthy

Places with Health Impact Assessments,  
<http://professional.captus.com/Planning/hia/default.aspx>.

Several tools, checklists, or toolkits have been developed for communities to use in conducting health impact analysis, including:

- *Healthy Development Measurement Tool*: A comprehensive evaluation metric that uses public health to connect planning and social interests. The HDMT helps communities protect health and promote health equality. The tool can be utilized by city agencies in comprehensive planning and in plan and project review, and can assist communities in providing a screening tool to evaluate projects, identifying benefits and needs for improvement, providing a measurable set of health objectives and indicators to guide planning goals, and providing monitoring indicators to evaluate community plans. The tool can be found at [www.thehdm.org](http://www.thehdm.org).
- *Health Inequalities Impact Assessment: Screening* (National Public Health Service for Wales 2004, <http://www.apho.org.uk/resource/item.aspx?RID=44884>): A checklist focusing on the health impacts of a development on disadvantaged, vulnerable groups. The assessment, which is to be completed in the early stages of the planning process, is comprised of a series of questions that help communities describe the potential positive, negative, or neutral impacts on health that a project may have on different population groups. A HIA Rapid Appraisal worksheet, a multi-disciplinary group activity that should also be incorporated into the planning process at an early stage, is also included in the document. The rapid appraisal is designed to be completed in three half-day meetings, with collection of evidence and report preparation done in between. The worksheet addresses such issues as health determinants, impacts of health and health inequalities, opportunities for improving health and reducing health inequalities, assessing impacts, and evaluating and monitoring the HIA.
- *Community Health Impact Assessment Tool* (Antigonish Town and County Community Health Board 2002, <http://www.antigonishwomenscentre.com/pdfs/Antiognish%20CHIAT.pdf>): A systematic way to assess the impact that a proposed plan, program, or policy will have on the overall health and well-being of the community. The CHIAT includes an assessment worksheet, which addresses a variety of issues. These include participation and involvement of community residents, how the community is changing, community assets, diversity, collaboration and cooperation, community demographics, physical environment, healthy child development, and health services. The worksheet

assesses whether the activity impacts the community, and whether it does so positively or negatively. A summary worksheet is also included, which helps a community develop a summary of health impacts and actions that need to be taken to address these impacts. Finally, a planning grid is included to help organize various tasks that arise from the impact assessment. The grid includes the actions that the community determines are to be taken, who to involve in those actions, when the actions will occur, who is responsible for the action, and when the action should be carried out. The CHIAT also provides detailed, helpful information on how to carry out the assessment.

- *Health Impact Screening Checklist* (Douglas 2006, [http://www.nhslothian.scot.nhs.uk/hia/hi\\_checklist8\\_010206.pdf](http://www.nhslothian.scot.nhs.uk/hia/hi_checklist8_010206.pdf)): A tool used to “help identify broader impacts of a policy, plan or practice on health and well-being. It is intended to help you think about broader impacts, then suggest recommendations to improve the impact and identify where further evidence may be required to demonstrate impact and inform the recommendations.” (Douglas 2006) The checklist includes identifying different population groups that may be affected by a development, identifying possible impacts on health and well-being, considering evidence that needs to be gathered and questions to be answered, and developing recommendations on actions that need to be taken to address the impacts. After the steps are completed, communities can decide if further assessment needs to be completed.
- *HIA Planning and Report Writing Toolkit* (Vohra et al. 2003, <http://www.apho.org.uk/resource/item.aspx?RID=44893>): An excellent, detailed resource for information on how to implement health impact assessment planning and report writing. The toolkit includes sections on all aspects of an HIA, including screening, scoping, methodology, demographic and health profile, stakeholder involvement, impact appraisal, mitigation measures, monitoring, and evaluation. Worksheets are also provided that will assist in both a rapid health appraisal, as well as a more detailed health appraisal.

#### **D. Social Impact Assessment**

A social impact assessment “includes the processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned policies, programs, and projects and any social change processes invoked by those proposals.” (IAIA 2003, p. 2) The primary purpose of a SIA is to ensure a more sustainable and equitable human environment.

A social impact assessment can “provide information about social and cultural factors that need to be considered in the decision making process.” (Interorganizational Committee 2003, p. 21) The SIA process also identifies negative or unintended social consequences of development, and promotes better development outcomes. It helps communities choose a development alternative that avoids negative impacts by appropriate modifications, minimizes negative impacts, or compensates for any negative impact that cannot be avoided or mitigated. In addition to predicting adverse impacts of development, SIA helps to empower local residents, enhance the position of women, minority groups, and other disadvantaged members of society, develop capacity building, alleviate all forms of dependency, increase equity, and focus on poverty reduction (IAIA 2003, p. 3).

Social impact assessments can play a vital role in water resource planning processes. The improvement of the social wellbeing of community residents should be explicitly recognized as an objective when planning future development. Furthermore, equity considerations should be a fundamental element of this process. Identification of the differential distribution of impacts on different groups in the community, and especially those impacts that have a greater effect on more vulnerable groups, should be a primary concern.

An important and beneficial aspect of a SIA is that it utilizes local knowledge and participatory processes to help evaluate the concerns of these interested and affected residents. It involves various stakeholders and allows them to assist in the assessment of social impacts, the analysis of alternatives, and monitoring of the planned development. Acknowledgement of local cultural values should be incorporated into a SIA. All issues that directly or indirectly affect people are relevant to social impact assessment. The impact is the difference between the likely futures of the affected human environment after the project and those if the proposal is not implemented. The SIA should consider social, cultural, demographic, economic, social-psychological, and sometimes political impacts. Impacts to be analyzed include changes to people’s way of life, culture, community, political systems, environment, health and well-being, personal and property rights, and fears and aspirations (IAIA 2003, pp. 4-6). The International Association for Impact Assessment (IAIA) has issued a document entitled *Principles and Guidelines for Social Impact Assessment in the U.S.A.* (Interorganizational Committee 2003, <http://www.iaia.org/modx/assets/files/US%20principles%20final%20IAPA%20version.pdf>). The report provides extensive guidance for conducting a SIA within the context of the U.S. National Environmental Policy Act of 1970. In addition to guiding communities through the detailed steps in the SIA process, social impact variables are also suggested.

### **E. Integrated Impact Assessment**

An integrated impact assessment (IIA) is an assessment that incorporates more than one type of impact. The most common type of IIA is one that combines

an environmental impact assessment and a health impact assessment (Association of Public Health Observatories, <http://www.apho.org.uk/resource/view.aspx?RID=48174>). Utilizing an IIA may be beneficial to communities that are planning to perform more than one impact assessment for a project.

IIA can simplify the planning process. Many issues addressed in different forms of impact assessments are similar, and there is often no reason to cover them twice in different assessments. Additionally, integrated impact assessments can save both time and resources. Community officials are often extremely busy and need to use their time as efficiently as possible.

With an integrated impact assessment, stakeholders interested in various issues can work together to ensure that each of their issues is properly considered. For those proposals in which a single issue, such as health or environmental considerations, needs more detailed analysis, the issue can be singled out for a separate impact assessment. Communities should keep in mind, however, that with an IIA there is always the threat that one particular issue will not be fully addressed. If a community decides to proceed with separate, more comprehensive impact assessments, it should be closely coordinated so that the same issues are not unnecessarily covered more than once.

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