

Strategies

Because of the vast variety of situations prevailing in individual countries, there can be no single approach to promoting the improved integration of health assessment in EA. Depending on the state of the economy and the environment, public health priorities, political structure and legislation, strategies to be adopted must differ from country to country.

A crucial factor everywhere will be the need to ensure that awareness of the interdependence of health, economic development and environmental quality is generated among politicians and senior decision-makers in all relevant sectors. Another important condition concerns the need for an appropriate regulatory framework, which allows EA to play a role in decision-making processes of development projects, plans and policies, with due regard being given to human health at all stages.

At the country level, the assessment of training needs should involve the identification of all key actors in policy-setting, planning and sectoral decision-making, in particular all of those involved or to be involved in either the preparation, or the review, of EA statements. Through an analysis of the kinds of skills required, such a process would help identify the need for training materials.

The group noted that a wealth of relevant materials existed in a variety of forms, covering a wide range of health and environment issues. Many of these materials, however, were not easily retrievable and much was highly focused, or of only local or national relevance. Without a generic framework for health assessment as part of EA and without an inventory of most relevant sources of materials, it would be difficult to define what additional materials should be prepared for capacity building at the country level.

It was agreed to set out by constructing a framework which specified the role of health expertise in the overall EA process, listing all the skills potentially required. Such a framework would serve as a core for development of materials directed at raising country-level awareness and assessment of training needs. Suitable materials in existence might be appended to it, in accordance with their relevance.

Framework

The group used the flow diagram in Figure 1 (adapted from P. Wathern), which serves as the most universally accepted conceptual model of EA, to develop separate modules for screening, scoping, EA preparation, review, monitoring and ongoing evaluation (i.e., auditing).

The modules are presented below as a series of tables with columns listing the desired outcome, the type of information needed to produce that outcome, the source(s) where this information should be found and the skills required for the assessment component to be undertaken. In trying to arrange the entries across columns for each desired outcome, it was found that the types of skills required would often overlap between rows. This should be borne in mind in interpreting the framework. It should also be noted that the term "project" stands for projects, plans and policies.

SCREENING

- * Does this project affect long-term environmental sustainability of development (locally, regionally, nationally, globally)?
- * If an EA is required for this project, how can it be ensured that health will be appropriately taken into account?

Desired outcome	Type of information	Source of information	Type of skills required
* Identification of base-line environmental and health characteristics	* Geophysical, ecological and health-related data	* Geographical data, health and environment data	* Ability to judge health implications of project quickly
* Identification of direct health issues	* Potential for exposure to hazardous processes and products	* Project proposal/description * Toxicologists/listings of toxic substances * Engineers (consultations on processes)	* Familiarity with information sources * Understanding of relevant scientific principles including their application to health
	* Potential to reduce air and water quality and to render water resources and recreational facilities unsafe	* Standards for air and water quality * Relevant published information	" "
	* Involvement of storage, transport and disposal of hazardous materials and wastes	* Listings of hazardous materials * Identification of wastes	" "
	* Generation of significant noise, traffic flow, risk of injury	* Relevant standards * Relevant experts	" "

SCREENING (Continued)

* Identification of indirect health issues	* Potential to affect vector-borne disease transmission	* Experts on vectors, parasites	"
	* Potential to affect transmission of other infectious diseases	* Communicable diseases epidemiologists	"
	* Potential to affect microbiological or chemical safety of food chains and food supplies	* Biologists/nutritionists	"
		* Food standards	"
* Identification of ecosystem-/social system-mediated health issues	* Potential to impact significantly on land/water productivity or food production	* Agronomists or geographers	"
	* Potential to damage ecology	* (Health) ecologists	"
	* Potential to impact significantly on vulnerable populations	* Experts on public health	"
	* Potential to cause substantial changes to social/geographic structure of the community	* Health & mortality information	"
		* Community representatives	"
		* Community leaders	"
	* Generation of a high level of community concern	* Anthropologists	"
* Identification of environmental health and health service facilities issues	* Potential cost increases of public amenities	* Anthropologists	"
		* Civil engineers	"
		* experts on public health and health services	"

SCOPING

- * What are the significant health issues of this project?
- * How should these be assessed?

Desired outcome	Type of information	Source of information	Type of skills required
* Audit of environment concerns	* Local geographical data, biological data	* Planning agencies, research institutes * Environmental databases	* Broad ecological expertise * Expertise in environmental health
* Audit of health and health amenity concerns	* Public health information * Community perceptions and concerns * Population social and health status (profile)	* Health data on specific developments * Community informants * Local media * Demographers * Epidemiology/health statistics	* Ability to access public health and environment databases * Community consultation skills * Social analysis skills * Literacy in population and health statistics "
* Potential to affect access to and increase cost of health and other social services	* Present level of provision, including access, to health and welfare services	* Health and social services statistics and reports * Community informants	* Community consultation skills * Ability to "read" project proposals
* Identification of key stakeholders	* Groups which will be affected positively or negatively * Itinerant as well as local populations * Social, ethnic, cultural and functional divisions in the community	* Project proposal, including workforce projections * Local key informants * Informal social groups (e.g., women's cooperatives) * Ethnographic studies	" " " "

SCOPING (Continued)

<p>* Terms of reference and guidelines for HA/EA</p>	<p>* Key issues derived from above related to known health risks and benefits</p> <p>* Relevant national/international standards</p> <p>* Local social/political needs and requirements</p> <p>* Methodology for HA and consequences for EA process</p>	<p>* Previous HA/EA reports on similar projects</p> <p>* Databases and standards</p> <p>* Community leaders, groups, unions, women</p> <p>* HA/EA and environmental health literature</p> <p>* Other members of HA/EA team</p>	<p>* Familiarity with HA/EA methods and environmental epidemiology</p> <p>* Costing and planning skills</p>
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EA PREPARATION

- * What are the health effects of this project?
- * Who will be affected by these?
- * How should the project be modified to minimise negative and to maximise the positive effects on health?

Desired outcome	Type of information	Source of information	Type of skills required
<p>* Identification, prediction and impact assessment of all possible positive and negative health impacts to be expected at all stages of the project</p> <p>* Health considerations to be included in the formulation of mitigation and monitoring components of the EA statement</p> <p>* Full health assessment of all viable alternatives (strategic, technical & spatial) of the project, at appropriate levels of detail</p> <p>* A statement of benefits, hazards and risks to health and wellbeing of the population(s) affected</p>	<p>* Profile and Terms of Reference</p> <p>* Health baseline of local population</p> <p>* Baseline data on the state of the environment</p> <p>* National & international standards</p> <p>* Existing legislation relevant to health and development</p> <p>* Good HA/EA practice</p> <p>* Population vulnerabilities for major health risks</p> <p>* Social/cultural and behavioural population profile</p> <p>* Technical hazard and risk information (e.g. air, water, noise) on the project and its effects on people's health</p> <p>* Information on possible alternatives</p> <p>* Information on contingency measures for coping with the unexpected</p>	<p>* Scoping document</p> <p>* Baseline studies and published standards</p> <p>* Reports from similar projects</p> <p>* Checklists and matrices used by the EA team</p> <p>* Existing guidelines for forecasting health implications of certain types of development, e.g. PEEM guidelines</p> <p>* Epidemiological studies, case studies, risk assessments, e.g. toxicology (Environmental Health Criteria documents, IPCS), etc.</p> <p>* Relevant health experts and practitioners</p> <p>* Project engineers/designers</p> <p>* Emergency master plan, if any</p>	<p>* Ability to function in a multidisciplinary group</p> <p>* Ability to research and consult outside the team</p> <p>* Technical expertise in social analysis</p> <p>* EA expertise with special reference to health</p> <p>* Understanding of full project "lifecycle" and its impacts on the environment</p> <p>* Health expertise with an understanding of the EA process</p> <p>* Management skills to direct multidisciplinary effort within constraints of data, time and money</p> <p>* Communication skills</p>

REVIEW

- * Have all health implications been adequately taken into account in the EA preparation process?

Desired outcome	Type of information	Source of information	Type of skills required
* Adherence to terms of reference	<ul style="list-style-type: none"> * Key health issues addressed * Proper standard used * Social and political needs taken into account * Vulnerability and receptivity analysis performed * Health and other social services capabilities taken into account, including Primary Health Care 	<ul style="list-style-type: none"> * EA statement and TOR * Health services data, including funding limitations * Otherwise, same sources as consulted for scoping 	<ul style="list-style-type: none"> * Familiarity with public health and environmental health * Familiarity with health services functioning and funding
* Health benefits and adverse effects optimized within project cost-effectiveness context	* Methods used in EA (as compared to those recommended)	* EA statement and TOR	"
* All relevant health concerns addressed	* EA statement and TOR	"	"
* Health needs of key stakeholders addressed	"	"	"
* Health issues taken into account in report to decision-maker	* All of above	* All of above	* All of above, <u>plus</u> : ability to highlight health concerns in language decision-makers and the general public can understand

MONITORING

- * Are health concerns, such as health outcome prediction and detection of unexpected health outcomes adequately incorporated, or added to, the routine monitoring of project compliance?

Desired outcome	Type of information	Source of information	Type of skills required
* Periodic assessment of compliance with conditions	* Baseline monitoring data	* Special studies	* Ability to assess health and environmental information
* Periodic assessment of health outcomes	* National, regional and local standards for air and water quality, etc.	* Local networks consultations	* Ability to interpret compliance with regulatory standards
	* Health statistics on groups at risk	* Community representatives	* Ability to assess community concerns
	* Community feed-back		
* Appropriate capacity for early detection of unexpected health effects	* All of above, <u>plus</u> : details of a risk/disaster management plan which is actively implemented	* Adequate surveillance system to which project management attaches sufficient value	* Familiarity with health aspects of emergency management

ONGOING EVALUATION (= "AUDITING")

- * Has the EA process been effective in predicting the project's health outcome?
- * Is the project operating as recommended?

Desired outcome	Type of information	Source of information	Type of skills required
<ul style="list-style-type: none"> * Measure of how well the project is operating relative to what was planned * Indication that the project is operating to safeguard (promote) the health of its workers and of the surrounding population * Identification of unexpected effects on health (particularly negative ones) and emerging trends 	<ul style="list-style-type: none"> * Regular monitoring data * Surveillance data and information * Special studies, e.g. internal/external studies checking on aspects of the proposal * Studies of health issues arising from similar projects * Relevant legislation and regulation * Public reaction * Relevant audit and evaluation 	<ul style="list-style-type: none"> * Reports and records <li style="text-align: center;">" <li style="text-align: center;">" * Published legislation and regulations * Media response * Complaints procedures 	<ul style="list-style-type: none"> * Ability to interact across sectors * Professional competence in evaluation, which includes: health elements; systems analysis; health impact assessment; cross-sectoral action * These skills should be present within the project or utilized from outside (e.g. health officials, consultants)

Training

Capacity building for sustainable development should be the context in which training on the integration of HA in EA needs to be considered. Capacity building is also one of the major, internationally accepted priorities of UNCED (Rio de Janeiro, 1992) and indeed one of the lead components of "Agenda 21", for which funding can be made available from the Global Environmental Facility (GEF). It comprises a wide range of processes, including those concerned with training and the development of career structures, but also the development of policies and legislation, assessment methods and indicators for environmental monitoring.

At the level of project planning, EA skills have a recognised role to play, but this is equally true in the preparation and formulation of plans and policies for economic development. In view of the need to match national development planning to the international effort in the management of global environmental problems (such as climate change, stratospheric ozone depletion and transboundary air and water pollution), the role of EA should not be limited to the fulfilment of national development criteria alone. Sustainable development planning requires dealing with long-term threats to the ecological integrity of the human environment. To ensure that safeguards to human health are considered at all levels, appropriate health expertise should be involved to a greater extent in the planning effort.

While the generic types of skills required for the HA component of EA have been identified in the various modules of the above framework, the concrete training needs will differ from country to country. In some countries, awareness-building among decision-makers may be more effective, or indeed more essential, than the introduction of additional training programmes. Existing, suitably skilled, human resources are all too often underutilized, or involved in support of EA processes without appropriate terms of reference. In each situation, therefore, human resources availability and human resources utilization should both be reviewed before training needs can be defined.

What is definitely not required is an unproductive, mechanistic, overemphasis on health issues to be made mandatory for EAs without prior consideration of specific environmental health realities or vulnerabilities of people to be affected. Considerable emphasis should be placed on the proper use of health expertise in screening and scoping, where rapid health assessment methods can identify potential health effects and their relative significance at an early stage, and facilitate their appropriate inclusion in the terms of reference for the EA preparation. Like all other components of the overall EA effort, the health input should contribute to total project performance and cost-effectiveness, without generating undue costs or delays.

The various factors to be considered in determining the need for training methods and materials are arranged in the form of a flow diagram in Fig. 2 below.

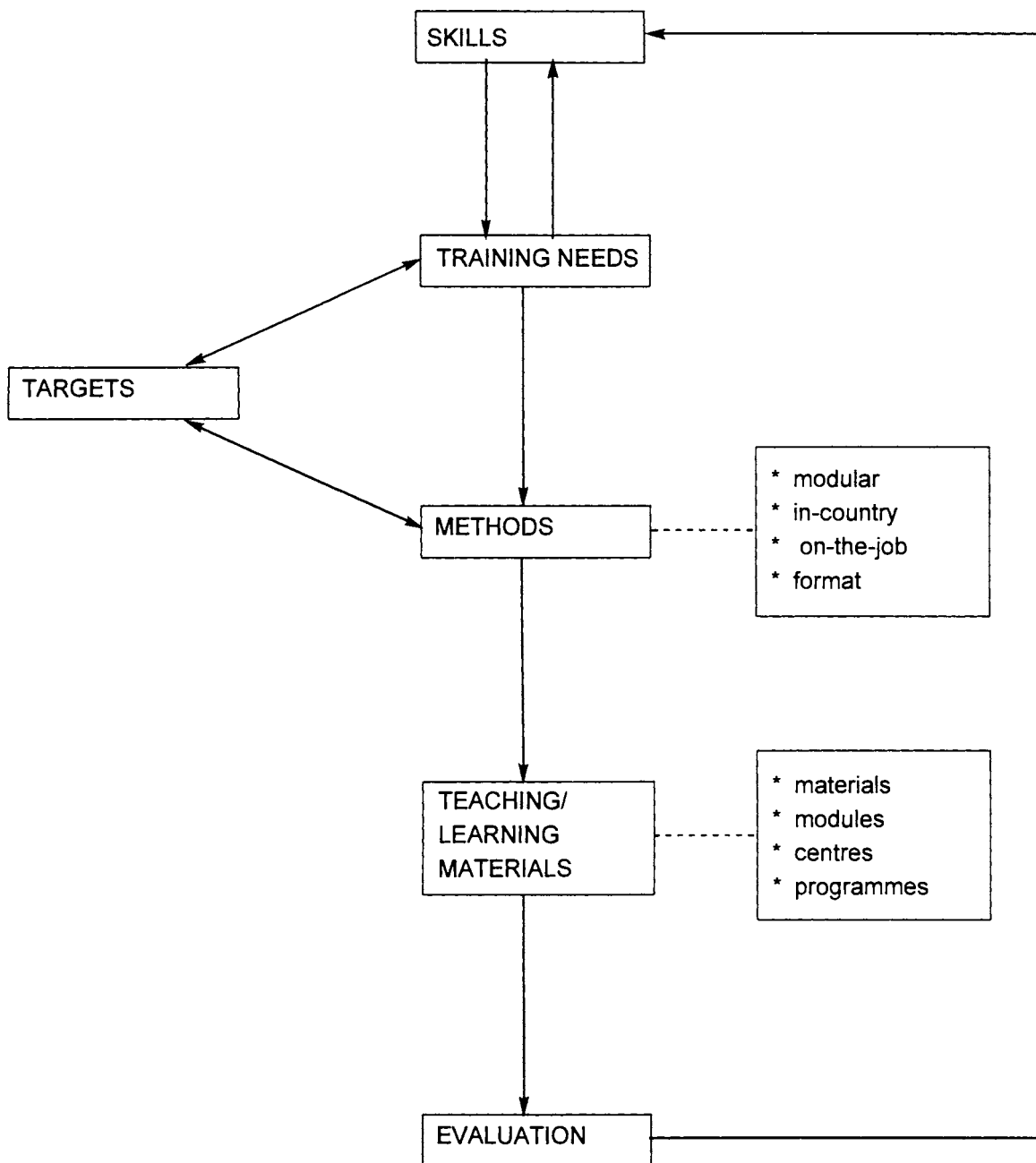


Figure 2 Flow diagram for the development of teaching and learning methods and materials needed in Environmental Assessment

As stated several times in the foregoing text, the role of training methods and materials in the promotion of HA as part of EA depends on many local circumstances. These include administrative structures, planning procedures and regulations, economic development and degree of industrialization, levels of education and availability of expertise. In some cases, the key factor to address will not be the formal training of human resources, but rather awareness-building among decision-makers, or changing the ways in which health institutions collaborate with other sectors, or better regulatory frameworks. Even if training is the crucial factor, the way to approach the problem will depend on local needs and possibilities. This will be important in determining target audiences and methods and tools to be used.

The meeting felt that the following considerations would be of crucial importance in deciding on specific country programmes:

Context. While it is correct to assume that the EA process will be facilitated by a national legislative framework, it is advisable to remember that in some countries the quality of EAs has dropped after the introduction of legislation, or following the adoption of EA guidelines (e.g. EU Guidelines in some European countries). What is more important in the overall context is an awareness that environmental and health considerations should be incorporated in the development process decision-making. This awareness should be present at all levels, from the general public and special interest groups (e.g. women) to middle and top level officials and project managers. Another important consideration is skills and training potential already available (and perhaps underutilized), and the degree to which intersectoral collaboration has become accepted practice.

Training needs, needs for special information. It follows from the framework in the previous section of this report that these needs fall apart into needs for *information* (i.e. data) and for *understanding* (i.e. skills in handling this information). The latter category falls apart into the "core" set of skills concerned with the basics of EA and HA, the need for which prevails in much of the screening and scoping components of EA, and "options" on specific aspects of EA, which may differ from project to project and which determine much of EA preparation, review, monitoring and ongoing evaluation (audit). A further analysis would lead to a more precise description of these categories by EA component and by target audience.

Target audiences. The range of "audiences" potentially in need of training in health methods for use in EA should not be restricted to the health sector (students, trainers, practitioners). An important target group are those people who should recruit health expertise into the EA process, and who should know how to determine the terms of reference, and how to interpret the information and recommendations emanating from the health assessment. The general public, and in particular special interest groups (women), form a very important target audience as public participation has multiple functions at several EA components (see framework).

Methods. Health assessment skills need to be applied in a wide range of health-related settings, including EA. Training methods should be task-oriented, hands-on and on-the-job, rather than academic, abstract and theoretical. Emphasis should be on information exchange and collaboration across the various sectors (health, industry, agriculture), but also across social groups (planners, scientists, the public), which requires a generic method-oriented approach rather than one focused on specific issues of substance.

Materials. Much is already available, most of it in the "grey" literature. Little of it is readily accessible to the non-initiated and few guidelines exist for use by lay people or professionals outside the health sector. There is a need for a generic core text, framed around the generally accepted components of EA, such as the modules in the framework presented in the previous section of this report), and supplemented with a variety of core materials, depending on the need. Such a set of materials could form the backbone of a wider collection of teaching/learning materials to be assembled. Access should be user-friendly, with entries and cross-references structured around easy to use checklists and flowcharts. Electronic versions should be made available in hypertext, or similar software, on CD-ROM. There should be special sets of materials for teachers, allowing them to select items in accordance to needs. Suitable case studies and (simulation) exercises should be added on the basis of certain criteria (a good example is the Basic Epidemiology set of materials produced by WHO).

The framework presented in the previous section is intended to be a useful tool for determining local training audiences, methods and materials, if applied critically within the setting of specific country-level situations. This may be demonstrated by taking a closer look at the Screening component presented, as follows:

SCREENING

Skills required on EA team

(from right-hand column, basic expertise background depending on project*):

- Ability to judge health implications of project quickly
- Familiarity with relevant information sources
- Understanding of relevant scientific principles

* A/ Basic background required on EA team per project category:

Project Category	Basic background
Industrial	Toxicology
Infrastructural	Medical sociology
Water resources (Temperate zones)	Water supply & sanitation
Water resources (Tropical zones)	idem, but also: Parasitology, Medical entomology
Agriculture & Forestry	Food safety, Parasitology, Medical entomology
Natural resources	Communicable diseases specialists

**B/ Interdisciplinary communications and data exchange needed with
(from third column, depending on project and expertise on EA team):**

- Engineers
- Toxicologists
- Medical entomologists
- Parasitologists
- Epidemiologists
- Nutritionists
- Agronomists/geographers
- (Health) Ecologists
- Public health experts
- Anthropologists
- Community leaders/representatives

The Screening component is concerned with the provision of quick answers to the key questions: (1) Does this project affect long-term sustainability of development? (2) If an EA is required, how does health need to be taken into account? Most experts with the basic backgrounds identified in the above listing, under A, will need training in/information on:

- * Basics of HA and EA methodology.
- * Sources of data and how to access these.

At the same time, external experts and members of the public to be consulted as listed under B, will need quick information on:

- * Basics of HA and EA methodology.
- * Their specific role in the screening component of EA.

Although a similar rough analysis could be made for the other modules of the framework, such an effort would be more effectively delegated to a later stage, after the framework has been exposed to a wider group of experts and practitioners. The above merely serves to demonstrate that weaknesses in current human resource deployment can be identified on the basis of a logical framework.

Resources

Without attempting to undertake a full inventory of resources available, both within the Commonwealth and in other countries, the meeting noted the existence of various specialized institutions, including those represented by the participants (see Annex 2). A wider inventory would need to be made in order to identify potential sources of expertise, potential capacity for the delegation of specific tasks, existing databases, documents, training materials and programmes already underway for the promotion of HA as part of EA. The meeting stressed that, as there should be no duplication of effort, the main focus for follow-up would need to be on harmonization and coordination, particularly in the development of country-level activities.