ENVIRONMENTAL ASSESSMENT

HEALTH

FRAMEWORK

Report of a Commonwealth Secretariat Expert Group Meeting
Aberdeen, Scotland - February 1995

COMMONWEALTH SECRETARIAT
EXPERT GROUP MEETING
on
HEALTH ASSESSMENT AS PART OF ENVIRONMENTAL ASSESSMENT

Aberdeen, Scotland, 1 - 3 February 1995

CONSULTANT'S REPORT

by

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The views expressed in this report are those of the consultant and do not necessarily reflect the views of the Commonwealth Secretariat.

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Preface

Commonwealth Heads of Government have given environmental issues a high priority in the context of sustainable development. In response, the Commonwealth Secretariat has built up activities for environmentally sustainable development in areas including biodiversity; forestry; energy; water, coastal, marine and land resources; aquaculture and fisheries; industry; climate change; legislation; health; women and youth. Commonwealth Ministers of Health selected environment and health to be the theme of their tenth triennial meeting held in Cyprus in 1992. In their deliberations they recognised the inter-relationship of health, environment and development and concluded with a list of recommendations for country action and a small number of practical proposals. The regional proposals have since been facilitated by the Commonwealth Secretariat. Development and sharing of methods of environmental health impact assessment (EHIA) was identified as the priority for the Asian and Pacific regions.

In 1993 the Secretariat commissioned the University of Wollongong to develop EHIA manuals for use by health and other professionals and by community groups (particularly women). A draft manual was piloted in 1994 and proposals prepared for further development and application.

Throughout this process the Secretariat maintained contact with, and was greatly assisted by, advice from relevant experts in WHO and elsewhere. It became apparent that many countries and agencies were addressing similar issues and that there was widespread concern about the importance of ensuring the incorporation of health within environmental impact assessment as an integral part of the whole process. In the context of collaboration with WHO and other agencies it was decided to arrange for an expert group to meet and develop a framework for health assessment within environmental assessment and to develop strategies for promoting the process.

The Centre for Environmental Management and Planning, University of Aberdeen, hosted the meeting at which a small group of Commonwealth experts from Asia, the Pacific and Britain along with a consultant (ex-WHO) met to produce the material contained in the following report. The Secretariat is most appreciative of the contribution made by the host institution to the process and outcome of that meeting.

It is the hope of the Commonwealth Secretariat that the work presented here may contribute to the development of strategies, training materials and commitment, at all levels, to incorporating health as an integral component of all environmental assessment processes.

Introduction

An expert group meeting was arranged by the Commonwealth Secretariat, London, as part of its response to proposals on environment and health made by the 10th Commonwealth Health Ministers' Meeting (10CHMM) held in Cyprus, 1992. It was hosted by the Centre for Environmental Management and Planning (CEMP) of Aberdeen University.

The purpose of the meeting was to facilitate the achievement of the following ultimate objectives:

1. To develop core materials on Health Assessment[1] (HA) within Environmental Assessment (EA), from which teaching/training materials in appropriate forms can be prepared for a variety of users. The materials should be suitable for adaptation for:

   (a) awareness-raising among politicians and decision-makers, including those in industry and the media;

   (b) capacity building among health and other sector professionals, leading to an integration of HA in all EA for both planning and monitoring purposes;

   (c) local communities, particularly women, enabling them to do basic HA as part of EA when development is proposed or carried out locally.

2. To develop outline project proposals for the development of core materials and their application and testing in selected countries around the world.

The full background to the meeting is provided in the Commonwealth Secretariat note (October 1994), reproduced as Annex 3 to this report. The list of participants at the meeting is attached as Annex 2.

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[1] In this document, the term Environmental Assessment (EA) is used for a variety of formally recognised methods for the assessment and mitigation of environmental impacts of projects, plans and policies. As such, it replaces the term Environmental Impact Assessment (EIA). The term Health Assessment (HA) is used to describe the human health (and safety) component of EA. It replaces the terms Environmental Health Impact Assessment (EHIA) and Health Opportunity Assessment (HOA). Environmental health hazards assessment and management are recognised as methods for determining and controlling any environmental health hazard at any time, not necessarily in connection with formal EA procedures.

Rationale

An important milestone in the global effort to minimise environmental degradation caused by development was the institution of EA (then called Environmental Impact Assessment, or EIA) as a legally required component of project proposals, in accordance with recommendations made by the first UN Conference on the Environment, held in Stockholm in 1972. It was first launched in the United States, concurrent with the establishment of the USEPA. As it is now widely accepted that properly conducted EA contributes to the long-term sustainability of economic development, a continuously growing number of countries, including many in the developing world, are incorporating EA provisions into their planning legislation. The economic and environmental effectiveness of EA methods and practices is being subjected to international evaluation (e.g., IAIA/FEARO, Canada, 1994/95).

Although the attainment of the highest possible levels of health is (or should be) one of the major goals of economic development, the recognition of development-environment-health linkages has not been universally integrated into economic planning at all levels. While EA has evolved into a widely used management tool for reducing the environmental damage potential of development projects, plans and policies, its human health and safety component (HA) is still often neglected or implemented in insufficiently effective ways. It is estimated that between 90 % and 95 % of all EAs undertaken lack appropriate health and safety components and do not involve health expertise at any stage of the assessment process.

> *Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity* (World Health Organization, Constitution, 1947).

The universally accepted WHO definition of human health stresses the need to consider the interactions between the body and the physical and social environment. Indeed, healthy environments and healthy populations are largely interdependent. The "Rio Declaration" (United Nations Conference on Environment and Development (UNCED), 1992) reiterated this by stating that human health and well-being should be at the focus of our concerns for the global environment. However, the WHO Commission on Health and Environment in its report "Our Planet, Our Health" (WHO, 1992) and the tenth Commonwealth Health Ministers' Meeting (1992) were almost unanimous in pointing out that, despite widespread understanding of these interactions, human health was still being sacrificed world-wide to ill-directed economic development and unfair trade arrangements, leading to overconsumption of resources, pollution, resource depletion, poverty and overpopulation.

As the total cost of EA is generally well below 1 % of most overall project investments, the lack of attention given to human health and safety issues cannot be attributed to cost factors. Experience with some of the world's largest hydro-electric dams, irrigation schemes and chemical plants has shown that the ultimate cost of secondary corrective

and adaptive measures, disease control, medical care and compensation payments to victims of accidents (e.g., Bhopal) more than outweighs the modest investment needed for a properly integrated HA component in EA.

One major factor for not undertaking health damage impact studies has been the projection of high costs by the engineers/planners - application of health damage impact studies and provision for correcting the damage caused by development are seen to be costly. There has been a tendency to set up curative services to deal with the health problems created by a project instead of setting in place appropriate preventive strategies as an integral part of the original development. Some development projects have included 2 or 3% of project costs for health which, in practice, have been spent on curative services which became necessary as a result of preventive opportunities lost at the correct time.

A genuine difficulty in the cost-benefit approach to HA is that health damage prevented (i.e., which did not take place) or positive health outcomes (i.e., improved health and functioning without additional medical costs) resulting from its integration into EA are hard to quantify. Non-events are hard to count, and even harder to cost. Once a project is implemented, it is much easier to record the negative effects on health. There is, however, no doubt that the proper integration of HA into EA forestalls the costs of public enquiry, or legal costs, or the costs involved in the repair of damage done to public health, which would otherwise have to be made retrospectively. It certainly makes more economic sense than having to adopt "retrofitted legislation" once mistakes have been made and recognised.

Key Principles of Public Health
(Australian National Framework for HA)

- Human health and the environment are interdependent.
- Most changes to local or global environments are likely over time to affect human health.
- Human health is affected by social, psychological, economic, ecological and physical factors.
- Human health is a basic requirement for, and imperative of, ecologically sustainable development.
- Decision-makers have a responsibility to involve communities in decisions which affect their environment.
- Social justice is a key consideration in public health policy and ecologically sustainable development.
- Decisions should err on the side of caution when impacts on health and the environment are not clearly understood.

Despite current tendencies to include more and better EA legislation into sustainable development planning, legal measures alone do not help resolve the lack of health sector involvement in these processes. In some countries where EAs are accepted practice only because of legislation, proponents of projects will do little or nothing to extend health assessment beyond the strictly necessary, usually limiting it to toxicological aspects and safety provisions. There is often a fear that assessment of public health issues associated with social impact will militate against development because of the potential for "interminable delays" during the necessary assessment and consultation processes.

Improving EA tools by adding more health-related items (e.g., the inclusion of health concerns in checklists and matrices used in EA preparation for broad project categories), will fail if no concomitant effort is made to raise awareness and understanding among those responsible for using them. The process of EA should include active consideration of how a development project could actively promote health - health opportunity assessment. As it is, EA is all too often something of a mechanistic nature, i.e. primarily concerned with process steps to be taken, without much regard given to the complexities behind the issues dealt with in the EA. Furthermore, EA may fail in its intention to reduce the risks of development if its findings are not applied - for example, in Bhopal the original development was not near human settlement but subsequent illegal settlement brought people into its close proximity.

In summary, the underutilization of health expertise in EA is due to a complex set of interacting factors, including lack of awareness among key actors and poor intersectoral communication skills. People in positions of leadership in the health sector have a responsibility to reach out more assertively to other sectors (including environment, development and finance), with clearer messages on the inter-dependence of health and environment and the role good health assessment can play in improving the cost-effectiveness of development projects, plans and policies. Project proponents, planning authorities and the general public also need to have a clearer understanding of the merits of health assessment. There is an obvious need for the analysis of all skills required and the identification of target audiences to be addressed and the nature of materials to be used in the process. Teaching and learning materials in current use would need to be reviewed to determine their usefulness towards achieving fuller HA integration into EA, and to define gaps to be filled.

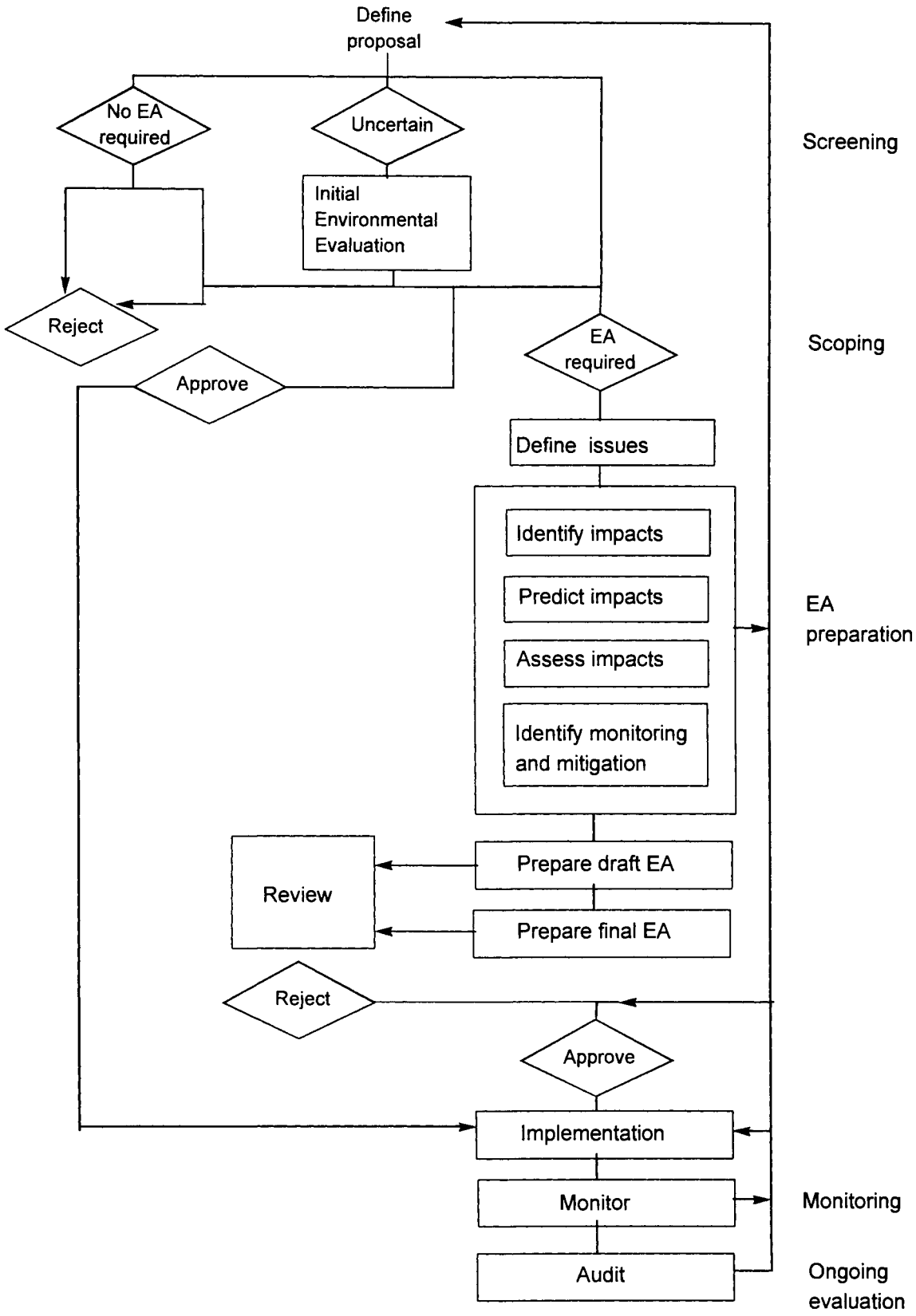

Figure 1 Flow diagram showing the main components of an Environmental Assessment (EA) system *adapted from P. Wathern*

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	* Familiarity with information sources
		* Toxicologists/listings of toxic substances	* Understanding of relevant scientific principles including their application to health
		* Engineers (consultations on processes)	
	* 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	"
		* Listings of hazardous materials	"
	* Involvement of storage, transport and disposal of hazardous materials and wastes	* 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	
		* Health & mortality information	"
	* Potential to cause substantial changes to social/geographic structure of the community	* Community representatives	" "
		* Community leaders	"
	* Generation of a high level of community concern	* Anthropologists	"
		* Anthropologists	"
* Identification of environmental health and health service facilities issues	* Potential cost increases of public amenities	* 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	* Broad ecological expertise
		* Environmental databases	* Expertise in environmental health
* Audit of health and health amenity concerns	* Public health information	* Health data on specific developments	* Ability to access public health and environment databases
	* Community perceptions and concerns	* Community informants	* Community consultation skills
			* Social analysis skills
	* Population social and health status (profile)	* Local media	* Literacy in population and health statistics
		* Demographers	
		* Epidemiology/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 consultation skills
		* Community informants	* Ability to "read" project proposals
* Identification of key stakeholders	* Groups which will be affected positively or negatively	* Project proposal, including workforce projections	"
	* Itinerant as well as local populations	* Local key informants	"
	* Social, ethnic, cultural and functional divisions in the community	* Informal social groups (e.g., women's cooperatives)	"
		* Ethnographic studies	

SCOPING (Continued)

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

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

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	* 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	* EA statement and TOR * Health services data, including funding limitations * Otherwise, same sources as consulted for scoping	* 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 * National, regional and local standards for air and water quality, etc.	* Special studies * Local networks consultations	* Ability to assess health and environmental information * Ability to interpret compliance with regulatory standards
* Periodic assessment of health outcomes	* Health statistics on groups at risk * Community feed-back	* Community representatives	* Ability to assess community concerns
* Appropriate capacity for early detection of unexpected health effects	* All of above, plus: 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
* Measure of how well the project is operating relative to what was planned	* Regular monitoring data	* Reports and records	* Ability to interact across sectors
	* Surveillance data and information	"	* Professional competence in evaluation, which includes: health elements; systems analysis; health impact assessment; cross-sectoral action
* Indication that the project is operating to safeguard (promote) the health of its workers and of the surrounding population	* Special studies, e.g. internal/external studies checking on aspects of the proposal	"	
	* Studies of health issues arising from similar projects		* These skills should be present within the project or utilized from outside (e.g. health officials, consultants)
	* Relevant legislation and regulation	* Published legislation and regulations	
* Identification of unexpected effects on health (particularly negative ones) and emerging trends	* Public reaction	* Media response	
	* Relevant audit and evaluation	* Complaints procedures	

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.

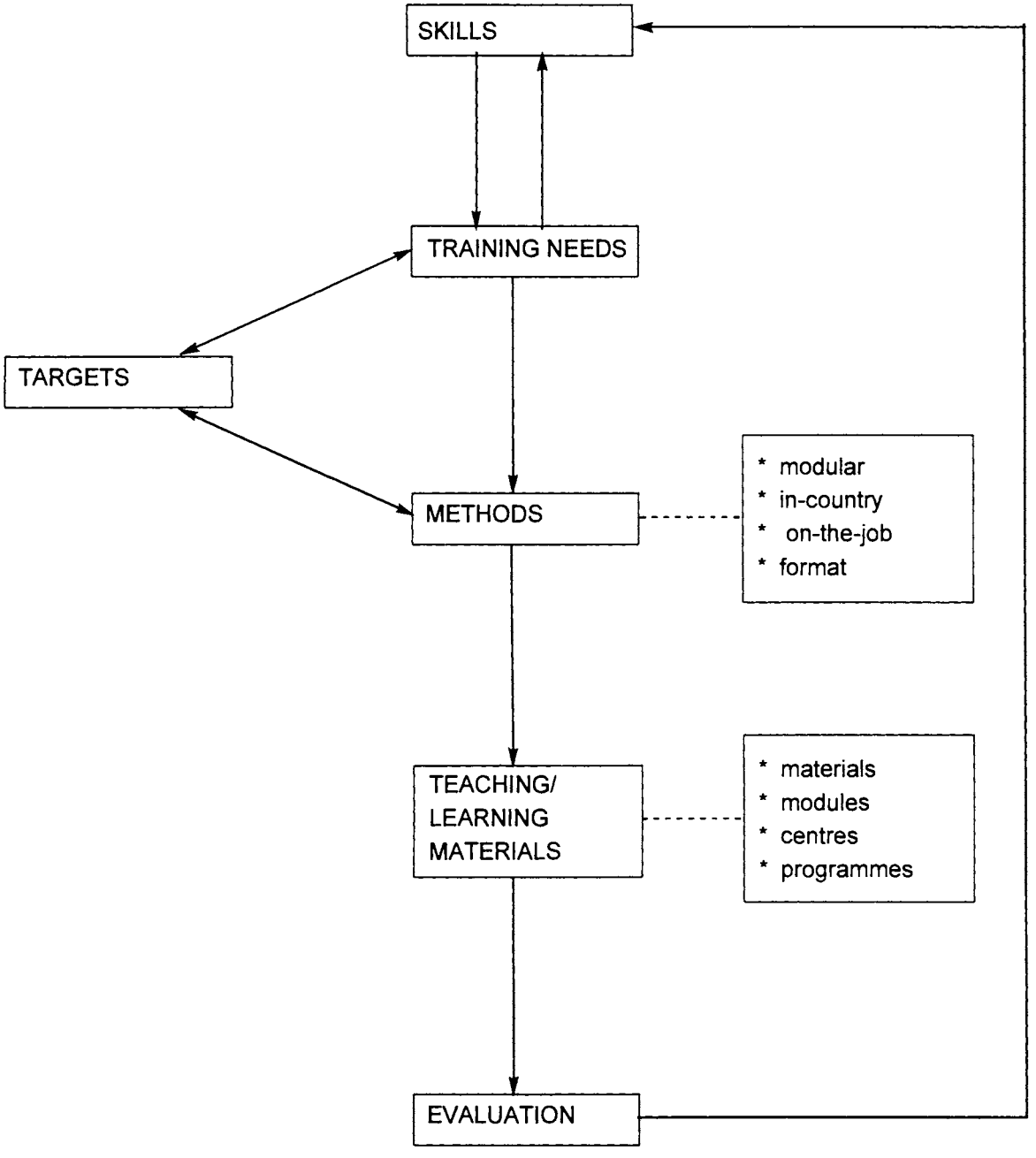

Figure 2 Flow diagram for the development of teaching and learning methods and materials needed in Environmental Assessment

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.

It was noted that the stimulus to hold this meeting arose from work on a proposal from the tenth Commonwealth Health Ministers' meeting which led to the commissioning of the University of Wollongong, Australia, to develop HA manuals for testing in the Pacific and Asian regions. These manuals were for use by health and environmental workers and by community groups, particularly women, and had their first trials in 1994.

The group noted the interest already existing in WHO and several of its Regional Offices, and in particular the work on HA undertaken by the joint WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM), whose membership and Collaborating Centres network embraces several Commonwealth countries. Without ignoring several initiatives already underway elsewhere, the meeting noted the relatively dense concentration of HA efforts already being made by WHO and the PEEM networks in the Southeast Asian and Western Pacific Regions. In particular the recent initiative of WHO's Regional Office for the Western Pacific (Manila) and the WHO Headquarters (Geneva) to attempt obtaining UNEP support for the strengthening of country-level activities was considered relevant. Another recent development of great interest concerns a series of intersectoral HA training workshops underway in a number of countries of the African region (including some Commonwealth states) by PEEM in Collaboration with the Health Impact Programme (HIP) of the Liverpool School of Tropical Medicine and the Danish Bilharzia Laboratory (DBL), mainly because of its emphasis on problem-oriented interdisciplinary collaboration skills.

Although the group did not attempt to arrive at a complete inventory of existing training materials, a quick search by participants brought to light an impressive list (briefly summarized in Annex 4). The meeting expressed the need to have such materials assembled in a database, to be kept up-to-date and made accessible to potential users. This could be a key role for a Commonwealth institution, preferably linked up with the WHO or PEEM network of Collaborating Centres.

There was a strong consensus that a need exists for a core guidance document, to be assembled around a framework of EA modules, similar to the one produced here (but refined and improved where necessary), that could be used to identify the roles of HA in various stages of EA for a variety of projects in a variety of environmental settings, the skills required, the intersectoral efforts to be made and the information sources to be used. Such a document should be a practitioners' "road map", rather than a comprehensive textbook. It should refer to existing documentation, which should be identified and made part of the database. Creating such a core document would be instrumental in identifying remaining gaps in the more specialized HA/EA literature, so that further efforts may be directed at filling these. The whole process should be guided from the onset by feedback from country-level experts. Country studies and workshop should be held to provide the necessary link with field situations in a variety of settings.

Proposal Outline

The meeting identified the need to address the following priorities in the formulation of project proposals that would help to develop additional core materials on the application of HA as part of EA:

Priority A

 # 1 Core materials library and database

Priority B - short-term

 # 2 Country-level assessments

 # 3 Development of a generic guidance document

Priority B - long-term

 # 4 Additional core materials production

 # 5 Regional and country-level capacity-building programmes

Bearing in mind the activities already underway at the initiative of WHO, PEEM and several national institutions, as well as the initial focus on Southeast Asia and the Western Pacific, the group emphasised that proposals should fit in with these regional efforts while at the same time provide methods and materials in support of activities in other parts of the world. Close cooperation with WHO and its collaborative networks would therefore be essential.

It was unanimously felt that the establishment of a *Core materials library and database (# 1)* would be a priority objective for immediate implementation once the resources and a suitable host institution had been identified. All existing core materials should be identified, traced, described and categorized, brought together in a database and made available to potential users. This would need to be an ongoing activity, to be undertaken in close association with existing international programmes on environmental epidemiology, environmental management, risk assessment and impact assessment, several of which operate within WHO (GEENET, PEEM, HEADLAMP).

It was also agreed that while *Country-level assessments (# 2)* of skills and materials required (i.e., needs of target audiences) would be a very high priority, it should run in parallel with the *Development of a generic guidance document (# 3)*, so that these two processes would be mutually catalytic. While a draft generic guidance document would be indispensable in country-level needs assessments, its further development would benefit greatly from the findings of such assessments. In consultation with WHO, the countries in greatest need of assessment should be identified at an early stage and a number of them selected for early implementation. Simultaneously, a draft generic document should be produced with the help of consultants.

Although the components with the most long-term focus, the *Development of additional core materials (# 4)* and the initiation of *Regional and country-level capacity building programmes (# 5)* would clearly need to build on the output generated by the earlier activities, and describing them in sufficient detail would consequently need to be deferred to a later stage.

Summary

In response to recommendations made on environment and health by the 10th Commonwealth Health Ministers Meeting (Cyprus, 1992), an expert group meeting was arranged to prepare suggestions for improving the role of health assessment (HA) in overall environmental assessment (EA) of projects, plans and policies. There was considerable consensus that such an improvement would depend on many factors, including increased awareness of the importance of human health in the economic development effort, more appropriate legislation and more adequately trained human resources. Concentrating on the training needs, the meeting went on by establishing a logical framework of EA components, which led to the identification of skills required and key sources of information to be used. It was demonstrated that the framework can be used to identify training goals for EA team members in charge of health assessment, review, monitoring and ongoing evaluation (audit), but also in external specialists serving as sources of information in the EA process.

The group recognised that a wealth of training materials was already available. A few of these were briefly reviewed, but the need was felt to complete this effort and to bring all suitable materials together in a database, which should be continuously kept up-to-date and made accessible to practitioners. The group also noted various ongoing attempts to improve HA in EA, particularly those underway in the collaborating centres networks of WHO and PEEM in various countries, including important initiatives in some Commonwealth states. A focus was noted in the Southeast Asian and Western Pacific Regions of WHO, where there was still considerable scope for advancement.

The group concluded by expressing the need for a full project proposal, focusing on the creation of a core training document and assembled core materials, which would facilitate collaboration with WHO (with potential for UNEP support) and a number of institutions in UK and the Asia-Pacific. In order to maximize the utility of the meeting's findings, the deliberations were concluded by prioritizing a number of components (immediate, short-term and long-term) to be incorporated in a proposal.

ANNEXES

Annex 1

ABBREVIATIONS.

EA	-	Environmental Assessment
EHIA	-	Environmental Health Impact
EHI	-	Environmental Health Impact Assessment
CEMP	-	Centre for Environmental Management And Planning
CHMM	-	Commonwealth Health Ministers Meeting
DBL	-	Danish Bilharzia Laboratory
FEARO	-	Federal Environmental Assessment Office (Canada)
HA	-	Health Assessment
HIP	-	Health Impact Programme
IAIA	-	International Association for Impact Assessment
PEEM	-	Panel Of Experts on Environmental Management for Vector Control
UNCED	-	United Nations Conference on Environment and Development
WHO	-	World Health Organisation

Annex 2

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Annex 3

HEALTH IMPACT ASSESSMENT WITHIN ENVIRONMENTAL IMPACT ASSESSMENT

Commonwealth Secretariat.

INTRODUCTION.

The past two decades have seen much interest in applying environmental impact assessment (EIA) to development proposals. This has increased as environmental sustainability has gained importance. Many industrialised countries, have incorporated these methodologies into their assessment of development projects, policies and planning, and have enacted specific legislation. The best EIA schedules include assessment of the effects of environmental changes on health, but all too often, these are not adequately addressed and the health sector is not included in the process of assessment, planning or monitoring.

Most countries are continually aiming to improve their economic and social wellbeing through development. Several developing countries are involved in rapid economic and industrial change which can have significant impacts on social and health issues in both positive and negative directions. All too often development projects are assessed within the narrow context of the impact the project will have on the physical environment leaving the impact on human health and society poorly addressed.

There is now greater recognition of the interdependency of health, development and environment, with the increased emphasis on Health Impact Assessment (HIA) as an essential component of EIA. Participation of local communities particularly women, in assessing the effects development is seen as critical to ensure sustainability of development. HIA within EIA is a methodology for empowering local communities, professionals and government to consider, influence and monitor development proposals with well informed assessments of likely effects on people and their environment.

At the 10th Commonwealth Health Ministers Meeting (10CHMM), in October 1992, on the theme of "Environment and Health" a project on EHIA was proposed for the Asia Pacific region. In early 1993 the Secretariat commissioned an Australian expert group to develop teaching manuals on EHIA for use in developing countries by local communities and for professionals in health and other sectors. These manuals have been produced in draft form and field testing is under way in two Pacific island countries under the direction of Professor Christine Ewan of Wollongong University, Australia.

At the same time ComSec has maintained and developed relationships with other agencies involved in the field including the Environmental Health Division (EHD), now the programme for the Promotion of Environmental Health (PEH), of the World Health Organisation (WHO). Other agencies even more closely associated involved in developing tools for HIA within EIA, are CEMP Aberdeen and the Liverpool School of Tropical Medicine.

In November 1993, WHO and the Asia Development Bank (ADB) held a workshop in Kuala Lumpar, Malaysia, on toxic chemicals and EHIA at which Professor Ewan and others in her department contributed materials.

In keeping with its policy on collaboration, the ComSec initiative on the development of EHIA materials and methods has included consultation with the many groups which are addressing these issues. It is apparent that there is increasing interest in the subject and EHIA is being tried in some countries. HIA within EIA is of critical importance to development, health and the environment and it seems an opportune stage to bring together some of the key players to agree on core materials and development of practical applications.

ComSec proposes to bring together a group of experts together to identify the core elements of HIA within EIA as the basis for preparation of core text and relevant training materials. Pilot projects would then test the materials in several countries around the world. Specific applications of the core materials are to include training materials for use by local communities, by professionals health and other relevant sectors and government and industry.

OBJECTIVES OF THE EXPERT GROUP MEETING ON EHIA.

The long term objective is to promote human health in the context of environmentally sustainable development and to ensure informed participation by people at all levels in society.

The specific objectives are of the expert group meeting are:

(a) To develop core materials on Environmental Health Impact Assessment (EHIA) from which training/teaching materials can be developed for use at different levels; and

(b) to develop a proposal for preparing a range of suitable materials from the agreed core for pilot testing in selected countries.

METHODS.

1. Invited experts on HIA within EHIA will be asked to prepare their own brief summary of core materials for distribution to other invitees; Before

2. A three-day expert meeting to be held in Aberdeen at the Centre for Environmental Management and Planning (CEMP) and attended by six international experts on HIA within EHIA, including an international consultant to guide proceedings;

3. Participation will identify core materials on HIA within EIA, suitable for production along the line of the basic epidemiology training package (WHO1994); advise on its further development into a suitable basic text, and develop outlines for application of the core materials to target the following groups

(i) decision makers, mainly politicians and policy makers including those in industry to raise awareness of issues,

(ii) professionals in health and other sectors, to enable them to integrate HIA principles in their work on EIA in development and environment,

(iii) local communities, particularly women, to empower them to participate in decisions on development by using HIA within EIA.

4. The expert group will develop a project proposal for preparation of the core materials and their piloting in selected sites globally - for submission to potential donors; and

5. The consultant will take the material from the group and prepare a draft outline training package containing the core materials for review by the expert group before it becomes the basis for the further development of training materials.

Terms of reference for the participants to the workshop on Health Impact Assessment within Environmental Impact Assessment, to be held in Aberdeen, 1 - 3 February 1994.

To participate in the workshop with the view of achieving the following objectives

1. To develop core materials on Health Impact Assessment (HIA) within Environmental Impact Assessment (EIA) from which teaching/training materials in appropriate forms can be prepared for a variety of users. The materials should be suitable for adaptation for;

   (a) awareness-raising among decision makers, mainly politicians and policy makers including those in industry;

   (b) capacity building among health and other sector professionals leading to an integration of HIA in all EIA for both planning and monitoring purposes;

   (c) local communities, particularly women, enabling them to do basic HIA as part of EIA when development is proposed or carried out locally.

2. To develop a project proposal for pilot testing core materials and applications developed, in selected centres around the world.

INPUTS

The inputs are participants considerable expertise on HIA within EIA and financial support to allow the experts to meet. The latter is coming from the commonwealth Secretariat through the health department's limited budget for projects and through external funding.

OUTPUTS

The aims of the expert group meeting will be achieved with the development of the core materials and a proposal for seeking funding for implementation of the next phase. A resource base of information on EHIA will also be available for future development.

SOURCE MATERIALS REVIEWED BY THE MEETING

Categories used:

A **Reports of meetings, etc.**

B **Materials providing information on HA**

C **Materials providing "core" understanding of HA**

D **Materials providing "optional" (i.e. more specialist) understanding of HA**

A: Reports of meetings, etc.

University of Kuopio, Natural Sciences, Series Statistics and Reviews 1/1978, Environment and Health, Proceedings of the Finnish-USSR Symposium, 29 - 30 March 1977, Kuopio, 1978

Target: General
Elements: Environmental health, no reference to EA, lectures on various subjects

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WHO Regional Office for Europe/UNDP, Government of Greece
Environmental Health Impact Assessment, Report on a Seminar, 2 - 6 October 1978

Target: Decision-makers
Elements: Improving the quality of HA in EA

University of Kuopio, Natural Sciences, Series Statistics and Reviews 1/1982, Environmental Health, Our Common Concern, Proceedings of the Finnish-Soviet Symposium on Environment and Health, 25 - 27 November 1980, Kuopio, 1982

Target: General
Elements: Environmental health, no reference to EA, lectures on various subjects

---

WHO Regional Office for Europe, Health and Safety Component of Environmental Impact Assessment, Report on a WHO Meeting, WHO, 1987 Environmental Health Series, No. 15

Target: Policy-makers (health)
Elements: Analysis of status of HA in EA and how to improve it, strong bias towards the chemical industry

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Commonwealth Secretariat, Report of 10th Commonwealth Health Ministers Meeting, Nicosia, Cyprus, 1992

Target: Policy-makers
Elements: Health and environment issues, environmental health, EA

B: Materials providing information on HA

Health and Environment Risk Analysis Program (HERAP), Health and Environmental Effects Document for Oil Shale - 1984

Target: Health professionals, occupational health officers, decision-makers (industry)
Elements: Risk analysis/management, no reference to HA/EA

BP Petroleum Development (North West Europe), Health, Safety and Environmental Policy Statement, year: 1985

Target: General
Elements: Company policy

WHO Regional Office for Europe, Health Impact of Different Energy Sources, WHO Regional Publications, European Series No. 19, 1986

Target: Policy-makers
Elements: Energy sector aspects of environmental health, no reference to HA/EA

M.H. Birley and G.L. Peralta, Advances in the Health Impact Assessment of Development Projects, *1995*

Target: Scientists
Elements: General overview/update

C: Materials providing "core" understanding of HA

Yusuf J. Ahmad & George K. Sammy, Guidelines to Environmental Impact Assessment in Developing Countries, UNEP, 1985

Target: Decision-makers, general public
Elements: The essentials of EA and how it is carried out, many references, no special focus on health

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E. Giroult, Health Risk Assessment and Public Health Risk Assessment, CEMP Syllabus, 1990

Target: CEMP Seminar participants
Elements: Risk assessment/management, overview of concepts and methods, but no EA

Giovanni Zapponi, Methods for Health Component of Industrial Development Projects, CEMP Syllabus, 1991

Target: CEMP Seminar participants
Elements: Health risk assessment and management in industry, no link with EA

WHO Regional Office for Europe/Centre for Environmental Management and Planning (CEMP), Environmental and Health Impact Assessment of Development Projects; A Handbook for Practitioners, 1992

Target: EA practitioners
Elements: EA objectives and methods, Project planning

Brian D. Clark, The Health and Safety Component of EA, CEMP Syllabus, 1992

Target: CEMP Seminar participants
Elements: Overview/update

Paul F. Hillman, Methods for assessing the health component of industrial development projects, CEMP Syllabus, 1992

Target: CEMP Seminar participants
Elements: Risk inventories and profiles, little EA

M.H. Birley *et al*, Guidelines for the Health Impact Assessment of Development Projects, ADB Environment Paper No. 11, 1992

Target: Non-specialist ADB staff
Elements: Health hazard identification, initial health examination, health impact assessment, broad development approach

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E. Giroult, Health Impact Assessment, CEMP Syllabus, 1993

Target: CEMP Seminar participants
Elements: Risk assessment/management, health impacts forecasting, but no EA

WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM)/Health Impact Programme (HIP)/Danish Bilharzia Laboratory (DBL), 2nd Course in Health Opportunities in Water Resources Development, Ghana, January - February 1994

Target: Middle level officials in different ministries
Elements: Task-oriented method for cross-disciplinary work, could be used in other settings

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Christine Ewan, Wollongong University Briefing Notes, November 1994

Target: HA and EA practitioners
Elements: HA integration in EA within context of policies, codes, laws, regulations and barriers to be faced in community consultation, etc.

New Zealand Government, A Guide to Health Impact Assessment, May 1995

Target: Community members, local government, project proponents
Elements: Legal frameworks (NZ Resource Management Act, 1991), procedures and methods for public participation in HA as part of EA

School of Civil Engineering and Environmental Science, College of Engineering, University of Oklahoma, USA, Environmental Health Impact Assessment, *year?*

Target: EA experts
Elements: Introducing HA principles

M.H. Birley, The Health Impact Assessment of Development Projects, HMSO, 1995, *in press*

Target: Non-health specialists
Elements: Update/overview

M.H. Birley, R. Bos, C.E. Engel & P. Furu, Health opportunities in water resource development: a multisectoral task-based training course, *IN DRAFT*

Target: Scientists, government officers (health/agriculture), trainers
Elements: Highly novel approach to cross-sectoral training methods

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D: Materials providing "optional" (i.e. more specialist) understanding of HA

Pan American Health Organization (PAHO), Pan American Center for Human Ecology and Health (ECO), Larry Canter, Environmental Health Impact Assessment, 1986

Target: Practitioners in HA
Elements: HA methods for integration in EA

WHO/FAO/UNEP/UNCHS Panel of Experts on Environmental Management for Vector Control (PEEM) Guidelines Series No. 2, M.H. Birley, Guidelines for Forecasting the Vector-Borne Disease Implications of Water Resources Development, VBC/89.6, 1989

Target: "Anyone" wishing to do a rapid assessment of health risks in water development
Elements: Community vulnerability and receptivity, Health services vigilance, methods for intervention and mitigation, strong focus on vector-borne diseases, strong focus on water resources development, weak link with EA methodology

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WHO Regional Office for the Western Pacific, Environmental Health Centre (EHC), Training Workshop on Environmental Health Impact Assessment, Pagsanjan, Laguna, Philippines, 30 May - 3 June 1994

Target: Not stated, EA reviewers?
Elements: Hazard identification, risk characterization, exposure assessment and other components of risk assessment/management, HA treated as distinct from EA

WHO Regional Office for the Western Pacific, Environmental Health Centre (EHC), Workshop on Environmental Health Risk Assessment and Management, Kuala Lumpur, Malaysia, October 1994

Target: Officials of health ministries, environment departments, police, local authorities, etc.
Elements: Risk assessment/management, risk transition, risk communication, community involvement, HA treated as rather distinct from EA process, case studies predominantly on chemical risks

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Hilary Goodman, The economic analysis of the health impact of irrigated Agriculture, Report HIP/94.27, November 1994. The Liverpool School of Tropical Medicine.

Targets: General

Elements: Published and unpublished documents concerning health impact assessment.

DATABASE AT THE LIVERPOOL SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

The Liverpool School of Tropical Medicine, Health Impact Programme, has a library and database of published and unpublished documents concerning health impact assessment. There are currently 2,000 items stored in the library which are also catalogued in a computer database, ENDNOTE. In addition the programme has prepared a bibliography with 1,500 items entitled "The Economic Analysis of the Health Impact of Development Projects".

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