More and more, countries are faced with the challenge of addressing the burden of disease arising from environmental exposures. Capacity building in environment and health has been recognized as a critical need among Member States of the WHO European Region, and the European Union. To address this need the WHO European Centre for Environment and Health is assisting WHO Member States to use health impact assessment (HIA) and health in environmental assessments (EA) like environmental impact assessments (EIA) and strategic environmental assessments (SEA).

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Using impact assessment in environment and health: a framework
Abstract

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Keywords
Capacity building — Environment and Public Health — Environmental health — Guidelines — Outcome assessment (Health care) — Public health

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List of abbreviations

CBEH capacity building in environment and health
DALYs disability-adjusted life years
DG Sanco European Commission Directorate General for Health and Consumers
EA environmental assessment
EH environment and health
EIA environmental impact assessment
EU European Union
IA impact assessment
HIA health impact assessment
SEA strategic environmental assessment
1 Background

Many European countries face great challenges in environment and health. WHO estimates that in the WHO European Region well-tested environment and health interventions could reduce total death in these countries by almost 20% (Prüss-Ustün & Corvalán, 2006). The range of disability-adjusted years of life (DALYs) lost varies up to fourfold across the WHO European Region. The lowest levels of risk are found in northern and western European countries, while high risk levels are reported for some countries of eastern Europe. While rapid social and economic evolution, coupled with a legacy of environmental degradation (and its interplay with other significant health determinants) results in potentially large health impacts currently underway and/or projected, there is also great potential for health gains, if environmental determinants are addressed.

The European Centre for Environment and Health of the WHO Regional Office for Europe has been running the project “Capacity building in environment and health (CBEH)”, co-funded by the European Commission, Directorate General for Health and Consumers (EC DG Sanco). It is in line with recent orientations in environmental health, as reflected, for example, in the 2010 Fifth Ministerial Conference on Environment and Health (WHO Regional Office for Europe, 2010a)).

The overall objective of the CBEH project was to strengthen in-country capacity in several European Member States to deal with environment and health issues. Eight European Member States participated in the project: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

One of the main outcomes of the project was an international training workshop on environment and health (EH), held in Riga, Latvia, 19–23 March 2012 with 70 representatives of the environment and the health sector from the eight European Union (EU) Member States. Aims of the event were:

- to provide new insights on EH (key topics were selected through discussions at preparatory meetings);
- to offer in-depth training on specific areas in EH; and
- to provide opportunities for networking among participants of different sectors and countries.

The one-week training was structured through four components:

1. key lectures on priority topics in EH delivered by international experts;
2. case studies presented by country representatives;
3. parallel in-depth modules related to health in impact assessments (IA) and quantitative methods; and
4. training of trainers.

In follow-up of the main training event, two country specific workshops were organized—one in Tallinn, Estonia and one in Ljubljana, Slovenia—to further strengthen in-country capacity in tackling EH issues through existing frameworks like health impact assessment (HIA) and environmental assessments (EA). Aim of the two-day workshops was to review together with EH experts their experience in environment and health impact assessments and how health issues are looked at. For this case studies were analysed in regard to what went well and what could be changed in future IA. A special focus was on analysing capacity gaps within the health and the environment sector to enhance integration of health into environmental impact assessments (EIA) and strategic environmental assessments (SEA).

Based on the experience from the main training event, the follow-up workshops and WHO work with countries on HIA, the following framework for the analysis of EH interactions has been developed.
2 Supporting the assessment of EH interactions

It has been long recognized that the health sector alone cannot tackle the complex, far reaching health determinants of modern society. Policies in sectors such as environment, industry, agriculture, economy and so forth can and do influence powerful health determinants, of various nature. Intersectoral work is being approached in many ways, among such approaches, HIA has established itself as one of the main means to achieving intersectoral action and identify interactions between environmental issues and good or bad health implications. HIA has by now a strong tradition, as it has been adopted and applied in many countries, at various levels and has proven to be an effective approach to understanding and dealing with the health implications of policy choices in all sectors.

The WHO Regional Office for Europe is assisting WHO European Member States to have a deeper understanding of HIA and health in EA like EIA and SEA, as these are recognized as powerful and effective approaches and tools for dealing with environmental health determinants. In order to further reduce citizens’ environmental health burden of disease and tackle environmental health inequities, countries are supported in building capacity in conducting IA through the analysis of in-country experiences with IAs. In IA, the health implications of selected projects, plans, programmes or policies outside the health sector are analysed and placed in the context of other major health determinants, such as lifestyle, socioeconomic factors, health care etc.

Existing EH data can be used for IA along with other analytical modern methodologies for the analysis of the interactions between environment and health such as risk assessment, descriptive small area disease mapping, or environmental burden of disease.

IA is designed for addressing broad, distal determinants at policy level, or to address the multiple risk factors operating at project level, for example in connection to local industrial or infrastructure developments, and for ultimately support health-friendly decision making. In fact IA is especially valuable for such complex interrelationships between environment and health, and is a possible response to the limitations of more rigorous methodology such as risk assessment, which tend to provide specific information pertaining to partial components of complex systems.

Following the full process of an EA and HIA not only involves the inclusion of basic knowledge and evidence on EH issues, but also allows incorporating “horizontal” issues like:

- policy-analysis and scenario-analysis, relevant for the screening phases of IA;
- analysis and negotiation of policy options and alternative courses of action;
- stakeholders’ preferences, interests, risk perceptions; and
- strategies for risk communication and participatory models of work in all phases leading to final decision-making.

The theory and practice of IA in EH has been elucidated to a considerable extent; facilitating factors and hurdles have been identified, often as a function of local circumstances; the mutual role that different forms of IA can play is also being discussed; numerous legislative instruments exist that promote its implementation—all this reflects a growing recognition of the value of IA in many domains, including EH. However, concrete, effective and sustainable implementation is challenging, and seems to require several ingredients, including a better understanding and acceptance of its principles and its practice among different constituencies. In the work in the Capacity Building Project, therefore, an effort was made to develop a framework for the application of IA (notably HIA and EIA) in EH.
2.1 Defining health

WHO definition of health (WHO, 1946) recognizes the broad scope of health, emphasizing that health goes beyond states of ill health:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity

Actions to protect and improve health, then, must go beyond providing services that reduce the effects of ill health and look into prevention of illness and promote good health.

As the health of a population is inextricably linked with the state of the environment, both fields, environmental health and public health, are important for health in IA. Environmental health traditionally focuses on issues such as water supply and sanitation, air and water pollution control, solid waste management, chemical and food safety, radiation protection, housing settlements and occupational health (WHO Regional Office for Europe, 1990); however, there is increasing awareness that a broader approach to environmental health determinants is beneficial for public health, defined as “the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society” (Acheson, 1988; WHO Regional Office for Europe, 2013). Hence, public health professionals work with other health professionals to prevent illness and promote good health as well as with other sectors to address the determinants of health (see Fig. 1).

There are therefore overlaps between the two disciplines but few links. The specialists in environmental health, including air quality specialists, hydrologists and acoustic engineers, have much to contribute to, and to gain from, public health specialists whose concerns include surveillance of population health and well-being, monitoring and responding to health hazards and emergencies, health protection, health promotion and disease prevention. Hence there is high need to draw the two sides together (Gibson et al., 2013a&b).

Fig. 1. The main determinants of health and well-being


Many factors outside the health sector affect individual and population health, as conceptualized by Dahlgren and Whitehead (1991), further developed by Barton and Grant (2006) and shown in figure 1. These factors include individual characteristics such as age and gender as well as lifestyle factors. Moving further from the centre one moves towards factors influenced by policies, plans or
programmes outside of the health sector, for example environment, transport, housing, employment, social support, crime and community safety and education.

### 2.2 Health impact assessment (HIA)

Public attention of the impacts on human health of severe environmental events led to the development of regulatory EA. Hence, within IA health is not a new concern (WHO, 1979; Kasp尽快, 1983). Impacts on human health have expanded not only in EAs as one issue to take into consideration when doing an IA; but also triggered the development of HIA as an independent form of IA. In the past two decades HIA has become relatively widespread (Vohra, 2007), with its origins not only lying in environmental health but also in the wider social determinants of health as well as in health equity (Harris-Roxas & Harris, 2010).

HIA aims to support intersectoral decision-making for healthy public policies (Bekker et al., 2004). It offers a practical means to enhance cooperation between health and other sectors (Cole et al., 2005) and to strengthen understanding among policy-makers of the interactions between health and other policy areas (Lock & McKee, 2005) with the aim to protect and improve population health (Gulis et al., 2012).

Based on the Gothenburg Consensus Paper (WHO Regional Office for Europe & European Centre for Health Policy, 1999) HIA can be defined as

> a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, programme or project on both the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects (Quigley et al., 2006, adapted from WHO Regional Office for Europe & European Centre for Health Policy, 1999).

HIA is a process through which policies, plans, programmes and projects can be examined for their effects on health. It aims to influence the decision-making process in an open and structured way (Lock, 2000). It can be conducted as a standalone assessment, were four different form of current HIA practice can be observed: mandated, decision-support, advocacy, and community-led HIAs (Harris-Roxas & Harris, 2010) or in conjunction with, or as part of, EAs (Gibson et al., 2013a&b).

Commonly there are six stages used to describe the HIA process:

1. **Screening** helps to determine whether an HIA is needed and likely to be useful.
2. **Scoping** develops a plan for the HIA, including the identification of potential health risks and benefits, communities and subgroups likely to be affected, stakeholder concerns, and available data sources.
3. **Assessing** draws on multiple data sources, describes the baseline health status of affected communities; identifies vulnerable populations; and describes existing conditions that influence health.
4. **Recommending** develops recommendations that are feasible in the political, economic, regulatory, and technical context of the policy, program or plan being assessed.
5. **Reporting** disseminates the findings to decision-makers, affected communities, and other stakeholders.
6. **Monitoring and evaluation** involves process, impact or outcome evaluation and monitoring collects information to inform each type of evaluation (Wernham, 2011).

Currently HIAs are mainly conducted on a voluntary basis outside legislative or regulatory requirements (Wismar et al., 2007), often undertaken by the public health sector but increasingly by the private sector stimulated by industry best practice standards (IPIECA, 2005; Quigley et al., 2006; Bhatia et al., 2009; Fredsgaard et al., 2009; ICCM, 2010). Up to now only few countries have adopted
policy framework or legislative regulation for conducting HIA, e.g. Lithuania, Slovenia, Spain, Thailand. Implementation approaches differ between formulating specific laws, regulatory mandates or supportive policies for the use of HIA or through considering health impacts within a whole-of-government decision-making process (Harris-Roxas et al., 2012).

Implementation of HIA in the health and non-health sectors can be supported through:

a. promoting it as decision-making tool that is simple and well-defined;
b. analysing whether it is compatible with existing decision-making processes;
c. giving information that is tailored to particular audiences;
d. ensuring information is provided about the advantages of HIA compared to other IA of decision-making tools; and
e. ensuring there is strong HIA leadership (Gulis et al., 2012).

While in the screening and scoping phase the context for the assessment is defined and a first risk analysis is undertaken, the assessment or appraisal phase plays a central role in the process. The full spectrum of exposures, what is known and what is still not known or uncertain, should be recognized: from more proximal to more distal. This can occur in a number of different settings, as well as the different ways of exposure and cumulative effects. While individual health effects can often be traced back to a wide variety of different exposures and causes [...] individual exposures can lead to a wide array of health effects, varying both in their intensity and immediacy [...] both exposures and health outcomes may be affected by more remote, contextual factors, such as social conditions, demographics and economic development, that influence the susceptibility of the population to environmental health effects (Briggs, 2003:4).

Once the impacts have been identified it would be necessary to compare them, e.g. by developing a causal model of impacts, shortly describing each impact in a table (N° ¦ Cause ¦ Effect ¦ Likelihood ¦ Intensity) or/and developing an impact matrix (European Commission, 2006:28–36), and to judge the tolerability and acceptability of the impacts (Renn, 2005).

2.3 Health in environmental assessments (EA)

EA is the most widespread approach to analysing the ways in which new plans, programmes and projects might affect the environment, which can include social and health effects. EA is the umbrella term for processes carried out at all levels of policy-making: while EIA are usually carried out at a project level, SEA are carried out at policy, plan and programme level (Gibson et al., 2013a&b). EA is the only approach for which national legislation and guidelines exist in almost all countries worldwide (Morgan, 2012).

Even though effects on human population are in theory included into the EA issues to be considered during the assessment, the practice is lacking, and guidelines for the integration of health and well-being issues into EA are not established. In fact there seems to be a consistent lack of either a systematic or a full coverage of human health and well-being; a gap identified in high- as well as in low- to middle-income countries e.g. across the EU, in Australia, Brazil, Ghana, Nigeria and the United States (Harris-Roxas et al., 2012; Hilding-Rydevik et al., 2005; Gibson et al., 2013a&b).

2.3.1 Health within environmental impact assessment (EIA)

EIA can be defined as “a systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects” (UNEP, 2002).

Ideally the EIA process is integrated into the project design process elsewise it should be applied prior to major decisions and commitments being made (Pettit, 2012).
The first legislation requiring the consideration of environmental impacts of proposed actions was the United States National Environmental Policy Act of 1969. In the European context, the EU EIA Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (European Union, 1985) is concerned with improving the quality of the environment and protecting human health; the effects of a project on the environment must be assessed in order to take account of concerns to protect human health, to contribute by means of a better environment to the quality of life, to ensure maintenance of the diversity of species and to maintain the reproductive capacity of the ecosystem as a basic resource for life.

Human health per se is not explicitly mentioned but Art. 3 or the Directive regulates that an EIA shall identify, describe and assess the direct and indirect effects firstly on human beings, followed by fauna and flora among others. Furthermore Art. 5 refers to the information that has to be provided according to Annex IV, which also includes effects on the population (European Union, 1997):

A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

Nonetheless, human health is rarely covered explicitly or with input from health professionals; instead it is considered to be covered by the analysis for biophysical factors such as air, noise and water. Hence, EIA could take a more systematic view and use a more inclusive model of health (Hilding-Rydevik, 2005). In addition EIA often misses cumulative and synergistic outputs, rarely addresses social issues, and it almost never considers both together (Harris & Spickett, 2010).

### 2.3.2 Health within strategic impact assessment (SEA)

Even though EIAs aim at entering early in the decision-making process, they often entered into the decision-making process when the major decisions at the planning or policy level had normally already been taken. Hence, the influence of project EIA was often found to be limited. In this regard SEA aims to ensure that environmental considerations are taken into account early in the decision-making process to be able to influence the process before strategic decisions are taken and to inform higher levels of decision-making (João, 2005; Sadler, 2011; Fundingsland Tetlow & Hanusch, 2012).

Within the WHO European Region, the legal provisions of the EU and the UNECE have a major impact on the practice of SEA throughout the region: the EU SEA Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment entered into force in 2004 in all EU Member States (European Union, 2001). It is based on the EU EIA Directive 85/337/EEC which provides a framework for the assessment of the environmental effects of certain public and private projects which are likely to have significant effects on the environment. It aims:

- to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.

The plans and programmes which should be subject to SEA are those:

- which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use; and
- which set the framework for future development consent of projects listed in Appendixes I and II of the EIA Directive (85/337/EEC); or
• which have been determined to require an assessment pursuant to Article 6 or 7 of the Habitat Directive 92/43/EEC (European Union, 1992).

The EU SEA Directive requires that the information provided in the environmental report are the likely significant effects of plans and programmes on the environment, including on issues such as: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape, and the interrelationship between the above factors (Art. 5 and Annex I(f) SEA Directive, European Union, 2001).

Whereas the EU SEA Directive does not apply to policies, in other jurisdictions SEA can be applied at policy level. In this regard the Protocol on Strategic Environmental Assessment to the UNECE Convention on EIA in a Transboundary Context, the so-called UNECE Protocol on SEA includes the application of SEA at the preparation of policies and legislation proposals “that are likely to have significant effects on the environment including health” (UNECE, 2003).

While human health is explicitly named as one of the topics to be assessed under the regulation of the SEA Directive, the UNECE Protocol on SEA goes further than the SEA Directive, as it constantly underlines the consideration of environmental effects including health effects and requires consultation with environmental and health authorities (Art. 9). Otherwise the UNECE Protocol on SEA follows closely the provisions of the EU SEA Directive and its Parties shall ensure that environmental, including health, concerns are considered and integrated to the extent appropriate in the preparation of its proposals for policies and legislation that are likely to have significant effects on the environment, including health (Art. 13, UNECE, 2003).

In addition SEA was recognized in the declarations of the European Ministerial Conferences on Environment and Health held in Budapest in 2004, and in Parma in 2010, calling for the WHO European Member States to “take significant health effects into account in the assessment of strategic proposals” (WHO Regional Office for Europe, 2004), and to use health, environment and strategic IAs to integrate the needs of children into the planning and design of settlements, housing, health care institutions, mobility plans and transport infrastructure (WHO Regional Office for Europe, 2010b).

SEA has a long term perspective and provides a relatively early opportunity to consider and address potential effects on human health. If it is overlooked during these early stages it is likely to be harder to raise health issues at later stages. Hence, health in SEA is of great importance and is also supported by legislation (Gibson et al., 2013a&b).
3 Gaps identified for a better consideration of health in IAs

The use of and knowledge on HIA between as well as in countries varies significantly (Kemm, 2013). HIA has the capacity not only to identify negative outcomes but also positive outcomes, such as improved benefit derived from new sources of employment, protection of drinking-water sources, greater access to outdoor play areas, etc. If used at the correct point in the process it can assist decision-makers at strategic level or at project level (Gibson et al., 2013a&b). Based on the different project activities\(^1\), common issues in relation to an enhanced analysis of EH interactions through the implementation of HIA and further integration of health into EAs in WHO eastern European Member States can be described as follows.

3.1 Legal requirements and responsibility

One of the main drivers for HIA or an enhanced integration of health into EAs to happen on regular basis is its introduction and/or specification in current laws and regulations. As described above, in most countries of the WHO European Region there is a legal obligation to conduct EIA and SEA, e.g. based on the EU EIA/SEA Directives or the UNECE Protocol on SEA, whereas only in a few countries an explicit statutory requirement exists to conduct standalone HIA. If there is political support for the implementation of HIA and/or the further integration of health into EAs a review of existing laws and regulations to determine which legal drivers can be used is needed.

Based on this the development of a protocol for the delivery of health input to EAs and/or standalone HIA is needed. In this regard the organization which should oversee the mechanisms to require health input to EA and/or standalone HIA or to commission it needs to be identified (Gibson et al., 2013a&b).

3.2 Communication

There is no doubt that a lot of knowledge, practical experiences and skills on environment issues and on environmental health issues exist within environment and health authorities, nonetheless there seems to be a lack in communication between the different authorities. Human health is a core requirement of the EU SEA Directive and also the EU EIA Directive is concerned with protecting human health. Nonetheless environmental authorities are usually not aware of the data collected by health authorities, how this data can relate to their (forecast of) environmental data and how the data can be used within EAs; while vice versa health authorities are often not aware of EA processes, the data collected by environmental authorities and how this data can be used for HIA and enhanced protection of health. For example, environmental data like air emissions modelling, water quality data, impact on climate change, flood data can be used to inform HIA (Gibson et al., 2013a&b).

Health input to EA and/or standalone HIA should be a cross-sectoral activity, as it not only requires a range of technical expertise but also communication and advocacy skills. In addition to political support needed for a better integration of health in EA or HIA implementation, communication channels need to be identified and applied at different levels: within departments, across ministries, to the public, inwards from the public, and in both directions with the media (Gibson et al., 2013a&b).

Special attention should be paid to the communication with the population concerned and here especially to disadvantaged population groups and/or minorities: disadvantaged people are often

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\(^1\) Two preparatory workshops for the main capacity building in EH event in Tallinn, Estonia and Budapest, Hungary; the main international capacity building in EH event in Riga, Latvia; and the two follow-up workshops in Tallinn, Estonia and Ljubljana, Slovenia.
the ones who are unlikely to be heard in the process, as they usually lack mechanism to engage with consultation processes, especially if this is done by use of the written word (Gibson et al., 2013a&b). Hence, a communication strategy needs to include consultation mechanism with disadvantaged population groups concerned by the policy, program, plan or project.

Besides defining communication channels between the different sectors, an expert network within ministries and links with international networks of practitioners can provide useful information and discussion fora (Gibson et al., 2013a).

### 3.3 Guidelines and training

There is normally a training system in place for environmental auditors or EIA/SEA assessors, often combined with licensing obligations, but only few countries offer systematic training on HIA. However, if there is training provided, EIA/SEA trainings usually do not include a health component nor do HIA trainings include specific environmental components. The same is true for guidelines on SEA/EIA as well as on HIA (Nowacki & Fehr, 2011).

To ensure a base-level of HIA knowledge, efforts should be placed on delivering the HIA training across environment, health and other sectors, not only at national level but if possible also at regional and municipality level. Various HIA training programmes and HIA guidelines have been developed, which would need to be adapted to the country specific needs and its legal system. Besides the development of a generic HIA training program and guidelines, also training programs specific to a particular sector such as housing, transportation, or land-use could be developed (Gulis et al., 2012).

In addition, a module on human health should be included in the EIA/SEA training; especially if a licensing scheme for EIA/SEA ‘experts’ is in place, a health module should become obligatory prior to licensing. As HIA is a cross-sectoral approach, training should involve different sectors e.g. public health, planning and environmental scientists. Besides trainings for governmental agencies, the inclusion of HIA and health in EA should be covered in university curricula (Gibson et al., 2013a&b).

In countries with a licensing system in place it could be useful to develop standards for HIA ‘experts’ licensing scheme, backed up by continuing professional development, e.g. through a mentoring programme (Gibson et al., 2013a).

In general within health authorities there is a need to have greater understanding regarding EIA and SEA, and within environmental authorities there is a need to have greater understanding regarding how sound decision-making can be underpinned either by enhanced consideration of health and the involvement of health experts into EAs or through standalone HIAs (Gibson et al., 2013a&b).
4 A framework for using IA in EH

Not many countries have implemented HIA on a regular basis (Kemm, 2013); however interest in it is rising and most countries in Europe have implemented some form of EA in their legislation. This provides a good basis for developing a framework that can support countries through the process of implementing HIA as standalone practice, and/or through further integration of health into EA. The key steps, the review exercises to undertake and the main questions to address are part of this framework and presented below, but inevitably all steps will need to be adjusted and adapted to the national own legal, policy or administrative arrangements and requirements. Aim of the framework is a better integration of the environment and health domains, and an enhanced capacity deal with EH priority challenges, with the ultimate objective of a better population health.

When considering HIA implementation it should be noted that standalone HIA not only has a long and strong historical tradition in environmental health, at least in some countries, but also has emerged from two further well-established fields: social determinants of health and health equity (Harris-Roxas & Harris, 2010).

In the light of this, the major steps towards an effective and sustainable use of IA in EH, at national or sub-national level, include:

1) Identification and review of legal and policy frameworks on EA and HIA
   a) Is there a legal provision for EAs?
   b) If yes, is health considered to be part of the EIA/SEA assessment according to the regulation?
      • If no, convene an expert consultation process on the application of EIA/SEA to identify entry points for health in the process.
   c) If no, are there plans to implement EIA/SEA in the country?
      ♦ If no, convene a consultation process to implement EIA/SEA including health in environmental and public health legislation or policy.
   d) Is there political support for further integration of health into EIA/SEA?
      • If no, convene a consultation process to include HIA and health in EA in public health and environmental legislation and policy.
   e) Is there political support and a decision to implement HIA?
      • If no, describe the key factors about the decision not to implement HIA and review in two to three years time or if applicable convene a consultation process to include HIA and health in EA in public health and environmental legislation and policy.
      • If yes, document the decision to implement HIA including which agency will lead it, where the resources will come from, and who has responsibility for leading the development of a national HIA plan – move on to 2).

2) Convene an expert consultation process on the further integration of health into EAs and HIA implementation at the national and municipal level to analyse current praxis and identify gaps in communication, knowledge, data collection etc.

3) Establish a joint working group on HIA and health in EA to define the next steps to be taken, assign responsibilities and a possible time frame.

4) Develop a communication strategy in order to strengthen political and administrative support within the ministries as well as with the public.

5) Develop a plan for enhanced integration of health into EAs and standalone HIA implementation at the national and municipal level.
   a) Health input and oversight is important in all stages of the assessment. This applies to strategic assessments and to project level assessments.
   b) The early stages in the process are important as screening establishes whether health input is required and scoping establishes the parameters of the assessment and who should be involved. This will also be beneficial for the latter stages: appraisal, feedback and monitoring evaluation (Gibson et al., 2013a&b).
6) Develop a training program for health in EAs and standalone HIA.
7) Monitor and evaluate the national health in EA and HIA plan two to three years after its implementation, including recommendations for future implementation.

Fig. 2: Flowchart – Framework for EH interaction analysis through HIA and health in EA for countries not having HIA implemented at country level

1a) Is there a legal provision on EIA and/or SEA in the country?
   - yes
   - no

1b) Is health considered to be part of the EIA/SEA assessment according to the regulation?
   - yes
   - no

1c) Are there plans to implement EIA/SEA in the country?
   - yes
   - no

1d) Is there political support for further integration of health into EIA/SEA?
   - yes
   - no

1e) Are there plans to implement HIA in the country?
   - yes
   - no

2) Convene an expert consultation process on the further integration of health into environmental assessments and HIA implementation at the national and municipal level.

A. Review current environmental and public health legislation and identify key entry points for HIA and the inclusion of health into EA.
B. Organize joint workshops with health and environmental experts from respective authorities and interested parties (like universities, private national EA/HIA consultants) to develop a protocol for the delivery of health input to EAs and/or standalone HIA; ideal would be two (external) facilitators – one expert on HIA and one expert on EA, each with knowledge of and experience in the other field.
   - Review current EA praxis through real case studies in regard to the assessment of health aspects and the inclusion of health experts; define possible gaps and key entry points.
   - Identify the organization which should oversee the mechanisms to require health input to EA and/or standalone HIA or to commission it.
   - Review current communication strategy within departments and between ministries in regard to what is communicated, by whom, to whom, when, how, who is responsible for responses, within which timeframe.
   - Identify data collected and used by environmental authorities for EAs and data collected by health authorities that could be used for further analysis in EAs and for standalone HIAs; identify gaps in data already collected, access restrictions and access possibilities.
   - Identify knowledge gaps on IA process and tools used in the process, e.g. in linking environmental data to health outcomes, usage of GIS data, risk assessment for small scale areas, environmental burden of disease.
   - Identify already existing trainings on EIA/SEA/HIA in the country and training opportunities.

3) Establish a joint working group on HIA and health in EA to define the next steps to be taken, assign responsibilities and a possible time frame.
<table>
<thead>
<tr>
<th>4) Develop a communication strategy.</th>
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</thead>
<tbody>
<tr>
<td>Define what needs to be communicated, by who, to whom, when, how, who will receive the responses, and how will they be acted upon.</td>
</tr>
<tr>
<td>A. Internal communication</td>
</tr>
<tr>
<td>a) Improve understanding of EA and HIA in the ministries</td>
</tr>
<tr>
<td>• Describe the benefits that apply to health, environmental and other sectors.</td>
</tr>
<tr>
<td>• Develop key messages and tailored information about HIA and its benefits to environment, health and other sector audiences.</td>
</tr>
<tr>
<td>b) Is there strong leadership and an innovative culture in the agencies implementing HIA?</td>
</tr>
<tr>
<td>• If no, identify ways to develop EA and HIA leaders or champions at different levels within an organization.</td>
</tr>
<tr>
<td>• If yes, develop a plan to raise awareness about the benefits of health in EA and standalone HIA with organizational leaders.</td>
</tr>
<tr>
<td>c) Improve understanding of the role of the other ministries, e.g. through the establishment of a joint working group and regular consultation meetings.</td>
</tr>
<tr>
<td>• Develop protocols for communicating between ministries and ensure that these function during an emergency.</td>
</tr>
<tr>
<td>• Audit relevant processes, and establish common terminology.</td>
</tr>
<tr>
<td>• Develop an online glossary of acronyms and technical terms.</td>
</tr>
<tr>
<td>• Develop protocols for requesting and for sharing information between ministries.</td>
</tr>
<tr>
<td>• Establish a national experts network within and between the ministries.</td>
</tr>
<tr>
<td>B. Communication with the public</td>
</tr>
<tr>
<td>a) Develop protocols for communicating with the public, e.g.</td>
</tr>
<tr>
<td>• on the objectives of the HIA/EIA/SEA process in general,</td>
</tr>
<tr>
<td>• the public consultation process,</td>
</tr>
<tr>
<td>• the integration of disadvantaged population groups in the process, and</td>
</tr>
<tr>
<td>• the communication of the HIA/EIA/SEA results and on the final decision taken.</td>
</tr>
<tr>
<td>b) Develop protocols for communicating with the public in the event of an emergency.</td>
</tr>
<tr>
<td>C. Establish links with international networks of IA practitioners.</td>
</tr>
<tr>
<td>5) Develop a plan for enhanced integration of health into environmental assessments and for standalone HIA implementation at the national and municipal level.</td>
</tr>
<tr>
<td>A. Establish a national or transboundary HIA support unit.</td>
</tr>
<tr>
<td>B. Define overall responsibilities for HIA implementation at the national and municipal levels.</td>
</tr>
<tr>
<td>C. Define task of ministries and clarify how departments will be reimbursed for activities such as commissioning of analyses, etc.</td>
</tr>
<tr>
<td>D. Allocate financial resources to HIA implementation.</td>
</tr>
<tr>
<td>E. Develop national guidance on the stages of HIA including the development of a screening tool. There is a wide range of guidance documents and resources for HIA (see Annex 1 and Annex 2) that would serve as useful starting points.</td>
</tr>
<tr>
<td>F. Define key entry points for health in EA (see Annex 3).</td>
</tr>
<tr>
<td>G. Develop national guidance on the inclusion of health into EAs including a guide on data available for the assessment and contact persons.</td>
</tr>
<tr>
<td>H. Define how HIA experts can demonstrate competence, e.g. through a licensing system:</td>
</tr>
<tr>
<td>a) Standards could consider: level of education; record of HIA training; and ability to carry out HIA, HIAs conducted.</td>
</tr>
<tr>
<td>b) If considering a licensing scheme it should be backed up by continuing professional development, e.g. through a mentoring programme.</td>
</tr>
<tr>
<td>I. Develop a monitoring and evaluation framework for the execution of HIA.</td>
</tr>
<tr>
<td>a) Establish ways to quality assure health input to EA and/or standalone HIA.</td>
</tr>
</tbody>
</table>
b) Define standards for health in EA (SEA and EIA) and for standalone HIA.

J. Develop a monitoring and evaluation framework on HIA implementation at national and municipality level.

6) Develop a training program for standalone HIA and health in environmental assessments.

A. Define the training aims.
B. Identify options for continuous training instead of a single event.
C. Identify trainers/institutions capable to deliver training on health in EA and standalone HIA.
D. Define target group(s). Advisable are joint trainings of EH experts to develop a common understanding of the processes. If more specific trainings are needed, for e.g. on specific tools for risk assessments, separate groups might be better.
E. Identify HIA trainings already available, review its content and applicability to the country and to the main training objective.
F. Identify gaps in knowledge and practice that may limit implementation of health in EA and standalone HIA.
G. Identify capacity and capabilities needs to undertake the risk assessment stage of the HIA process.
H. Define learning objective and expected outcome of the training:
   a) What should participants have learned at the end of the training?
   b) Should there be a final exam?
I. Define the time frame for the training – crash course, weekly sessions, etc. The time frame will heavily depend on the target group and the training objectives, e.g. an introductory course for policy- and decision-makers will have fewer hours than a course for future HIA practitioners.
J. Develop the training methods and materials, including real case studies, practical exercises, recommended readings etc.
K. Identify required resources for the training, person time for preparation, delivery and training evaluation, training venue, materials need etc.
L. Implement a ‘learning by doing’ approach to HIA pilots and development, e.g. through joint projects with EH experts as these would provide an excellent opportunity to develop capacity in health input to EA and/or HIA.
M. Develop quality standards for the training.
   a) If needed offer training for trainers.

7) Monitor and evaluate the national health in environmental assessment and HIA plan two to three years after its implementation, including recommendations for future implementation.

A. Analyse gaps in implementation.
B. Is there still political support for health in EA and HIA implementation?
C. If no, develop a plan to raise awareness about the benefits of health in EA and standalone HIA with decision-makers and organizational leaders.
D. If yes, define next steps for further implementation.

Source: Based on Gulis et al. (2012) and Gibson et al. (2013a&b).
5 References


Annex 1 – Additional resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Association for Impact Assessment (IAIA)</td>
<td><a href="http://www.iaia.org">www.iaia.org</a></td>
</tr>
<tr>
<td>HIA at WHO</td>
<td><a href="http://www.who.int/hia/about/en">www.who.int/hia/about/en</a></td>
</tr>
<tr>
<td>HIA group on Linked-In</td>
<td><a href="http://linkd.in/12iCKO2">http://linkd.in/12iCKO2</a></td>
</tr>
</tbody>
</table>

Resources for quality standards in HIAs:


Source: Gibson et al. (2013a&b).
### Annex 2 – Examples of HIA guidelines

This list does not claim to be exhaustive nor does it include a quality assessment of the guidelines.

<table>
<thead>
<tr>
<th>Country</th>
<th>Author/ Editor</th>
<th>Editor</th>
<th>Year</th>
<th>Title</th>
<th>Institution/ City/ Edition</th>
<th>Link</th>
</tr>
</thead>
</table>
## Annex 3 – SEA stages and key health entry points

<table>
<thead>
<tr>
<th>SEA stage</th>
<th>Key health entry points</th>
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<tbody>
<tr>
<td><strong>Screening</strong>: to decide if SEA is needed, e.g. based on a legal requirement; to determine whether the proposal will have any significant environmental effects; and/or to help define aims and objectives of the proposal.</td>
<td>Health considerations should be included as part of the screening process, e.g. through active involvement of health impact assessment experts, inclusion of health criteria in screening tools, etc.</td>
</tr>
<tr>
<td><strong>Scoping</strong>: to determine the terms of reference, including the geographic, temporal and thematic extent, the level of detail of the assessment and necessary information to be included, a first identification of environmental problems, identification of alternatives, methods and techniques for the assessment, define potential stakeholders and ‘affected parties’, establish the consultation and participation procedure, management arrangements.</td>
<td>Health must be adequately covered in the terms of reference, including in relation to the role and competencies of experts that will conduct the health related assessment activities.</td>
</tr>
<tr>
<td><strong>Assessment and reporting</strong>: conduct the analysis to establish the significant environmental impacts, ensuring that the results are state-of the-art and as reliable as possible, using different methods and techniques. All to be documented in an environmental report including alternatives and recommendations.</td>
<td>Need to ensure quality and comprehensiveness of health related assessment, including stakeholder engagement activities, disclosure of information, assessment methodologies used, credibility of baseline, appropriateness of recommendations, etc.</td>
</tr>
<tr>
<td><strong>Consultation and participation</strong>: testing the completeness, validity and reliability of the relevant information; identifying and mitigating conflicts; taking into account the needs to the concerned public; facilitating a better understanding between different players; enhancing the acceptance of the policy, plan and programme and enhancing transparency</td>
<td>Need to ensure that health sector actors and advocates are actively engaged in the policy, plan and programme process.</td>
</tr>
<tr>
<td><strong>Decision-making</strong>: weighing the findings against each other, justification how a decision was reached and what information was used.</td>
<td>Are health sector actors playing a meaningful role in these deliberations? In other words, actively engaged in decision-making activities.</td>
</tr>
<tr>
<td><strong>Monitoring and evaluation</strong>: follow-up of the SEA regarding the observation and measurement of predefined environmental indicators and effects but also of the SEA process itself.</td>
<td>Health indicators are used for monitoring. They can also be used to help measure the overall impact and performance of the SEA. For example, many environmental issues will result in health problems, many of which have clear attributable risks, e.g. poor air quality/respiratory disorder. Health indicators could provide an opportunity to link SEAs performance to wider development objectives, e.g. Millennium Development Goals (MDG) related environmental and health indicators (those clearly attributed to environmental risk factors, e.g. water and sanitation).</td>
</tr>
</tbody>
</table>

*Source: Nowacki et al. (2010).*
More and more, countries are faced with the challenge of addressing the burden of disease arising from environmental exposures. Capacity building in environment and health has been recognized as a critical need among Member States of the WHO European Region, and the European Union. To address this need the WHO European Centre for Environment and Health is assisting WHO Member States to use health impact assessment (HIA) and health in environmental assessments (EA) like environmental impact assessments (EIA) and strategic environmental assessments (SEA).

In order to further reduce citizens’ environmental health burden of disease and tackle environmental health inequities, a framework for the analysis of environment and health interactions through environmental and health impact assessments is presented in this report. Key stakeholders such as practitioners in public health and environmental agencies at various levels participate in a joint workshop to analyse impact assessments of selected projects, plans, programmes or policies outside the health sector and to place them in the context of other major families of health determinants, such as lifestyle, socioeconomic factors, health care etc. Gaps in capacity and knowledge are discussed as well as how existing environment and health data resources in the country can be used for impact assessment. Based on the analysis and discussions a country specific action plan is developed for enhanced integration of health in environmental assessments and the implementation of standalone HIA if desired.