



World Health
Organization

REGIONAL OFFICE FOR
Europe



Health in Impact Assessments

Opportunities not to be missed



World Health
Organization

REGIONAL OFFICE FOR
Europe





Health in Impact Assessments

Opportunities not to be missed

Edited by Rainer Fehr, Francesca Viliani, Julia Nowacki and Marco Martuzzi

Abstract

Prospective impact assessment is a consolidated approach for pursuing foresight in policy and decision-making, systematically deployed worldwide. There is consensus that, even in well developed impact assessments, human health is not always covered adequately. Partly as a response, health impact assessment (HIA) has emerged and has been applied in several countries in Europe and beyond. Opinions about the merits of HIA separate from other forms of impact assessment differ. This publication aims to provide a detailed and balanced view on “health in impact assessments”. Five key types of impact assessment, namely environmental impact assessment, strategic environmental assessment, social impact assessment, sustainability assessment, and HIA are presented, and four key questions are discussed: How can the various assessments contribute to promoting and protecting human health? How can further integration of health support the various forms of impact assessments? What forms of integration seem advisable? What priorities for further development? This analysis suggests that the potential of impact assessments to protect and promote health is underutilized, and represents a missed opportunity. Ways need to be found to exploit the potential to a fuller extent.

Keywords

ENVIRONMENT AND PUBLIC HEALTH
HEALTH, ENVIRONMENTAL
HEALTH IMPACT ASSESSMENT
HEALTH POLICY
PUBLIC HEALTH
SOCIAL DETERMINANTS OF HEALTH

Address requests about publications of the WHO Regional Office for Europe to:

Publications

WHO Regional Office for Europe

UN City, Marmorvej 51

DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (<http://www.euro.who.int/pubrequest>).

Citation Advice

Fehr R, Viliani F, Nowacki J, Martuzzi M, editors (2014). Health in Impact Assessments: Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe.

© World Health Organization 2014

All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by either the World Health Organization, the International Association for Impact Assessment or the European Public Health Association in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization, the International Association for Impact Assessment or the European Public Health Association.

Contents

Authors and contributions	vii
Foreword	viii
Executive Summary	ix
Introduction	1
<i>References</i>	9
Health in EIA in Estonia, Norway and Sweden	11
By Charlotta Faith-Ell, Heikki Kalle and Martin Lund-Iversen	11
<i>Summary</i>	11
Introduction	11
Background to EIA and SEA	12
The inclusion of health in impact assessment in Estonia, Norway and Sweden	14
Discussion and conclusion	18
<i>References</i>	20
Health in SEA	23
By Thomas B Fischer	23
<i>Summary</i>	23
Introduction	23
SEA – an evolving concept	26
Health in SEA: current requirements and conceptual thinking	31
Empirical evidence for the consideration of health in SEA	36
Conclusions	39
<i>References</i>	41
Sustainability assessment and health	47
By Alan Bond and Jenny Pope	47
<i>Summary</i>	47
Conceptual basis for sustainability assessment and its incorporation of health	48
Health and Sustainability Appraisal in England	51
Health and sustainability assessment in Australia	55
Existing ties with other impact assessment processes	62
Outlook	64
<i>References</i>	64
Health in SIA	69
By Lea den Broeder and Frank Vanclay	69
<i>Summary</i>	69
Introduction to SIA	70
The place of health in SIA	73

Human impact assessment	74
The inclusion of health in SIA guidelines and standards	75
The inclusion of health in actual SIA studies	79
Discussion: the place of health in SIA	83
Conclusion and future prospects	84
<i>References</i>	86
Health impact assessment	89
By Monica O'Mullane and Gabriel Guliš	89
<i>Summary</i>	89
Origins of HIA	89
HIA rationale	91
Methods and practice	93
Existing ties with other forms of impact assessments	98
The way forward	101
<i>References</i>	102
Enhancing health in impact assessments	111
General observations	111
Conclusions	112
Epilogue	118
<i>References</i>	119
Annex	121
Institutional context and chronology	123
Contributors	128
Contact	133

List of boxes

Box 1. Key questions concerning health in impact assessments	8
Box 2. Key elements of the EIA process	13
Box 3. SEA for systematically improving the consideration of health in PPP making	25
Box 4. EIA based SEA process	27
Box 5. Aspects for effective SEA application	29
Box 6. Aspects to be considered for choosing suitable methods and techniques	31
Box 7: Activities to be undertaken in the course of doing an SIA	72
Box 8: Dimensions of social impacts	74
Box 9. Key information sources on HIA	98

List of figures

Fig. 1. The main determinants of health	2
Fig. 2. The format of SEA as determined by contextual factors	32
Fig. 3. Approaching the consideration of health determinants in SEA: a conceptual model	35

List of tables

Table 1: Specific reference to health and well-being in English sustainability appraisal guidance.	52
Table 2: Scope of health in planning policies and ability of land-use planning to influence health determinants as perceived by planners in the East of England.	53
Table 3: Impact assessment summary for human health	61
Table 4: Assessment of the status of health in some indicative social impact guidelines	75
Table 5: Assessment of the status of health in some indicative SIA reports	80
Table 6. Stages of HIA within the process of decision-making and implementation	94
Table 7. HIA in EU countries	95
Table 8. Information HIA can add to an EIA	99

List of abbreviations

CBA	cost–benefit analysis
CEHAPE	Children’s Environment and Health Action Plan for Europe
CSDH	WHO Commission on Social Determinants of Health
EC	European Commission
EIA	environmental impact assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
EU	European Union
EUPHA	European Public Health Association
FPIC	free, prior and informed consent
HIA	health impact assessment
IAIA	International Association for Impact Assessment
IBA	Impacts and Benefits Agreement
ICMM	International Council on Minerals and Metals
IFC	International Finance Corporation
IPAS	Integrated Project Approvals System
IPIECA	International Petroleum Industry Environmental Conservation Association
LNG	Liquefied Natural Gas
MCA	multicriteria analysis
NEHAPs	National Environmental Health Action Plans
NEPA	United States National Environmental Policy Act
NIBR	Norwegian Institute for Urban and Regional Research
OECD	Organisation for Economic Co-operation and Development
OECD-DAC	OECD Development Co-operation Directorate
PBA	Planning and Building Act
PEA	programmatic environmental assessments
PPP	policies, plans and programmes
SEA	strategic environmental assessment
SIA	social impact assessment
SIMP	Social Impact Management Plan
UNECE	United Nations Economic Commission for Europe
WCED	World Commission on Environment and Development

Authors and contributions

This publication was produced as a result of ongoing collaboration on health impact assessment between the European Centre for Environment and Health of the WHO Regional Office for Europe, the International Association for Impact Assessment (IAIA) and the European Public Health Association (EUPHA). It was edited and co-authored by Rainer Fehr (Faculty of Public Health, University of Bielefeld, Germany and former vice president of EUPHA's health impact assessment section), Francesca Viliani (International SOS, Copenhagen, Denmark and former co-chair of IAIA health section), Julia Nowacki and Marco Martuzzi (both WHO European Centre for Environment and Health, Bonn, Germany and members of IAIA).

The following authors provided their technical expertise on different forms of impact assessment and contributed through five dedicated chapters:

- Heikke Kalle (Hendrikson & Ko Ltd, Estonia), Charlotta Faith-Ell (Estonian Environmental Institute, Estonia) and Martin Lund-Iversen (Norwegian University of Life Sciences, Norway) for their chapter on health in environmental impact assessment in northern Europe;
- Thomas B. Fischer (University of Liverpool, United Kingdom) for his chapter on health in strategic environmental assessment;
- Alan Bond (University of East Anglia, United Kingdom) and Jenny Pope (Integral Sustainability, Australia) for their chapter on sustainability assessment and health;
- Lea den Broeder (National Institute for Public Health and the Environment, Netherlands) and Frank Vanclay (University of Groning, Netherlands) for their chapter on health in social impact assessment; and
- Monica O'Mullane (Trnava University, Slovakia) and Gabriel Guliš (University of Southern Denmark, Denmark) for their chapter on health impact assessment.

The editors would also like to thank the following persons for reviewing and contributing to this document:

- Piedad Martin Olmedo (Andalusian School of Public Health, Spain), and
- Salim Vohra (Public Health by Design, United Kingdom).

Bianca Bortot and Michael Sellitto, WHO Regional Office for Europe, contributed to informal copy-editing and proofreading.

Foreword

In a rapidly changing world, good “foresight” is needed. Both at local and global level, societal decisions can have far-reaching consequences, for good and bad, including on people’s health and well-being. Prospective impact assessment is a key approach to predict, anticipate and steer the implications of projects, plans and policies. While the basic idea dates back to ancient times, more formalized procedures emerged about 45 years ago, and by now have spread around the world.

Impact assessments, however, are interpreted and implemented in various ways. In the view of many, human health and well-being are among the most important “goods” to be protected and promoted. How well, then, is health covered in impact assessments? Many would say not well enough – there is room for improvement.

This publication contributes to this debate by taking a close look into the details.

What we try to provide here, together with a group of knowledgeable authors, is a detailed and balanced view on health in impact assessment. This publication builds on an initiative of a “family of health-related impact assessments” and was prepared in cooperation with IAIA, EUPHA, and the WHO Regional Office for Europe.

This book looks into the question of whether and how health is taken care of in impact assessments. We need to warn readers that, in this field, univocal and conclusive answers are elusive. However, we trust that the suggestions for the way forward may be useful, and will stimulate further discussion on impacts and foresight, for the benefit of human health and well-being.

Rainer Fehr

Francesca Viliani

Julia Nowacki

Marco Martuzzi

Executive Summary

Prospective impact assessment is a consolidated approach to estimate and anticipate the consequences of policies, plans, programmes and projects. It is a key resource for achieving foresight in societal decision-making, systematically deployed worldwide. Impacts on humans, including on human health, have been an issue from the beginning of impact assessments.

A large fraction of ill health is caused by recognized and avoidable factors; and much of this is determined by factors outside the control of the health sector. Hence, health can be seen as being “produced” as well as “damaged” or even “destroyed” by multiple societal sectors. It is an obvious conclusion that health should be considered adequately by all sectoral policies, plans, programs, and projects.

However, human health is often not covered adequately in impact assessments; when the focus is on environmental factors, for example, human health is often only marginally considered. Perhaps as a response to this, health impact assessment (HIA) has emerged as a type of impact assessment revolving specifically around human health. However, opinions about the balancing of various dimensions in impact assessment differ. To further the discussion and to enhance the impact assessment of policies, plans, programmes and projects on human health, the WHO Regional Office for Europe, the International Association for Impact Assessment (IAIA), and the European Public Health Association (EUPHA) jointly reviewed principles and practice in impact assessments to address the following questions:

- How can the various assessments contribute to promoting and protecting human health?
- How can further integration of health support other forms of impact assessments?
- What experiences can be shared across the various impact assessment types?
- What forms and levels of integration seem advisable?
- What should be seen as priorities for further development?

This book considers five types of impact assessment of key relevance for health: environmental impact assessment (EIA), strategic environmental assessment (SEA), social impact assessment (SIA), sustainability assessment, and HIA. Impact assessment experts outline the specific origins and dynamics of these assessments; analyse how health issues are covered; and give some perspectives on future developments.

The principles, theory and practice of different forms of impact assessment, and their full or partial inclusion or exclusion of human health differ widely but the basic attitude of impact assessors towards health is consistent: human health is widely accepted as a crucial component of the *overall impact*, and the integration of health is expected to be in line with stakeholders’ and the public’s expectations.

Current practice indicates that, in EIA, the focus is on issues of environmental health, but there is a recent tendency to broaden the perspective. A similar situation occurs in SEA, but with a more comprehensive coverage of health. In sustainability assessment, a wide range of health determinants are considered as falling into its remit. HIA, obviously, is fully devoted to human health.

All these forms of impact assessments seem to be evolving in the direction of a more comprehensive inclusion of human health. The contributions of the various impact assessments to protecting and promoting human health would benefit greatly from:

- consistent use of a clear conceptualization of health, including the physical, mental, and social dimension;
- access to reliable health data and information, including on proximate as well as distant health determinants;
- involvement of health experts from early stages, contributing substantive as well as methodological knowledge and experience; and
- awareness by all impact assessors as well as decision-makers on the interconnections of policies and projects with health.

The coverage of health in an impact assessment does not guarantee the improved consideration of health in decision-making, let alone improvements in the *real* world. However, comprehensive and meaningful inclusion of health in different forms of impact assessments can strengthen their relevance for interested communities and thus their acceptability and legitimacy. And indeed, explicit coverage of human health is increasingly demanded by the regulatory frameworks governing several impact assessments.

Taking into account the great variety of established and newly evolving forms of impact assessments, this diversity might lead to impact assessment “fatigue”, i.e., a perceived multiplicity of goals and duties for relevant authorities to carry out impact assessment, compounded by a potentially confusing vocabulary. The health sector, by crafting and promoting HIA, can be regarded as contributing to fragmentation. Given the considerable value of impact assessments from a societal perspective, this is a risk not to be taken lightly. If the objectives pursued via a separate HIA can successfully be integrated into other impact assessments, then typically such integration would be the way to go.

The success of impact assessment depends on comprehensive cooperation as well as broad societal understanding and acceptance of the rationale of impact assessment. In this respect, the role, goals, process and benefits of impact assessment should be better known also outside the impact assessment profession, for example, within public health, other professions, and civil society.

In summary, there is a need to ensure that the health consequences of proposed actions are predicted and understood in a reliable, transparent way, based on the available evidence. The health sector, the planning arena, and impact assessment institutions should jointly be involved in the development of research agendas, methodologies, and impact assessment capacity-building programs.

Integration of different forms of impact assessment requires careful weighing of pro’s and con’s. A prudent attitude suggests optimizing the coverage of health along three avenues: better consideration of health in existing impact assessments other than HIA, dedicated HIA, and integrated forms of impact assessment. In the future, integrated impact assessments may take on a larger role, and it may even become the norm.

Introduction

The basic idea of prospective impact assessment is the systematic application of foresight to human activities at a societal level. This is widely agreed upon as a necessary and useful approach. The history of explicit impact assessments started with the United States of America National Environmental Policy Act (NEPA) in 1969 which established environmental impact assessment (EIA) (US EPA, 1970). Over the span of nearly 45 years, such impact assessments have been applied successfully, and a whole EIA “culture” has been taking shape, including concepts, legal basis, practice, literature, actors, and ongoing debate (Morgan, 2012).

Also, a range of further impact assessment types has evolved, focusing on, for example, social issues, sustainability, economy and a host of other issues. Several forms of impact assessment such as social impact assessment (SIA) and health impact assessment (HIA) developed “cultures” of their own and are experiencing extensive global practice. This is also the case for more recent impact assessment forms like strategic environmental assessment (SEA) and sustainability assessment (Bond & Pope, 2012).

Impact assessments operate at the intersection of science and decision-making. They reflect a combination of intersectoral action and pro-active attitude, and contribute effectively to foresight efforts. Societal needs of “foresight”, and therefore impact assessments, are large, and growing.

The various forms of impact assessment share several areas of concern and face common challenges including the following:

- unwarranted predominance of economic priorities over environmental, social or health impacts;
- persistent difficulties with public participation and community engagements;
- poor coverage of equity, partially due to difficulty in assessing distributional issues;
- complexity of considering cumulative effects and alternatives;
- lack of career structures and opportunities in certain impact assessment fields, inducing scarcity of experts, for example, concerning health issues;
- transparency of the process and openness of reports;
- conflicts of interest and “clashes” of values, be it powerful vested interests or even genuinely different worldviews; and
- effectiveness of impact assessments.

Impact on humans, including on human health, has been an issue from the beginning of impact assessments. Health is universally seen as one of the highest-ranking societal values. Health is defined by WHO as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). Furthermore health is not only important in its own right, but has increasingly been recognized as a

Impact assessment is the systematic application of foresight to human activities on societal level

Impact assessments operate at the intersection of science and decision-making

Areas of common concern of the various forms of impact assessments

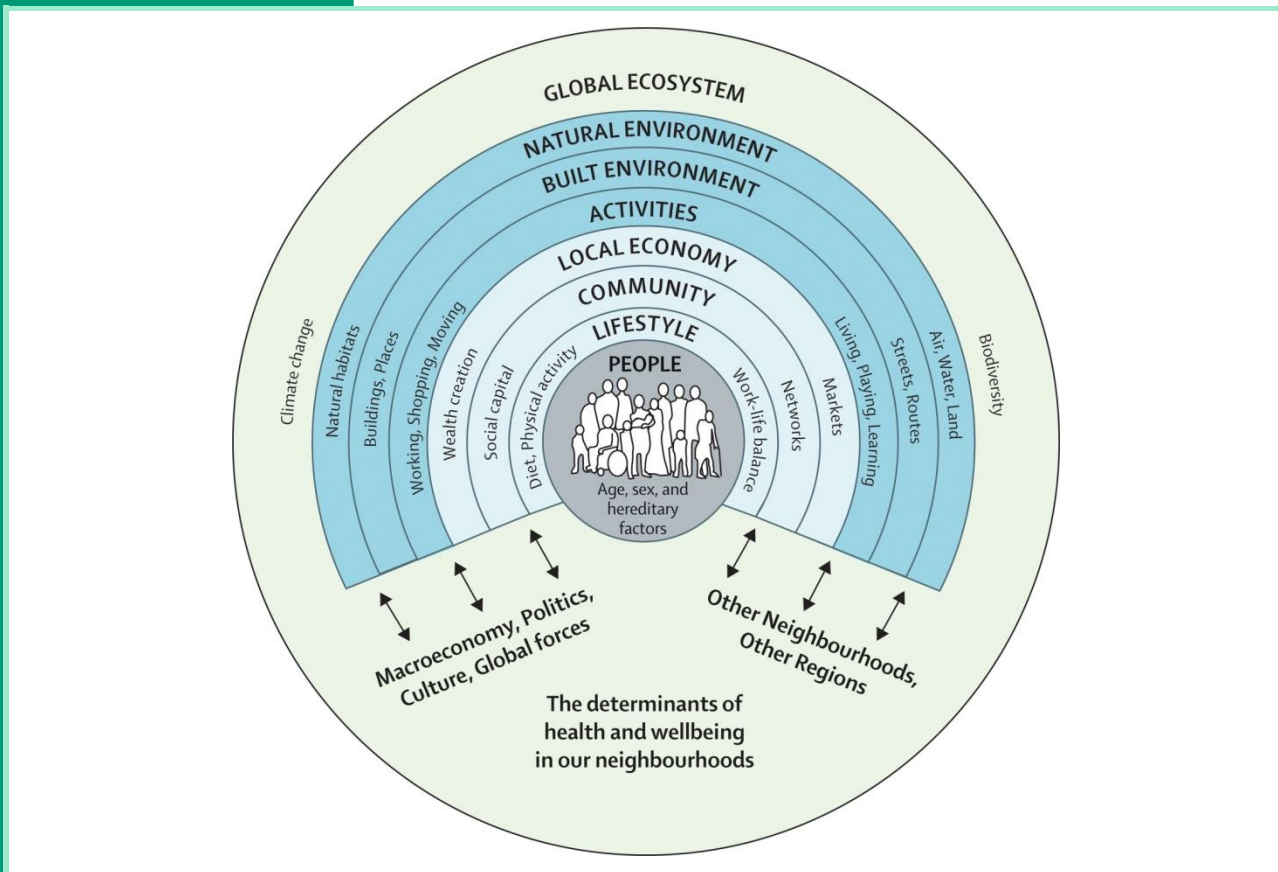
Impacts on humans have been an issue from the beginning of impact assessments

Health determinants are factors affecting individual and population health

prerequisite for economic development and political stability (WHO, 2001; Task Team, 2013).

Evidence and knowledge about what influences health and disease in populations have been accumulating for decades. Fig. 1 shows that many factors affect individual and population health. These *health determinants* include individual characteristics such as age and gender as well as lifestyle factors. Moving from the centre outwards, health determinants are increasingly influenced by policies, plans or programmes in numerous sectors, for example, the physical and social environment, transport, housing, employment, social support, crime and community safety and education as well as the health care system. The science and practice of public health aim at understanding how all these determinants influence human health and, on this basis, how to promote health and preventing disease.

Fig. 1. The main determinants of health



Source: Barton & Grant (©2006:252). Reprinted by permission of SAGE.

Social determinants of health refer to conditions in which people are born, grow, live, work and age health

In recent years, the *social determinants of health* have moved to centre stage. The term refers to the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health also shape health inequities — the unfair and

avoidable differences in health status seen within and between countries (WHO, 2014).

For humane, ethical and practical reasons, health protection and disease prevention are preferable to cure. In other words, whichever fraction of the burden of disease is avoidable should be avoided (*“primacy of prevention”*).

Although important aspects of health and disease are not completely understood, a large fraction of ill health (in terms of both morbidity and premature mortality) is caused by recognized and avoidable factors; and much of this fraction is determined by factors outside the control of the health sector (IHME et al., 2012). Health can be seen as being “produced” as well as “damaged” or even “destroyed” by multiple societal sectors. This is the basis for the Health in All Policies approach, nowadays a widely accepted notion (Ståhl et al., 2006).

Acknowledging that health determinants are largely influenced by societal drivers other than the health sector, it is an obvious consequence to advocate that health should be considered adequately by all sectoral policies, programs, and projects in order to secure health, minimize health risks, and maximize health opportunities. Impact assessment, conceived with the goal of exercising foresight, anticipating consequences of policies and plans, and managing the decision process, is therefore ideally suited to address the public health challenges. In other words: health is an essential element in any impact assessment approach.

The call for adequate coverage of health within impact assessments is strongly supported by WHO, calling in the Ottawa Charter for Health Promotion for “systematic assessment of the health impact of a rapidly changing environment – particularly in areas of technology, work, energy production and urbanization” (WHO, 1986) and issuing in Gothenburg in 1999 a consensus statement on HIA (WHO European Centre for Health Policy, 1999). Furthermore the WHO Regional Office for Europe’s Health 2020 policy framework aims to support governments in fostering intersectoral action to protect health through supporting action across government and society (WHO Regional office for Europe, 2013).

At the Fourth European Ministerial Conference on Environment and Health (Budapest, Hungary, 2004), the ministers of environment and the ministers of health committed themselves to implementing the Children’s Environment and Health Action Plan for Europe (CEHAPE) in their respective countries. They also adopted the Conference Declaration recalling the United Nations Economic Commission for Europe (UNECE) Protocol on SEA to the Convention on EIA in a Transboundary Context, that

acknowledges the benefits to the health and well-being of present and future generations that will follow if the need to protect and improve people’s health is taken into account as an integral part of SEA. (WHO Regional Office for Europe, 2004)

Health inequalities are unfair and avoidable differences in health status

Principle of primacy of prevention

Health is being produced as well as damaged or destroyed by multiple societal sectors

Health is an essential element of any impact assessments approach

Coverage of health within impact assessments is strongly supported by WHO, as well as the European Commission

The Ministers committed themselves to “taking significant health effects into account in the assessment of strategic proposal under the Protocol” (WHO Regional Office for Europe, 2004).

The UNECE SEA Protocol itself, adopted in 2004 and entered into force in 2010, confirms the commitment of UNECE Member States to use SEA to evaluate plans and policies in all sectors. References to human health are explicit throughout the Protocol, and requests consultation with environmental and health authorities.

The First Inter-Ministerial Conference on Health and Environment in Africa (Libreville, Gabon, 2008) included HIA strengthening as one of the 10 priorities for the continent and specifically called on national governments and international organizations to institute “the practice of systematic assessment of health and environment risks, in particular through the development of procedures to assess impacts on health” (WHO Regional Office for Africa, 2009). Also the European Union (EU) funded a range of research and development projects on HIA.¹

The WHO Commission on Social Determinants of Health (CSDH) investigated the health gap resulting from social and health inequities in much detail and identified a number of actions (“What must be done”), which included the following (CSDH, 2008):

- Place responsibility for action on health and health equity at the highest level of government, and ensure its coherent consideration across all policies. ... Assess the impact of all policies and programmes on health and health equity, building towards coherence in all government action.
- Institutionalize consideration of health and health equity impact in national and international economic agreements and policy-making.
- Invest in generating and sharing new evidence on the ways in which social determinants influence population health and health equity and on the effectiveness of measures to reduce health inequities through action on social determinants.
- Provide training on the social determinants of health to policy actors, stakeholders, and practitioners and invest in raising public awareness.

Backed by such comprehensive support, efforts are ongoing to include health in impact assessments adequately and efficiently. Several approaches can be observed, especially efforts towards better coverage of

What must be done to close the health gap resulting from social and health inequities

Ongoing efforts towards better coverage of health in different forms of impact assessments

¹ Generic HIA projects: HIA in New Member States and Pre-Accession Countries (HIA-NMAC), Promoting and Supporting Integrated Approaches for Health and Sustainable Development at the Local Level across Europe (PHASE). HIA projects focusing on quantitative methodology: Air Pollution and Health: A European Information System (APHEIS), Improving Knowledge and Communication for Decision Making on Air Pollution and Health in Europe (APHEKOM), Dynamic Modelling for HIA (DYNAMO-HIA), Environment and Health Information System (ENHIS/HIA component), European Policy HIA (EPHIA), Health and Environment Integrated Methodology and Toolbox for Scenario Assessment (HEIMTSA), Integrated Assessment of Health Risks of Environmental Stressors in Europe (INTARESE), Risk Assessment from Policy to Impact Dimension (RAPID) (projects listed in alphabetic order).

health within the range of existing impact assessments such as EIA and SEA on the one hand, and emergence of explicit HIA on the other.

Concerning health within existing impact assessments, current practice — as illustrated in this publication — shows that even well developed impact assessment exercises do not always properly consider health. This underutilized potential of various forms of impact assessments to protect and promote health is a missed opportunity for public health. Ways should be found to exploit this potential to a fuller extent. It would also be useful to define how the further integration of health into the various forms of impact assessment can support those procedures. Health may offer opportunities to maintain and increase whatever interest decision-makers and the public at large have in impact assessment practice.

The last two decades saw the emergence of explicit HIA as a dedicated type of impact assessment. HIA practice varies largely among different countries. In several countries, and also internationally, an HIA “culture” of its own has come into being (Harris-Roxas et al., 2012).

How to handle human health in impact assessments

How to handle human health in impact assessments has also been an issue of debate for many years in the HIA community. For illustration, we summarize a selection of sources.

Building on related experiences

The report on the landmark HIA workshop held in Gothenburg in 1999 speaks of “building on related experience” (Diwan et al., 2000:4) and mentions three large categories of impact assessment to be found in the academic literature:

- fiscal impact assessments,
- demographic impact assessments, and
- ecological impact assessments.

“There is... a considerable body of work and experience in related fields, on which HIA could draw.” EIA is mentioned as being one of the most important of these, having a long history and having been implemented through legislation in many parts of the world. Reference is also given to SEA and SIA. Obviously, “there is a wealth of knowledge, and useful tools to be borrowed or adapted, and experiences to be avoided” (Diwan et al., 2000:5). Some early conclusions are drawn:

- the implementation of endless different types of impact assessment, particularly if these were mandatory as some already are, would be infeasible and inappropriate;
- some of the different types of impact assessment already being carried out could possibly be merged, harmonized or otherwise linked; and
- some of the information, indicators and even processes already tested, or to be introduced, might serve more than one purpose (Diwan et al., 2000:5).

Underutilized potential of various forms of impact assessment to protect and promote health

HIA can draw on related experiences

Separate impact assessments might overwhelm and delay the assessment process, which could be avoided by combining assessments

Impacts on human health are often totally or partially neglected... Merging SIA and HIA seems difficult but possible

Synergies can be attained and overburden can be avoided by coordination and cooperation

Poor coverage of health issues in EIA

Specific lessons to be learned for HIA from EIA

To combine or not to combine?

The report also raises the question on combining or not combining HIA with other forms of impact assessment such as EIA. It is acknowledged that carrying out HIA separately gives health prominence. To establish additional, separate impact assessments, however, might overwhelm and delay proposed policies and projects. This could be avoided by combining various kinds of assessment (Diwan et al., 2000:13). The strategic discussion paper (Lehto & Ritsatakis, 2000) presented at the Gothenburg conference includes discussion of EIA and SIA. It is mentioned that merging SIA and HIA as *human impact assessment* had been suggested (Lehto & Ritsatakis, 2000:75).

Experience from EIA indicates that impacts on human health are often totally or partially neglected. Particularly, the impact on mental and social aspects of health as well as the socioeconomic determinants of health tends to be neglected. It seems to be difficult, but not impossible, to broaden the orientation of institutions, professionals and decision-makers of... [environmental assessment], when the original orientation has been towards more traditional environmental concerns (Lehto & Ritsatakis, 2000:75–76).

HIA and other impact assessments – critical questions

The Gothenburg consensus paper itself closes with a section on critical questions to be faced:

Synergy between different impact assessments may be attained, and overlap or overburden with various impact assessments can be prevented by coordination and cooperation. Whether to carry out separate HIA or to combine this with other impact assessments is just one of the critical questions facing policy-makers (Lehto & Ritsatakis, 2000:99).

Lessons from EIA

In one of the first comprehensive HIA textbooks in English (Kemmer, Parry & Palmer et al., 2004), a full chapter presented lessons from EIA (Bond, 2004). Coverage of health in EIA was reported often to be poor, with the level of inclusion across the world being highly variable (Bond, 2004:137). A number of specific lessons for HIA, based on the EIA experience, were categorized as follows (Bond, 2004:138–9):

- capacity building,
- decision-making,
- quality control,
- communication, and
- procedural.

Concerning integration of HIA and EIA, the potential was recognized, and some encouraging examples were referred to. However, caution “does need to be exercised over this potential for integration”, including a risk that health professionals may be marginalized in the decision-making process. The author concluded that integration

will not work without considerable effort to get various organizations/ departments working together, and will only facilitate the consideration of health... in those cases where EIA is currently required – and this doesn't necessarily coincide with all those cases where significant health impacts may arise (Bond, 2004:140).

HIA in SEA

Another chapter in this same book deals with HIA in SEA (Dora, 2004). HIA as part of SEA is described here as tool for healthy public policy. It is maintained that EIA and SEA development offer valuable experiences for HIA. Largely due to WHO strong efforts, the SEA protocol adopted by the Fifth Ministerial Conference "Environment for Europe" (Kiev, Ukraine, 2003) used the expression "*environment including health*" throughout its text. It requests that health be considered at all stages of the SEA process, and that health authorities are consulted (Dora, 2004:408).

Future directions for HIA

The book final chapter on future directions for HIA (Parry & Kemm, 2004), also looks at the relation of HIA to other impact assessments:

Increasingly there is recognition of the overlap.... The practice of approaching health in the context of EIA... is not without its dangers and problems but it may be the route through which HIA becomes 'institutionalized'... For integrating HIA with other assessments, the danger is that this could degenerate into a tokenistic check box exercise (Parry & Kemm, 2004:415).

On the other hand, it could make "all policy-makers aware of health", triggering increased partnership and working between departments.

The challenge for the HIA community is to give away ownership of health impacts, become more aware of other cross-cutting issues and allow integrated impact assessment to develop in a way that benefits the health of the population (Parry & Kemm, 2004:415).

Integration and fragmentation

In the book "Health Impact Assessment – Principles and practice" (Birley, 2011), consideration is given repeatedly to other impact assessments. The section "Integration and fragmentation" (Birley, 2011:24–5) states that there is considerable overlap between health, social and environmental impact assessments:

There are many components of the impact assessment that cannot be assigned logically to one of the three areas. ... The decision must be made pragmatically, based on the skills, resources and timings available. However, this should not be construed as an opportunity for assessors with no health background to take responsibility for the HIA. There are many examples of impact assessment statements that contain paragraphs about health of dubious quality (Birley, 2011:24–5).

Also, the timing of the three assessments is important. Since the outputs of the EIA and SIA are often inputs to the HIA, the HIA may have to be completed last.

Integration bears the risk that health may be marginalized in the decision-making process

SEA Kiev Protocol uses the phrase "environment including health" throughout its text

Health in EIA bears the danger of degenerating into a tokenistic checkbox exercise

Health in EIA could make all policy-makers aware of health

There is considerable overlap between HIA, SIA and EIA

Many outputs of EIA and SIA can be useful inputs to HIA

There is a strong case for looking into integrating different impact assessments

HIA management

In the chapter “HIA management”, a section deals with integration (Birley, 2011:115–7): “The management of an integrated assessment provides a number of additional challenges, including report content and budget.” Since many outputs of environmental and social assessments (for example air quality, income distribution) can be regarded as statements about changes in the determinants of health, they are useful as inputs to HIA. “A well-integrated report would contain cross-references between the EIA, SIA and HIA sections” (Birley, 2011:115).

Health in other impact assessments

In “Health Impact Assessment: Past Achievement, Current Understanding, and Future Progress” (Kemmer, 2012), a chapter deals with health in other impact assessments (Kemmer, 2012:90–6). Starting out from the observation that “HIA is only one of a wide family of impact assessments”, it is pointed out that projects and policies may be assessed for a wide range of impacts, including environmental, social, economic, human rights, gender, law and order, and many more: “To undertake all the impact assessments separately would be a considerable burden and most of them have areas in common. There is therefore a strong case for looking to see if assessments can be integrated.” The chapter outlines EIA, SEA and SIA, then discusses integrated impact assessment (Kemmer, 2012:94). The main objections to integrated impact assessment are summarized as follows.

The chief objection is that those who are not focused on health cannot be trusted to cover health issues adequately... much experience with EIA and SEA suggests that these fears are not without foundation. ... Those who argue against integrated impact assessment usually imply that a separate HIA is an alternative... However, in many busy organizations the reality is the choice between inclusion of health in an integrated impact assessment or no consideration of health at all (Kemmer, 2012:95).

In conclusion, consequently from the above, key questions concerning health in impact assessments are:

Box 1. Key questions concerning health in impact assessments

- How can the various assessments contribute to promoting and protecting human health?
- How can further integration of health support other forms of impact assessments? What experiences can be shared across the various impact assessment types?
- What forms of, and what levels of, integration seem advisable?
- What should be seen as priorities for further development?

Based on the following chapters of this publication, a “conclusions” section in this publication tries to answer these questions, and proposes steps to move forward.

References

- Barton H, Grant M (2006). A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health*, 126(6):252–3; doi: 10.1177/1466424006070466
- Birley M (2011). *Health Impact Assessment: Principles and Practice*. London: Earthscan/Routledge.
- Bond A (2004). Lessons from EIA. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques and applications*. Oxford: Oxford University Press; 131–42.
- Bond A, Pope J (2012). The state of the art of impact assessment in 2012. *Impact Assessment and Project Appraisal*, 30(1):1–4.
- CSDH (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health*. Geneva: World Health Organization (www.who.int/social_determinants/thecommission/finalreport/en/, accessed 1 April 2014).
- Diwan V, Douglas M, Karlberg I, Lehto J, Magnússon G, Ritsatakis A, editors (2000). *Health Impact Assessment: from theory to practice. Report on the Leo Kaprio Workshop, Gothenburg, 28–30 October, 1999*. Göteborg: Nordic School of Public Health.
- Dora C (2004). HIA in SEA and its application to policy in Europe. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques and applications*. Oxford: Oxford University Press; 403–10.
- Harris-Roxas B, Viliani F, Bond A, Cave B, Divall M, Furu P et al. (2012). Health impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):43–52.
- Institute for Health Metrics and Evaluation (IHME) et al. (2012). Global Burden of Disease Study 2010. *The Lancet*, 380(9859):2053–260 (www.thelancet.com/themed/global-burden-of-disease, accessed 1 April 2014).
- Kemm J, editor (2012)². *Health Impact Assessment: Past Achievement, Current Understanding, and Future Progress*. Oxford: Oxford University Press.
- Kemm J, Parry J, Palmer S, editors (2004). *Health Impact Assessment: Concepts, theory, techniques and applications*. Oxford: Oxford University Press.

² This book was published on 29 November 2012, as confirmed by Oxford University Press in their website, even though the year 2013 appears in the hard copy.

- Lehto J, Ritsatakis A (2000). Health impact assessment as a tool for intersectoral health policy. In: Diwan V, Douglas M, Karlberg I, Lehto J, Magnússon G, Ritsatakis A, editors (2000). Health Impact Assessment: from theory to practice. Report on the Leo Kaprio Workshop, Gothenburg, 28–30 October, 1999. Göteborg: Nordic School of Public Health; 23–87.
- Morgan RK (2012). Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):5–14.
- Parry J, Kemm J (2004). Future directions for HIA. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques and applications*. Oxford: Oxford University Press; 411–17.
- Ståhl T, Wismar M, Ollila E, Lahtinen E, Leppo K, editors (2006). *Health in All Policies. Prospects and potentials*. Helsinki, Ministry of Social Affairs and Health Finland.
- Task Team (2013). *Health in the Post-2015 Agenda. Report of the Global Thematic Consultation on Health*. New York: United Nations (www.worldwewant2015.org/health, accessed 23 April 2014).
- WHO (1946). *Constitution*. Geneva: World Health Organization (www.who.int/governance/eb/who_constitution_en.pdf, accessed 1 April 2014).
- WHO (1986). *The Ottawa Charter for Health Promotion*. Geneva: World Health Organization (www.who.int/healthpromotion/conferences/previous/ottawa/en/, accessed 1 April 2014).
- WHO (2001). *Macroeconomics and Health: Investing in Health for Economic Development. Report of the Commission on Macroeconomics and Health*. Geneva: World Health Organization (<http://whqlibdoc.who.int/publications/2001/924154550x.pdf>, accessed 1 April 2014).
- WHO (2014). *Social determinants of health [website]*. Geneva: World Health Organization (www.who.int/topics/social_determinants/en/, accessed 1 April 2014).
- WHO European Centre for Health Policy (1999). *Health Impact Assessment: main concepts and suggested approach. Gothenburg consensus paper*. Brussels: WHO Regional Office for Europe on behalf of the European Centre for Health Policy.
- WHO Regional Office for Africa (2009). *Libreville Declaration on Health and Environment in Africa*. Libreville, 29 August 2008. Brazzaville: WHO Regional Office for Africa (http://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=2223, accessed 1 April 2014).
- WHO Regional Office for Europe (2004). *Declaration of the Fourth Ministerial Conference on Environment and Health, Budapest, Hungary, 23–25 June 2004*. Copenhagen: WHO Regional Office for Europe (www.euro.who.int/__data/assets/pdf_file/0008/88577/E83335.pdf, accessed 1 April 2014).
- WHO Regional Office for Europe (2013). *Health 2020. A European policy framework and strategy for the 21st century*. Copenhagen: WHO Regional Office for Europe (www.euro.who.int/__data/assets/pdf_file/0011/199532/Health2020-Long.pdf?ua=1, accessed 7 May 2014).

Health in EIA in Estonia, Norway and Sweden

By Charlotta Faith-Ell, Heikki Kalle and Martin Lund-Iversen

Summary

EIA was the first impact assessment to be introduced decades ago and is now the most developed, recognized and institutionalized form of impact assessment. It is now practiced in most countries of the world, often based on explicit legal regulations, aiming at transparent, inclusive and informed decision-making on project proposals. The institutionalization of such assessments across the globe, often through regulation, is an outstanding achievement.

EIA methodology and procedures have advanced considerably over the years. Current EIA practice varies, even between countries with distinct similarities. This chapter reports on variations within the group of Nordic and Baltic countries, as an example.

Concerning health, EIAs tend to look at disease and illness risk factors, as opposed to opportunities for promoting health and well-being. For EIA professionals in many countries, health is however a familiar topic from the perspective of environmental health. The focus is often on factors from the physical environment, especially on pollution of air, water, and soil as well as on noise and radiation. Gradually, also more complex themes have been incorporated into these assessments (usually on the descriptive rather than methodological level), including the effects of the broad physical, psychological, social and cultural environment, for example, urban development, land use and transport. Even with this broader arena “health”, however, remains underdeveloped in terms of pathways to outcomes or distribution of health in affected populations.

The priorities for strengthening “health” in EIA tend to differ from country to country. For example, in Estonia, where the majority of the local communities are small and with limited institutional capacity, the introduction of separate HIA is not judged to be practical. Instead, the focus is on better coverage of public health aspects and stronger involvement of public health specialists in the EIA process. In Sweden, health aspects are gradually being introduced in EIA, at the same time that methodologies for independent HIA are being developed in parallel to EIA. Health in impact assessment has been quite strong on the agenda during the last 12-15 years in Norway, and there are no signs of this wearing off. However, as a “wicked problem” in land-use planning, that poses a broad range of challenges.

Introduction

Health is considered to be an integral part in many legislative systems of EIA and SEA. This is also the case in the Nordic and Baltic countries. Also, a common belief among practitioners in the Nordic and Baltic countries is that the application of impact assessment is the same in the respective countries. However, when comparing the practice of integrating and assessing health impacts in Estonia, Norway and Sweden similarities but also differences can be seen. This following chapter aims at i) giving an introduction to EIA and SEA, and ii) comparing the similarities and differences in treating health-related issues in Estonia, Norway and Sweden. In the legal systems of all three countries EIA and SEA are to some extent intertwined which means that although the focus of this chapter is EIA, SEA will also be discussed to some extent.

Health is an integral part in many EIA and SEA legislative systems

*Definition of EIA***Background to EIA and SEA**

EIA is a process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made (IAIA, 1999). The purpose of EIA is to (IAIA, 1999):

Purpose of EIA

- ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process;
- anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- promote development that is sustainable and optimizes resource use and management opportunities.

EIA goes back to National Environmental Policy Act of 1969

EIA originates from the NEPA, which was passed by the United States Congress in December 1969 (US EPA, 1970). Since then, a number of countries have adopted systems for a systematic assessment and evaluation of impacts from various project and actions. The EU approved a Directive on EIA in 1985 (Council of the EU, 1985). Currently, EIA is a requirement in most countries of the world. In some countries, there are often both national/federal and state/regional EIA systems and regulations. EIA was fully recognized at the international level at the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992. Principle 17 of the Final Declaration is dedicated to EIA (UN, 1992):

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Thus, the goal of EIA is to incorporate environmental considerations into decision-making of projects.

Principles of EIA application

The EIA process should be applied (IAIA, 1999):

- as early as possible in decision-making and throughout the life cycle of the proposed activity;
- to all development proposals that may cause potentially significant effects;
- to biophysical impacts and relevant socioeconomic factors, including health, culture, gender, lifestyle, age, and cumulative effects consistent with the concept and principles of sustainable development;
- to provide for the involvement and input of communities and industries affected by a proposal, as well as the interested public; and
- in accordance with internationally agreed measures and activities.

Wider understanding of environment in EIA context

The term “environment” in an EIA context is applied based on a wider understanding. EIA legislation in many countries states that “the direct and indirect impacts to the people’s well-being and health, environment,

cultural heritage and property” (Riigikogu, 2005) must be taken into account within the EIA. Therefore EIA has been developed as a tool of integrated assessment involving various impacts but also experts into a single assessment scheme.

Public involvement is the underlying principle of EIA. Therefore raising public awareness on environmental issues is as important to the EIA as direct environmental goals. Some of the key elements of the EIA process are shown in Box 2:

Public involvement as underlying principle of EIA

Box 2. Key elements of the EIA process

- *Screening* – to determine whether or not a proposal should be subject to EIA and, if so, at what level of detail.
- *Scoping* – to identify issues and impacts likely to be important and to establish terms of reference for EIA.
- *Examination of alternatives* – to establish the preferred or most environmentally sound and benign option for achieving proposal objectives.
- *Impact analysis* – to identify and predict the likely environmental, social and other related effects of the proposal.
- *Mitigation and impact management* – to establish the measures that are necessary to avoid, minimize or offset predicted adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.
- *Evaluation of significance* – to determine the relative importance and acceptability of residual impacts (i.e., impacts that cannot be mitigated).
- *Preparation of the environmental impact statement (EIS) or report* – to document clearly and impartially impacts of the proposal, the proposed measures for mitigation, the significance of effects, and the concerns of the interested public and the communities affected by the proposal,
- *Review of the EIS* – to determine whether the report meets its terms of reference, provides a satisfactory assessment of the proposal(s) and contains the information required for decision-making,
- *Decision-making* – to approve or reject the proposal and to establish the terms and conditions for its implementation,
- *Follow up* – to ensure that the terms and condition of approval are met; to monitor the impacts of development and the effectiveness of mitigation measures; to strengthen future EIA applications and mitigation measures; and, where required, to undertake environmental audit and process evaluation to optimize environmental management.

Source: IAIA (1999)

A further development of the EIA is SEA, which originated from a notion that many projects are influenced by strategic-level decisions. These decisions are much more influenced by political factors than by technical criteria. Moreover, the environmental impacts associated with policy decisions are often indirect, occur gradually over the long term and are difficult to assess accurately. While still very valuable and relevant at the project level, established EIA procedures, methods and techniques have only limited application at the level of policies, plans and programmes (PPP) (OECD, 2006). Therefore, a similar process, SEA, was adopted for more strategic decisions. SEA refers to a range of “analytical and participatory approaches that aim to integrate environmental considerations into PPP and evaluate the inter linkages with economic and social considerations” (OECD, 2006).

SEA originated from discussions on shortcomings of EIA at policy level

SEA definition

SEA has been defined as

a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and addressed at the earliest appropriate stage of decision-making on par with economic and social considerations (Sadler and Verheem, 1996:27).

The EU approved a Directive on SEA in 2001, popularly referred to as the SEA directive, although the official name does not refer to SEA as such: Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (European Parliament and Council of the EU, 2001).

The inclusion of health in impact assessment in Estonia, Norway and Sweden

Estonia

Environmental health issues – water or air quality, noise, vibration – have been a part of EIA since the introduction of EIA in Estonia. The first elements of an EIA system were introduced in the mid-nineties followed by the first EIA law, which was enforced in 2001. Gradually more complex themes related to mental health and disturbing effects of development activities have been called for in the practice of EIA. Presently, the EIA Law states, that EIA should aim at assessing impacts to human health from development projects (Riigikogu, 2005). However, in what manner health issues should be treated in practice in the EIA process, has largely been left to the practitioners of EIA. Aside from the absence of specific guidelines for how to treat health issues within impact assessment, there are no good overviews of best practice on the subject in Estonia. The overview below is based on a sample of EIA projects performed during the last ten years.

The concept of environmental health, as used by the WHO Regional Office for Europe, includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (often indirect) on health and well-being of the broad physical, psychological, social and cultural environment, which includes housing, urban development, land use and transport. It could be said that most of these aspects are regularly covered in Estonian EIAs, but usually in a descriptive manner. Causal connections between public health problems or statistics and environmental conditions are rarely the subject of EIA.

In the Estonian system, the responsibility for integrating health in planning is shared between the Ministry of Environment, responsible for development of EIA system, and the Ministry of Social Affairs, of which the Health Board is responsible for public health, particularly of monitoring and control. However, from a more practical point of EIA, there is limited share of responsibilities between environmental and health officials and experts. In the case a more thorough analysis of health is made in EIA, it is often due to a coincidence or based on personal preferences of the EIA expert.

Biophysical health determinants have been part of EIA

In practice how to deal with health issues has been left to the EIA practitioners

Definition of environmental health

Causal connections between public health and environmental conditions are rarely subject of EIA

Since the introduction of EIA in Estonia, there have been several developments related to national strategies influencing the development of a health-related impact assessment. Environmental health issues were included into the Estonian Environmental Strategy 2030. In the elaboration of the strategy in the year 2005, one of the working groups was “Environment, health and quality of life”, which mainly dealt with aspects relating to environmental health.

The extent to which health-related issues can be observed in EIAs is associated with the environmental conditions of the site, the nature of the development, and the presence of health-related problems that might be linked to the development within the area of influence. The limiting factor for adequate assessments is often related to the absence of substantive health studies, providing a sound basis for good assessments. However, there are a few good examples of studies, the most interesting and useful of which are related to the comparisons between cumulative dispersion characteristics of certain pollutants and distribution patterns of health conditions that could be related to the environmental conditions (Orru et al., 2011). For instance, the relation of traffic-related particulate matter emissions and cardiovascular diseases have been studied in Tartu city (Orru et al., 2009).

From an EIA perspective the main challenges affecting more efficient involvement of health-related issues in Estonian EIAs are:

- lack of health statistics and surveys that are meaningful for the purpose of EIA – there are not many studies available linking health issues to the various environmental conditions also providing spatial and temporal dynamics of the relationship; and
- lack of environmental health specialists, or limited cooperation between experts in environmental health and environmental management, at both institutional and expert levels. This is partly explained by the fact that there are few trained environmental health experts, who are usually overstretched or are not aware of the role, goals, process and benefits of EIA.

Norway

This chapter discusses the inclusion of health in the legal context of impact assessment pursuant to the Planning and Building Act (PBA), and the practices and guidelines under that in Norway. There are also two other significant legal contexts for HIA, which will not be elaborated on here. Firstly, because they are not extended impact assessment-regulations (like, for example, what the European EIA- and SEA-directives provide), and, secondly, there are no research-based knowledge about them. These contexts are:

- Instructions for Official Studies and Reports (Norwegian Government, 2005), which states health as one of the impact assessment topics (section 2.3.2); and

Environmental health issues were included into the Estonian Environmental Strategy 2030

Limiting factor for adequate assessment of health issues is the absence of substantive health studies

Main challenges affecting more efficient involvement of health related issues.

Planning and Building Act regulates environmental impact assessments (EIA and SEA)

HIA has been part of impact assessment regulations since the start in 1990

- section (11) in The Act on Public Health (folkehelseloven), which allows for the municipality to require HIA at any time of any activity, independent of decision-making contexts or lack of such.

The context of the impact assessment/PBA fully represents the transposition of the European SEA and EIA Directives, on land and in coastal waters (the way Norwegian authorities sees it). The PBA regulates regional and municipal planning, with the first of them granted a minor role.

HIA has been a part of the regulations on impact assessment from the start in 1990 (including SEA since 2005). Initially, under a terminology which covers all relevant impacts for the decision, and since 2005 explicitly in Annex III – where the distribution of health in the population is the focal point. The current regulations also, mention a number of topics which are (wider) determinants for health, such as pollution, risks for accidents, crime prevention, growing up conditions for children, transport, the cultural environment, etcetera.

In 2005 “health” was also introduced in the impact assessment regulations as one of the criteria for deciding on impact assessment obligations for Annex II projects in the EU EIA-Directive. The amended text from 2009 reads that, if the project can have impacts on public health or its distribution, Impact Assessment is required (Norwegian impact assessment regulations, Section 4i; Kommunal- og moderniseringsdepartementet, 2009). Efforts to reach an agreement between the Ministry of the Environment (the planning ministry) and the Directorate of Health to develop workable criteria for this, has been going on for many years without success.

HIA/PBA is mostly carried out in relation to municipal planning. So, it is relevant in the Norwegian context to also widen the perspective onto how health-issues are integrated into municipal planning (not only in what is explicitly labelled impact assessment of such plans). One important finding with regard to this is Hofstad’s 2011 study, in which she argues that

There is little knowledge transfer and interaction between planners and public health coordinators, and it has proven difficult to incorporate public health themes that are out of rhythm with planning’s traditional focus.

A study by Strand et al. (2005), looked into the treatment of health in seven impact assessments where it would be expected to play a significant role. The study found that parties working with health-issues and expecting to get involved in such issues were relatively active in the process. The involvement resulted in health becoming a clearly defined issue in the study program for impact assessment. Also, the study points out that health has to be clearly defined to be handled adequately. Just showing good will, or applying too general approaches, does not produce sufficient results in terms of good enough quality in HIA (Hofstad, 2011).

Two impact assessment guidelines have been issued by the Norwegian Directorate of Health. One deals especially with social inequality in health as

a topic in HIA (Helsedirektoratet, 2001). The other (Helsedirektoratet, 2006) brings up a series of issues:

- health is linked to well-being, which especially shows its relevance for the municipal planning context of the PBA;
- methods and data sources (mostly statistically) are introduced;
- broader issues are mentioned and broken into smaller topics: housing and living environment (air quality, water and ground pollution, noise and vibrations, renovation, radiation, accidents, aspects of the built environment, infrastructure, transport), social network and leisure (culture on offer, play, outdoor recreation, safety), employment, benefits and services;
- participation, presentation of impact assessment-findings, monitoring and follow-up, is dealt with.

Health in impact assessment has been quite strong on the agenda during the last 12–15 years in Norway, and there are no signs of this wearing off. However, it being a so called “wicked problem” in land-use planning, meaning “it is difficult to demarcate, define and frame, and has no simple, commonly accepted, agreed solution” (Hofstad, 2011), one can suppose the emphasis from the authorities has to be kept strong, and even increased, for the outlook to be really good.

Sweden

Sweden has a long tradition of working with public health. Eleven public health objectives were adopted by the parliament in the year 2002. The public health objectives cover what has been identified as the most important determinants of public health in Sweden, and all public authorities at all levels should be guided by them in their work (Regeringskansliet, 2002). This means that i.e. the public health objectives establish a basis for the inclusion of health in planning activities. Health is included in the preamble of the Environmental Code (Sveriges riksdag, 1998:808), which states that “human health and the environment shall be protected from damage and adverse effects”. Health is also included in chapter six of the Environmental Code which regulates EIA and SEA, which lists human health as one aspect that shall be assessed.

The work with HIA in Sweden stems originally from a proposal on a public health programme that the board of the Federation of Swedish County Councils adopted in 1995. The aim of the programme was to increase the weight of health aspects and to support the County Councils in their work with public health issues and to reach the municipalities (Gustafsson, 2009, 2010).

The Swedish system knows several types of impact assessments that include health aspects with three main types of HIA that can be identified:

- a. HIA of national policies and decisions such as integration, alcohol tax or agricultural and food policies (Swedish National Institute of Public Health, 2005);

Health in impact assessment is a “wicked problem”

Public health objectives establish a basis for the inclusion of health in planning activities.

Health is included in the Environmental Code, regulating EIA and SEA

HIA already since 1995 established in Sweden

Three different types of HIA can be identified

- b. HIA of infrastructure and land-use planning; and
- c. assessment of health as an aspect in EIA (mainly of infrastructure projects).

SIA is at its infant stage

Furthermore, the practice of SIA is at its infant stage in Sweden and in some cases health has been included as an aspect in the few examples of SIA that have been carried out.

'Health matrix' is a tool for county councils and municipalities to work with HIA

The methods and processes used in these three types vary between the different types of impact assessment. The Swedish National Institute of Public Health has published guidance on HIA (Swedish National Institute of Public Health, 2005). The Swedish Association of Local Authorities and Regions has developed a tool, called the "health matrix" which is used by county councils and municipalities in their work with HIA (Landstingsförbundet, Svenska Kommunförbundet, 1998; Swedish National Institute of Public Health, 2005). The health matrix is a checklist which illustrates how a decision can impact on different groups in the society (Gustafsson, 2009).

Main health issues covered are noise and air pollution

However, health is mainly included in impact assessment as an aspect in EIA, especially in infrastructure planning, through the assessment of noise and air pollution (Kågström, 2009). But, the consequences of the impacts, for example, for a specific population groups are rarely included in the EIA (Gustafsson, 2010). However, the Stockholm Bypass project (21 km highway with 18 km in tunnels) has raised the awareness of the importance of assessing health aspects in infrastructure planning. The majority of the health assessments are not made by public health experts. However, in some of the assessments of municipal master plans and the largest infrastructure projects health experts have been involved in the assessments. Gustafsson (2010) argues that one of the main reasons behind the lack of integration of health impacts in EIA is lack of common understanding of health as a concept.

Majority of health assessments are not made by public health experts

Health in impact assessment is at its infant stage

To conclude the Swedish experience, the integration of health in impact assessments in Sweden is that it is at its infant stage and needs further development and integration in planning processes.

Health issues are present in EIA practice in the three countries

Discussion and conclusion

A comparison of the practice in the three countries shows that health issues are present in EIA practice in all studied countries, and that the methods and basic tools commonly used in the assessments of health-related issues are similar. Furthermore, the comparison shows that there are clear differences in the institutional setup of impact assessment among the countries. This is important in order to understand the status of health-related issues within EIA. This means that there are differences among the countries, which are related to the conceptualization of EIA systems. For example, Norway and Estonia have adopted a much more integrated approach to impact assessment, in which social and health assessments are included. While in Sweden, there is a tradition of just including health as

one of many other aspects in EIA. Furthermore, in all countries SEA is generally performed within the planning process and EIA is carried out for specific projects (for example infrastructure or environmental permitting).

Although showing similarities in general health objectives, the practical priorities in strengthening health in EIA differ from country to country. In Estonia, where the majority of the local communities are small and with limited institutional capacity, the introduction of separate HIA is not considered to be very practical and the focus is therefore in better involvement of public health aspects and specialists in the EIA process. In Sweden, the development of impact assessment is happening along two different lines: on one hand health aspects are gradually introduced in EIA, on the other hand methodologies for HIA are developed in parallel with EIA. In Norway, research has described the field of health issue in planning as suffering from vagueness and diversity, making it difficult to identify solutions (it being a wicked problem). However, this has not deterred authorities from pressing this issue onwards in impact assessment.

At the same time, the comparison shows that the need for substantive health studies is the same among the three countries. This means that every EIA process needs to conduct their own studies in the case health-related issues are identified as significant aspects during the scoping process. Furthermore, health-related issues are not a novelty for EIA professionals in the Nordic and Baltic countries, and environmental health is a familiar topic in impact assessment. However, an improvement of databases, surveys, methodologies and professional as well as institutional capacities would improve the situation. All in all, public health specialists should have more influence in impact assessments and, where possible, in the decision-making process. These are in general the main similarities across the three countries:

- Impacts to the environment, commonly involves a side for the physical environment within the EIA context, also cultural, social and economical aspects. Health-related issues are interlinked to the extent, that a common process would provide more meaningful and comprehensive outcome in the form of sustainable project delivery.
- Application of multiple assessment schemes would create too much confusion in society and alienation of stakeholder groups from the strategic development initiatives land-use planning and impact assessment. Therefore the integrated approach in impact assessment is supported and developed.
- More meaningful statistics and studies with both temporal and areal distribution patterns of health-related issues through various social groups are needed. That would mean involvement of public health experts as well as EIA professionals in development of research agendas and methodologies, as well as jointly developed EIA capacity-building programs.

There is a need of substantive health studies

Need to improve databases, surveys, methodologies professional and institutional capacities

Public health experts should have more influence in impact assessment

Integrated impact assessment approaches are supported

Joint capacity building programs are needed

Health aspects are increasingly addressed in impact assessments in the Nordic and Baltic countries

Looking into the future, the review of the practice of integrating health in impact assessment in the three studied countries shows that health aspects are increasingly addressed in impact assessments in the Nordic and Baltic countries.

References

- Council of the EU (1985). Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC). Official Journal of the European Communities, L 337:40–59 (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1396442223534&uri=CELEX:01985L0337-20090625>, accessed 2 April 2014).
- European Parliament and Council of the EU (2001). 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. Official Journal of the European Communities, L 197: 30–37 (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1396432732519&uri=CELEX:32001L0042>, accessed 2 April 2014).
- Gustafsson M (2009). Hälsa och Miljö – HKB i MKB [Health and Environment – HIA in EIA]. Stockholm: WSP Civils (in Swedish).
- Gustafsson M (2010). Hälsa och miljö – Hälsoaspekter i miljökonsekvensbeskrivningar [Health and Environment – Health Aspects in Environmental Impact Assessments]. Environmental Science and Physical Planning. Stockholm: Stockholm University (in Swedish).
- Helsedirektoratet [Norwegian Directorate of Health] (2001). Helse og trivsel i konsekvensutredninger [Health and well-being in impact assessment]. Oslo: Helsedirektoratet (in Norwegian).
- Helsedirektoratet [Norwegian Directorate of Health] (2006). Sosial ulikhet i helse som tema i helsekonsekvensutredninger [Social inequality in health as a subject in Health impact assessment]. Oslo: Helsedirektoratet (in Norwegian).
- Hofstad H (2011). Healthy Urban Planning: Ambitions, Practices and Prospects in a Norwegian Context. *Planning Theory and Practice*, 12(3):387–406.
- IAIA (1999). Principles of Environmental Impact Assessment Best Practice. Fargo: International Association for Impact Assessment (www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA_web.pdf, accessed 2 April 2014).
- Kommunal- og moderniseringsdepartementet [Ministry of Local Government and Modernisation] (2009). Forskrift om konsekvensutredninger etter plan- og bygningsloven [Regulations on Impact Assessment pursuant to The Planning and Building Act of 26. July 2009]. Oslo: Kommunal- og moderniseringsdepartementet (in Norwegian).

- Kågström M (2009). Hur ska man hantera det här med hälsa? – en kunskapsöversikt om hälsans roll i konsekvensbeskrivning och transportplanering [How shall health be handled? A literature review of the role of health in impact assessment and transport planning]. Uppsala: Swedish Agricultural University (in Swedish).
- Landstingsförbundet, Svenska Kommunförbundet [Federation of Swedish County Councils and Association of Swedish Local Authorities] (1998). Med fokus på hälsan – Hur kan man beskriva hälsokonsekvenser av politiska beslut? [Focusing on Health HIA – How can the health impact of policy decisions be assessed?]. Stockholm: Landstingsförbundet, Svenska Kommunförbundet (in Swedish).
- Norwegian Government (2005). Instructions for Official Studies and Reports: Instructions concerning consequence assessment, submissions and review procedures in connection with official studies, regulations, propositions and reports to the Storting. Laid down by Royal Decree of 24th June 2005. Oslo: Government Administration Services (http://www.regjeringen.no/upload/FAD/Vedlegg/Statsforvaltning/Utreddningsinstruksen_eng.pdf, accessed 2 April 2014).
- OECD (2006). Applying Strategic Environmental Assessment. Good Practice Guidance for Development Co-Operation. Paris: Organisation for Economic Co-operation and Development (DAC Guidelines and Reference Series; <http://www.oecd.org/dac/environment-development/37353858.pdf>; accessed 2 April 2014).
- Orru H, Jõgi R, Kaasik M, Forsberg B (2009). Chronic Traffic-Induced PM Exposure and Self-Reported Respiratory and Cardiovascular Health in the RHINE Tartu Cohort. *International Journal of Environmental Research and Public Health*, 6(11):2740–2751.
- Orru H, Maasikmets M, Lai T, Tamm T, Kaasik M, Kimmel V et al. (2011). Health impacts of particulate matter in five major Estonian towns: main sources of exposure and local differences. *Air Quality, Atmosphere & Health*, 4(3–4):247–258.
- Regeringskansliet [Swedish Government Offices] (2002). Regeringens proposition 2002/03:35. Mål för folkhälsan [Government bill 2002/03:35. Objectives for public health]. Stockholm: Regeringskansliet (in Swedish).
- Riigikogu [Estonian Parliament] (2005). Keskkonnamõju hindamise ja keskkonnajuhtimissüsteemi seadus [Environmental Impact Assessment and Environmental Management System Act]. *The State Gazette*, RT I, 24.03.2005, 15, 87 (in Estonian).
- Sadler B, Verheem R (1996). *Strategic Environmental Assessment: status, challenges and future directions*. The Hague: Ministry of Housing, Spatial Planning and the Environment of the Netherlands.
- Strand A, Moen B, Hanssen MA, Tesli A (2005). *Helsespørsmål og konsekvensutredninger [Health and impact assessment]*. Oslo: NIBR (in Norwegian).
- Sveriges riksdag [Swedish Parliament](1998). Miljöbalk (1998:808) [Environmental Code]. Stockholm: Sveriges riksdag (in Swedish).

Swedish National Institute of Public Health (2005). A guide to health impact assessments – Focusing on social and environmental sustainability. Stockholm: Swedish National Institute of Public Health (<http://folkhalsomyndigheten.se/pagefiles/12094/r200540hkbeng0511.pdf>, accessed 2 April 2014).

UN (1992). Report of the United Nations Conference on Environment and Development. Annex I: Rio Declaration on Environment and Development. New York: United Nations (A/CONF.151/26(Vol.I)); <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>, accessed 2 April 2014).

US EPA (1970). National Environmental Policy Act (NEPA). Washington, DC: United States Environmental Protection Agency (<http://www.epa.gov/compliance/basics/nepa.html>, accessed 3 April 2014).

Health in SEA

By Thomas B Fischer

Summary

The term SEA was first used in the late 1980s. Since then, SEA has become the most widely employed notion globally for the assessment of environmental impacts of public and private decision-making activities above the level of individual development projects. There are now over 40 countries with formal SEA requirements and associated legislation. In addition, there is substantial voluntary practice, and practice in developing countries driven by development banks.

Initially, SEA was understood as involving the application of a project EIA process to strategic initiatives. However, it turns out that the higher the level of the strategic action, the less applicable EIA based methods and techniques tend to be. For example, a conceptual policy which aims at developing a broad development vision for a certain area will need specific methods and techniques, possibly ones that are more discursive and qualitative, rather than quantitative approaches more frequently used under EIA procedures.

SEA is often portrayed in terms of a “framework” rather than just a process. The validity of the approach used in SEA is often seen as depending on the characteristics of the specific situation. Where SEA is more routinely applied, for example, in statutory land-use planning, highly structured processes as used in EIA can lead to positive results. In situations where vested interests are not too strong and power gradients not too steep, round table approaches involving multiple stakeholders can work well.

Most SEA systems globally formulate requirements in terms of the process applied and the substantive issues addressed. Next to biophysical issues, human health is an issue which is routinely included, though, similarly to EIA, to a variable extent in terms of scope and breadth. This is true of the European SEA Directive, the UNECE SEA Protocol, as well as SEA legislation from various countries. WHO has committed itself to support the improved consideration of health in SEA. Development banks frequently ask for health to be addressed in their SEAs through the application of their Performance Standards.

So, health already plays an important role in SEA. In current practice, however, whilst physical determinants of health (for example, emissions, pollution) are routinely considered, other health determinants, including social and behavioural aspects are only occasionally covered.

A number of shortcomings have been observed. In many SEA systems, health stakeholders do not get engaged in SEA processes. One reason is that frequently they are not statutory consultees. Another is that health professionals are often uncomfortable about getting involved, as SEA is not a framework they are familiar with. In addition, the decision-makers for spatial and other policies, plans and programs often appear to lack a comprehensive understanding of health and may, as a consequence, only consider biophysical determinants of health.

Introduction

Since the term SEA was first used in the second half of the 1980s, it has become the most widely employed notion globally for the assessment of environmental impacts of public and increasingly private decision-making activities above the level of individual development projects, at which the

The term SEA was first used in the second half of the 1980s

term EIA is commonly used. Decision-making tiers at which SEA is applied are frequently referred to as PPPs (Wood & Djeddour, 1992).

US National Environmental Policy Act (NEPA) in 1969 established first formal requirements for environmental assessment

The statutory practice of conducting environmental assessments at the level of PPPs predates the establishment of the term and goes back more than another 15 years. Formal requirements for the environmental assessment of United States Federal activities were first formulated in the 1969 NEPA (Sigal & Webb, 1989; US EPA, 1970). This Act did not distinguish between different decision-making levels, but made general reference to actions for which environmental impacts were to be formally assessed. These included both, project as well as more strategic decision-making situations (Nitz & Brown, 2001). Subsequently, in the United States, assessments above the project level started being referred to as programmatic environmental assessments (PEA). To this date, PEA has remained a United States version of SEA. Whilst the NEPA did not define different approaches for assessments at different application levels, it is now widely accepted that the way in which assessments are effectively conducted differs, depending on the specific situation of application (Fischer, 2001). Whilst on the one hand there are distinct differences between different types of SEA, on the other hand there are also commonalities between SEAs applied in similar situations, including, for example, the specific decision-making tier (projects, programmes, plans and policies) and the sector in which it is applied. SEA takes different forms, with regards to, for example, the assessment process, the substantive issues covered, the methods and techniques used, the acting strategies of those conducting it and the way in which different actors contribute to it. This means there is no one-fits-all approach of the instrument (Fischer, 2014; Verheem & Tonk, 2000).

There is no one-fits-all approach of SEA

SEA especially influenced through European SEA Directive EC/42/2001 and UNECE Protocol on SEA

Over the past decade, the development of SEA practice internationally has been particularly influenced by the EU Directive 2001/42/EC on the assessment of environmental impacts of certain plans and programmes (commonly referred to as the “SEA Directive”; European Parliament and Council of the EU, 2001) and the UNECE (Kiev) protocol on SEA (UNECE, 2003) to the Convention on EIA in a trans-boundary context (the Espoo Convention). The SEA Directive was published in July 2001 and had to be transposed by EU Member States by July 2004. The Directive has not only made SEA a routine application for numerous spatial and sectoral plans and programmes in the 28 EU Member States, it has also heavily influenced the development of SEA in other countries and international institutions, as well as development banks. It is likely that several thousands of SEAs have been conducted in EU Member States alone since 2004 (Fischer, 2010; EC, 2009).

The SEA protocol to the Espoo Convention entered into force in 2010. It made SEA binding for a further four non-EU European countries in addition to the 28 EU Member States which have to comply with the SEA Directive, namely Albania, Armenia, Montenegro and Serbia. Finally, formal SEA systems have also been developed elsewhere in the world, including, for

example, China and the Hong Kong Special Administrative Region, Guinea-Bissau, Norway, the Republic of Korea and Ukraine (OECD, 2012). Australia, Canada, New Zealand and the United States have had environmental assessment requirements in place that have covered both, project and strategic decision-making levels for several decades (Dalal-Clayton & Sadler, 2000). Whilst Bhutan also introduced SEA legislation in 2002, subsequently, this was not implemented yet (OECD, 2012). This means that there are now over 40 countries with legal SEA requirements and associated legislation (see Box 3). Recently next to some provinces of Pakistan, some central and south American countries have also been said to have introduced some formal requirements, including Bolivia, Chile, Costa Rica, El Salvador, Guatemala, Honduras, Peru and Uruguay. However, the extent of associated SEA practice has remained unclear. Finally, there is also some substantial voluntary application and practice in developing countries, which is driven by development banks and organizations (including, for example, the World Bank, the Inter-American Development Bank and the Asian Development Bank). In this context, over 150 separate SEA initiatives in 2012 were tracked by the Organisation for Economic Co-operation and Development (OECD) Development Co-operation Directorate (OECD-DAC) Environet SEA Task Team, which regularly surveys SEA activities in developing countries (Dalal-Clayton, 2013). In addition to the rapidly growing use of SEA, related research activities and outputs have also grown significantly over the past 20 years. Fischer and Onyango (2012), for example, estimated that there are now over 500 English speaking peer-reviewed journal articles on SEA. However, an analysis of 263 SEA articles revealed that only about 1% of these were explicitly dealing with health (Fischer & Onyango, 2012).

SEA by now legally established in over 40 countries all over the world

Box 3. SEA for systematically improving the consideration of health in PPP making

What is of particular importance with regards to SEA potential for improving the consideration of health in policy-, plan- and programme-making procedures is its statutory status in over 40 countries, based on, for example, the European SEA Directive and the SEA (Kiev) Protocol to the Espoo Convention and development bank/organization requirements in many developing countries. This means that for many initiatives there are formal requirements to use it, thus making it different from many other impact assessment instruments, which are often applied voluntarily. Negative health impacts could thus be systematically avoided in many policies, plans and programs and positive health outcomes be enhanced through SEA.

Most SEA systems globally formulate requirements for how to apply the instrument, in particular in terms of the process and the substantive issues to be addressed. Next to biophysical issues, “human health” is an issue which is routinely included. In this context, NEPA, for example, mentions health several times, i.e. to

promote efforts which will ... stimulate the health and welfare of man; assure for all Americans ... healthful ... surroundings; ... attain the widest range of beneficial uses of the environment without degradation, risk to health or safety (US EPA, 1970).

Next to biophysical issues, human health is an issue which is routinely included in SEA

Furthermore, the European SEA Directive in Annex 1 specifies that “information ... be provided on ... the likely significant effects on ... human health” and that “criteria for determining the likely significance of effects” include “characteristics of the effects and of the area likely to be affected, having regard, in particular, to... the risks to human health”. Whilst SEA legislation from some other countries also mentions health (for example the Canadian Directive refers to health in its Annex), others do not (including those of, for example, Australia, China and the Republic of Korea).

Subsequently, firstly, the evolving understanding of SEA is further elaborated on. This is done with a view as to where, when and how health may be considered. This is followed by a discussion on what aspects of health may potentially be considered in SEA. The empirical evidence produced to date of the performance of SEA with regards to improving the consideration of health is then summarized. Finally, conclusions are drawn and recommendations are given for how the consideration of health in SEA may be advanced further.

SEA – an evolving concept

Understanding of SEA has continuously evolved ever since the term was first used. This has been accompanied by a rapid growth of SEA practice and professional publications worldwide. The conceptual development of SEA has taken place in terms of various components, in particular:

- the assessment process,
- the scope of substantive issues covered, and in this context the extent of integration with other assessment tools,
- contextual aspects that enable effective SEA, as well as
- the methods and techniques used, and
- strategies for assessors on how to act in a specific PPP situation.

Considering the range of issues that are important for making SEA an effective decision support instrument, SEA is increasingly portrayed in terms of a “framework” rather than just a process (Fischer, 1998, 2006; Partidário, 2000). Subsequently, different SEA components are elaborated on in further detail.

SEA Process

Initially, SEA was understood as involving the application of a project EIA process to strategic initiatives (Fischer and Seaton, 2002), consisting of a number of distinct stages. It is important that these stages match those that are often said to make up an effective HIA process (see, for example, Breeze & Lock, 2001). An EIA based SEA process is presented in Box 4. Consultation and participation of statutory and non-statutory bodies (including those representing health), as well as the general public need to take place in any assessment, at least during the scoping and impact assessment stages.

Box 4. EIA based SEA process

- *Screening*: establishing whether an assessment is necessary for an initiative, i.e. determining whether any significant environmental (including health) impacts are likely to arise as a consequence of the initiative; screening is explained further by, for example, Morris and Therivel (2001).
- *Scoping*: once an assessment has been found to be necessary, its scope needs to be determined; decisions need to be made on, for example, what baseline data are required, what alternatives should be considered, what impacts (including those on health) should be assessed, what public or private entities should contribute to SEA and what techniques and methods should be used; scoping is explained further by, for example, Fischer and Phylip-Jones (2008).
- *Impact assessment and report preparation*: the assessment of environmental (including health) impacts needs to be conducted and a report needs to be prepared, which should include recommendations on the choice of alternatives, as well as mitigation and potentially compensation measures; a more comprehensive report is usually accompanied by a non-technical summary; for more information, see, for example, Fischer (2007).
- *Decision-making on the initiative*: it is crucial that at this stage, the results of the SEA are considered; ideally, the decision-maker would justify any decisions made in the light of the findings of the assessment (including what is said on health).
- *Monitoring and follow up*: once a decision has been made to go ahead with an initiative, actual developments need to be monitored; if, for example, actual impacts are found to be not in line with predicted impacts, ideally corrective action should be possible; furthermore, whether mitigation and compensation measures are actually implemented needs to be monitored; for a more in-depth discussion, see Partidário and Fischer (2004).

It is important that this process is not understood to work in a strictly top-down manner, but that feedback loops are possible, if found necessary. This means that whilst the process is organized in terms of a clear line of stages, it can work bottom-up, as well.

The views on what effective SEA processes look like have changed over the past two decades. In particular, during the late 1990s and early 2000s, post-modern communicative ideal driven debates in the planning discipline (spearheaded by, for example, Judith Innes and Patsy Healey and influenced in particular by the sociologist Jürgen Habermas) had a significant impact on the SEA community. This meant that the above described “rational” EIA process was dismissed by some as being an inadequate basis for impact assessment at strategic decision-making levels. Non-prescribed deliberative “post-modern” processes were portrayed as the way forward (see, for example, Richardson, 2005; Caratti, Dalkmann & Jiliberto, 2005). Typical assessment approaches propagated at the time included, for example, round-tables and citizen juries (Wiklund & Viklund, 2006), in which the main focus was on deliberations rather than on aiming to achieve environmentally sustainable outcomes.

However, subsequently, this — what may be called — post-modern communicative ideal, which some considered to be a panacea to overcoming environmental assessment problems, was questioned, in particular with regards to its ability to actually steer decisions towards more environmentally sustainable solutions and outcomes (Fischer, 2003). One of the main arguments brought forward was that some of the more routinely conducted plan or programme making processes were already following

The process is not to work in a strictly top-down manner, but that feedback loops are possible.

SEA as a post-modern process

...but questioned regarding the ability to steer decision toward environmentally sustainable solutions

structured processes and that the role of environmental assessment within this context was not only to function as a platform for debate and deliberations, but also to act as a change agent for more environmentally sustainable outcomes. In this context, it was suggested that SEA needed to focus as much on outcomes as on processes.

Today validity of different approaches depending on the specific situation of application of SEA

Today, some consensus has arisen with regards to the validity of different (mainly procedural) approaches, depending on the specific situation of application. In situations where SEA is more routinely applied, for example, in statutory land-use and transport planning, structured EIA based processes have shown to be able to lead to some positive results in terms of making decisions more environmentally sustainable (Fischer et al., 2009). Here, it is important to remember that SEA applied according to NEPA and the European SEA Directive already follows a systematic and structured process. Furthermore, in planning situations, where all those involved in an assessment are open to different outcomes, rather than having a pre-set mind of what the results should be, i.e. in the absence of strong vested interests and some potentially steep power gradients, round table approaches have shown to work well (see, for example, Arbter, 2004). These are also decision-making situations in which independent expert opinions and reports are more likely to have some considerable impact. Finally, it has become clear that the specific cultural context may have a bearing on the way in which the instrument may be used (Fischer & Gazzola, 2006).

Scope of issues covered, level of integration and other important contextual aspects

SEA and EIA were introduced in order to address the problem of the systematic subordination of environmental aspects to economic growth paradigm-related interests in policy, plan, programme and project decision-making. The original substantive focus of the instrument was therefore on bio-physical impacts, which also includes (physical) impacts on human health. Subsequently, and triggered by the emerging sustainable development agenda of the 1980s, many became convinced that SEA should include other aspects, as well. In this context, whilst some have suggested that SEA should be used as an assessment instrument which fully integrates economic, social and environmental aspects (Partidário & Moura, 2000; see also George, 2001), others have warned of the potential dangers of doing so. In this context, and based on empirical observations in both Australia and the United Kingdom, Morrison-Saunders and Fischer (2006), for example, urged for some caution when advocating full integration of different assessment aspects in the absence of any strong empirical evidence that more balanced decision-making will indeed occur as a result of this integration. Empirical evidence for the need to be cautious when attempting to integrate different aspects through SEA has recently also been generated by Therivel and Fischer (2012) as well as Tajima and Fischer (2013) for English spatial planning practice, where the instrument is applied within the overall framework of sustainability appraisal. They found

Ongoing discussion on integrating economic, social and environmental aspects in SEA

that here, environmental aspects kept being subordinated to economic aspects.

It is probably fair to say that a differential approach is now prevailing, where it is widely accepted that the specific context within which SEA is applied needs to be considered before deciding on the specific format of SEA. A range of aspects are thought to be important for determining the most effective way of SEA application, including in particular those shown in Box 5 (following Fischer, 2014).

The specific context in which SEA is applied needs to be considered for the specific format of the SEA

Box 5. Aspects for effective SEA application

- *The specific decision tier:* there is some evidence to suggest that the likelihood of achieving effective integration of different aspects is connected with the specific decision-making tier, mainly because of existing experiences and traditions. Whereas, for example, at programme levels, in many systems traditionally different aspects have been integrated through cost–benefit analysis (CBA) and multicriteria analysis (MCA) in the sense of forcing heterogeneous entities into a common metric, in statutory spatial planning, the purpose of impact assessment instruments has often been to highlight implications of development options in terms of specific issues, for example, the environment (usually including some health aspects), the economy and others. Finally, policy level assessments have tended to integrate different aspects more fully, the main reason being a more open approach to different futures of those involved at this level, which is often perceived to be more abstract and distant (and thus less subject to powerful interventions by those with vested interests).
- *Distribution of power:* in the presence of an unequal distribution of power in decision-making processes, it has been suggested that the best thing SEA can do is to create transparency with regards to who (or what) wins and who (or what) loses. In this case, full integration of different assessment aspects in SEA may just lead to hiding trade-offs and could therefore be problematic. There may either be a case for keeping different impact assessments separate (including, for example, HIA) or for creating a set of strict trade-off rules.
- *The specific administrative level:* Different administrative levels (for example, national, regional and local) are frequently given different tasks and responsibilities, which may mean specific options need to be dealt with at specific administrative levels.
- *Existence of a policy framework with compatible policy objectives:* Frequently, economic, social and environmental (including health) objectives of specific policy frameworks (including sustainable development strategies) have shown to be not fully compatible (see, for example, Connelly, 2007); if this is the case, integration of different aspects through SEA is problematic.
- *The institutional capacity to integrate:* even in the presence of a wish to integrate different substantive aspects, it may be difficult to do so, because:
 - in many systems, traditionally, different administrations are used (and possibly asked) to act autonomously and may find closer cooperation difficult;
 - the technical or financial capacity to deal with very different aspects all at once may also be limited; on the one hand, more aspects may mean that more data need to be processed; on the other hand, the treatment of a range of aspects in assessment may also mean having to manage the involvement of (potentially too) many people.

Overall, it is important to note that whilst a cautious approach is needed with regards to the integration of different aspects, in particular those that tend to dominate and those that tend to be subordinated to others, existing evidence suggests that integration of environmental and health (along with social) issues can result in overall positive health outcomes (see, for

A cautious approach is needed with regard to the integration of different aspects in SEA

example, Tajima and Fischer, 2013; World Bank, 2014; IFC, 2014; OECD, 2012).

Methods and techniques used and acting strategies of assessors

As explained above, in the early years of its development, SEA was seen as an extension of project EIA principles to the levels of PPP (Emmelin, 2006). As a consequence, EIA methods and techniques were also thought to be suitable for use in SEA. Many of these are, however, based on the identification of spatially concrete, and comparatively speaking, easily measurable impacts of proposed actions on existing land usage. Typical project EIA methods and techniques include, for example, field surveys, the use of indicators, (decision focused) checklists, matrices, networks, overlays, the calculation of quantitative mass balances of impacts, photographs and photomontages (see, for example, Belčáková, 2008).

In connection with the various debates on SEA over the past two decades, understanding of what methods and techniques may be suitable for use in SEA has also advanced. This has been closely connected with an improved comprehension on how SEA differs from EIA and also how different SEAs differ from each other. In this context, it has been established that the higher the level of the strategic action, the less applicable project EIA based methods and techniques might be. This means that, for example, a conceptual policy which aims at developing a broad development vision for a certain area will need a different set of methods and techniques (i.e. possibly one that is more discursive and qualitative) than, for example, a programme, which aims at ranking potential projects on the basis of, for example, MCA or CBA.

It is therefore suggested that the choice of suitable assessment methods and techniques for health inclusive SEA is particularly connected with the specific tier of decision-making, i.e. whether it is applied to a policy, a plan or a programme. In this context, aspects to be considered for choosing suitable methods and techniques include the issues described in Box 6 (following Partidário & Fischer, 2004).

In line with the different situations described above, the roles of the assessors (and their acting strategies) are also likely to differ (see Fischer, 2003). In project-related and structured situations, the assessor is more likely to act as a problem solver. Furthermore, if there is consensus on goals, the assessor may also act as an advocate of those. In more strategic situations with high degrees of uncertainty, an assessor is likely to act as a problem recognisor. Finally, if an assessment is striving to integrate different aspects, the assessor may also act as a mediator of different interests (see, for example, Runhaar & Driessen, 2007; Fischer, Martuzzi & Nowacki, 2010).

The higher the level of strategic action, the less applicable project EIA based methods and techniques

The role of the assessor also depends on the context

Box 6. Aspects to be considered for choosing suitable methods and techniques

- *Time scales:* the more strategic the initiative is, the more likely is it to be removed from project action; therefore, a longer time perspective on likely impacts needs to be applied with increased uncertainties and increasingly less predictable futures.
- *Types of data:* At higher levels of decision-making, assessment issues are frequently not readily quantifiable, but are of a more descriptive nature; methods and techniques used will therefore often be of a more qualitative nature; where quantitative methods are used, they need to allow for the consideration of possible ranges of impacts (i.e. in terms of high and low potential impacts), rather than trying to calculate precise figures.
- *The level of certainty:* Based on longer timescales and the lack of readily quantifiable, precise data at higher decision-making tiers there is less certainty in assessment. As a consequence, even the prediction of direct effects can be difficult, notwithstanding the problems involved in attempting to anticipate indirect effects.
- *Types of impacts:* Whilst project-related decisions usually have concrete spatial, localized impacts, policy-related decisions may give rise to more spatially undefined impacts and therefore may be of a more regional, national or even global scale (for example impacts of tax policies on future CO₂ emissions); furthermore, the cumulative nature of impacts is likely to be greater the further away an assessment situation is from individual project decisions.
- *The problem of consultation and participation:* Higher decision tiers are often perceived by the public as vague and distant when compared with more reactive project situations (in which “not in my backyard” attitudes may trigger high levels of interest and involvement); in this context, methods and techniques need to help facilitate effective consultation and participation.
- *Alternatives:* the more policy oriented a situation is, the more abstract and area wide the alternatives to be considered are likely to be; reliability of predictive methods and techniques is therefore likely to be lower and they should not pretend to be more precise than they actually are.

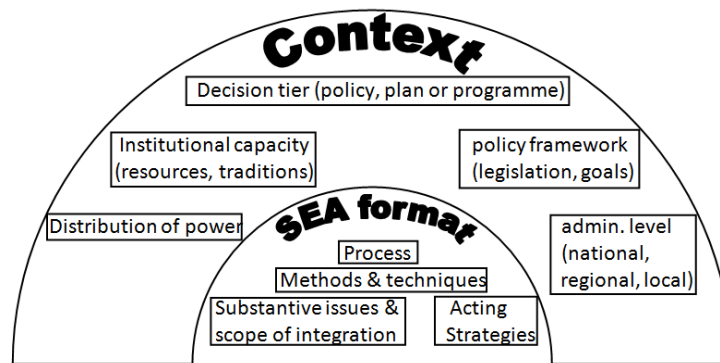
Ultimately, acting strategies can be connected with the contingency model of organizational decision-making, as first developed by Thompson and Tuden in 1959. They described decision-making models in terms of means and ends uncertainty (uncertainty about how and why to take a course of action). As a consequence of the observed levels of uncertainty, they made suggestions for how organizations may want to act, ranging from computation over judgement and bargaining to inspiration. Fig. 2 summarizes current thinking with regards to various contextual issues influencing the specific format of SEA, as discussed in this section.

Acting strategies can be connected with the contingency model of organisational decision making

Health in SEA: current requirements and conceptual thinking

This section is divided into two subsections. Firstly, the role of health in environmental protection/legal requirements and rules is explored. Secondly, the conceptual thinking behind the inclusion of health in SEA is elaborated on.

Fig. 2. The format of SEA as determined by contextual factors



Source: Fischer (2013).

Environmental protection and legal requirements and rules – the role of human health

Legal rules on environmental issues are up to several thousands of years old and are very closely connected with human health, for example, with regards to the availability of pure water. In modern times, the first pieces of environmental legislation in many countries had a health based rationale. Examples include the United Kingdom Public Health Act from 1848, which is widely regarded to be the first piece of environmental protection legislation in modern Europe. This aimed at combating filthy urban living conditions, one of the effects of the industrial revolution.

Public health and the state of the biophysical environment are now considered to be inextricably linked. Health features in most environmental legislations worldwide, mostly with regards to the need for a clean (i.e. healthy) environment which should not negatively impact on (physical) human health. It is within this context that SEA frequently addresses human health as an important issue to be considered at those levels where action can be pro-actively influenced, i.e. at the levels of PPP.

However, aspects that are connected with the biophysical environment only cover parts of what is important. Mental health and social well-being are other important issues that also need to be considered. This was already acknowledged in the now over 65 year old definition of health by WHO “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946).

So whilst environmental legislation related to, for example, sanitation, air and water quality is vital for the protection and improvement of human health, it only partly addresses the broad spectrum of health determinants. This is essential for SEA, as evaluations of impacts in SEA are often done on the basis of environmental protection legislation. However, it is important that neither NEPA nor the SEA Directive nor the UNECE SEA protocol suggest that it is only biophysical aspects of health that should be considered. As a consequence, awareness that health determinants and

Public health and the state of the biophysical environment are considered to be inextricably linked

Health determinants and outcomes other than those directly connected to the physical environment should be considered

outcomes other than those directly connected to the physical environment should be considered is growing in the SEA community.

SEA and health – conceptual thinking

As explained above, human health is an integral part of the different substantive aspects to be considered in SEA, disregarding of its substantive focus, which may be a narrow, environmental focus or a wider sustainability focus. This is frequently acknowledged in SEA legislation and guidelines worldwide. In this context, WHO has committed itself to support the improved consideration of health in SEA, for example, through its London and Budapest ministerial conferences on environment and health. In the Budapest Declaration, for example, health was explicitly mentioned as being an integral part of SEA (WHO Regional Office for Europe, 2004).

It is also important to note that in national legislations and guidelines as well as in international declarations, the connection between the environment and health, if covered, is not normally reduced to its physical components, i.e. other social and behavioural aspects are not explicitly excluded. However, it appears that in practice, in many countries, the main focus of SEA is often on physical aspects. Therefore, an important question for SEA is whether and how it should widen its scope to consider other important determinants of health. As a starting point, this requires the development of a better conceptual understanding of what health relevant issues may need to be covered in SEA.

Based on the evidence generated to date it is important to note that the range of substantive issues covered will, at least to some extent, depend on the policy, plan and programme to which the instrument is applied, as the scope of assessment is inextricably linked with the remit and issues to be covered of the action it is assessing. For example, a research study conducted in 2011 on SEAs of English municipal waste management strategies found that the risks of different waste management options to human health (i.e. potential negative health impacts) were addressed rather well (Fischer et al., 2011). Another study conducted a year earlier, using the same research approach and looking at English spatial plan SEAs, on the other hand, established that human health impacts were addressed comparatively poorly (Fischer, 2010). Whilst this certainly does not mean that spatial plans do not pose potential threats to human health, their identification for different waste management options is likely to be more obvious and straightforward, as associated impacts (in terms of, for example, pollutants to air and water) are bound to be more direct. Whilst indirect effects should always be considered in SEA, in reality this is often difficult. This means that in reality there may be a discrepancy between the wish to consider all kinds of impacts and the ability to do so. What is important here is to stay realistic on what is doable and what is not, considering both, data and technical resources.

In order to be able to determine the extent to which health is considered in SEA, a suitable evaluation framework is needed. In this context,

WHO is committed to support the improved consideration of health in SEA

Connection between environment and health is normally reduced to biophysical components

There is a need to develop a better conceptual understanding of what health relevant issues need to be covered

It is important to stay realistic on considering what is doable and what is not

determinants of health which can potentially be addressed through SEA have to be identified. Determinants of health were first summarized in a model by Whitehead and Dahlgren (1991), which was subsequently developed further by Barton and Grant (2006). This model is linked to spatial scales, ranging from the global ecosystem and the natural environment over the built environment and the local community/economy to individual determinants (age, sex, hereditary factors) and lifestyles.

Important health determinants are therefore connected with:

- a. biophysical,
- b. social,
- c. economic,
- d. behavioural, and
- e. other “fixed” personal physical attributes.

Whilst it is possible to influence (a) to (d), personal physical attributes are not normally changeable. However, it is still possible to exert an influence on associated health implications. For example, a person with hereditary high blood pressure and heart problems may alleviate potential impacts by exercising regularly. As the built and natural environments can either encourage or discourage certain exercises (such as cycling or walking to work), health determinants can be influenced through policies, plans, programmes and their associated SEAs and behavioural aspects are thus important.

Following on from this, it is clear that new development can influence health through multiple pathways (Curtis, Cave & Coutts, 2002; Thomson et al., 2006). The realization therefore that spatial planning can have an impact on human health, or as Kjørnø (2009:60) puts it: “almost every planning decision potentially affects human health”, has given rise to a rich body of work in this area. In this context, guidance has been prepared, for example, in the United Kingdom (SPAHG, 2011; TCPA, 2010). Elements that are of particular importance include, for example, the spatial set-up, which can influence physical activity (Burns & Bond, 2008). This influence may occur in different ways, for example, through the provision of green space, the mix of different uses and accessibility by foot and bicycle. Importantly, housing and its design affect all determinants of health. In this context, Marmot (2010:30) argued that “planning, transport, housing, environmental and health systems [should be fully integrated] to address the social determinants of health in each locality”.

In addition to design issues, there are other health related aspects spatial planning can influence. For example, it is now commonly accepted that crime rates — which are connected with health in communities — can be influenced by urban design (Cozens, Saville & Hillier, 2005). Furthermore, transport and spatial planning are inextricably linked (Fischer, 2002). In this context, besides some obvious physical aspects, such as noise and other emissions, health-related aspects that are important include, for example,

Important health determinants

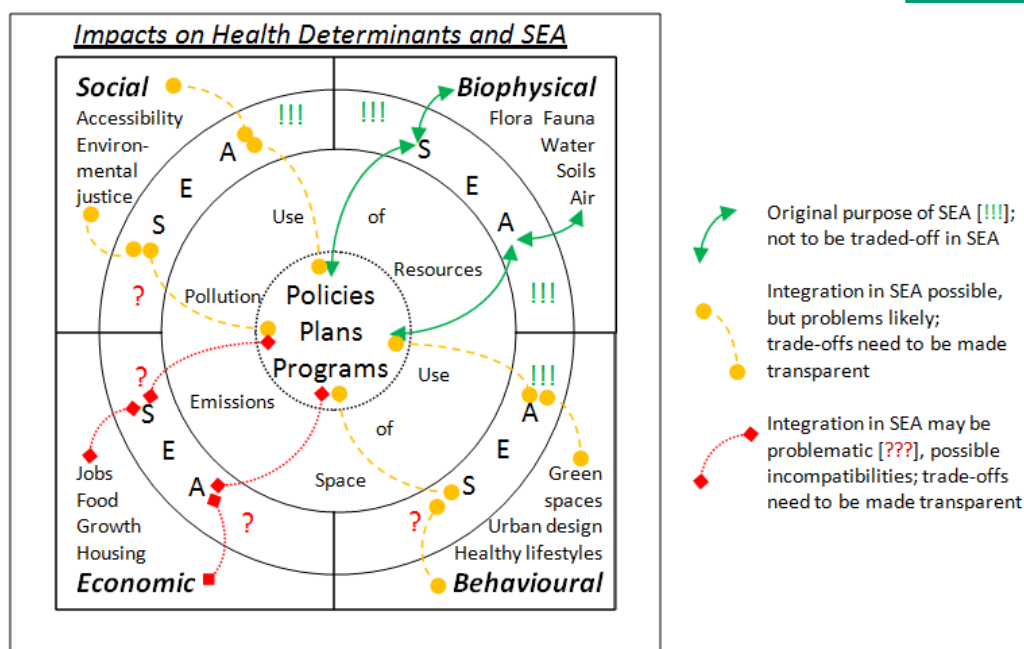
Almost every planning decision potentially affects human health

access to health care, jobs and sports as well as physical fitness facilities (Hilbers, 2008).

Because of the connections described above, SEA can play an important role for improving the consideration of health in spatial and other sectoral plan making (see, for example, Carmichael et al., 2012). Whilst in theory at least, nothing should keep SEA from supporting the consideration of various health aspects in policy, plan and programme making, whether this is happening in existing practice has been researched in a few studies only. Fig. 3 provides for a conceptual idea of how health determinants should be approached, if addressed in SEA.

SEA can play an important role for improving the consideration of health in planning

Fig. 3. Approaching the consideration of health determinants in SEA: a conceptual model



Source: Fischer (2013)

What is important is that whilst in principle, all important health dimensions can be considered, the adoption of broad health models may entail the consideration and discussion of controversial, difficult-to-measure issues such as well-being, quality of life or perceived health. This in turn may generate problems in terms of management of opinions, interests and values, which may conflict, in particular with aspects that are connected with economic growth. In this context, the extent to which SEA engages in making trade-off decisions should be carefully evaluated, against the existence of clear trade-off rules and considering the presence of powerful interests. Whilst the main role of SEA has been seen by some as being an instrument of power mediation, there is currently no empirical evidence that this can be successfully achieved. Therefore, a cautious approach to integration should be taken (see, for example, Devlin & Yap, 2008).

The extent to which SEA engages in making trade-off decisions should be carefully evaluated

Role of SEA would be to weigh impacts of different options and give recommendations for the most environmentally sustainable solutions

It is acknowledged at this point that incompatibilities might not only be in existence between different health determinants, but also amongst them. Regarding biophysical environmental aspects, for example, climate change mitigation and adaption measures may turn out to be incompatible (see, for example, Moser, 2012). However, here, an important role of SEA would be to weigh impacts of different options and to give recommendations for the most environmentally sustainable solutions.

Empirical evidence for the consideration of health in SEA

In this section, firstly the existing body of literature is briefly introduced before the emerging empirical evidence is outlined. Furthermore, facilitating factors and barriers for an effective consideration of health in SEA are identified.

Existing body of literature

To date, there have only been few studies explicitly looking at the empirical evidence for the consideration of health in SEA. These have mostly not limited their scope to biophysical health aspects, but also considered social and behavioural aspects. Carmichael et al. (2012) summarized the literature on the integration of health into urban spatial planning through impact assessment and Bond, Cave and Ballantyne (2013) reflected on “the separation of spatial planning and health planning” and the associated roles of SEA and HIA. Furthermore, Douglas, Carver and Katikireddi (2011) reflected on how well health was being considered in Scottish SEA practice, suggesting that health impacts were better considered in SEA than EIA, but that there was scope for improvement. Also, in 2011, Schmidt looked at the consideration of health and climate change in United Kingdom and German spatial plans and associated SEAs. A year earlier, Nowacki, Martuzzi and Fischer (2010) reflected on health in SEA guidelines and Fischer, Martuzzi and Nowacki (2010) explored the consideration of health in eight SEAs from Austria, the Czech Republic, England, Germany, the Netherlands and Wales. Five of these were spatial plan-related with the other three being from transport, waste management and economic development planning. Furthermore, in 2008, Fischer looked at the existing evidence and the potential of SEA to address health impacts. Finally, in 2006, Tomlinson established the extent to which health was considered in SEA of local transport plans in the United Kingdom.

Some more conceptual papers on the integration of health in impact assessment were provided by Morgan (2011:40), who argued from a New Zealand perspective in favour of bringing “health concerns into formal impact assessment processes”, and by Wright et al. (2005) who discussed whether coupling of HIA and SEA would be the best way forward. Furthermore, Mindell and Joffe (2003) looked at the linkages between HIA and other impact assessments, amongst which SEA. Finally, in 2001, WHO released a report on the potential linkages of HIA and SEA (Breeze & Lock, 2001).

Health impacts are better considered in SEA than EIA but there is scope for improvement

In addition to the above, there is also an emerging body of work on the connections of spatial planning and health which is of direct relevance for SEA. Barton (2009), for example, looked at the connections of land-use planning and health and well-being. Furthermore, Kørnøv (2009) evaluated Danish guidance and practice on healthy spatial planning and, in this context, considered the role of SEA. Earlier, Burns and Bond (2007) provided an overview of the extent to which health features in United Kingdom spatial plans, also looking at the potential role SEA may play.

Emerging evidence on the consideration of health in SEA

What is clear from those works that have looked into the consideration of health in SEA is that in current practice, the only aspects that consistently feature are those that are of a biophysical nature. This includes in particular issues surrounding soils, climate, air, water, flora, fauna and biodiversity. SEAs also normally routinely consider issues such as noise and light pollution, vibration and smell. Furthermore, most SEAs consider some other non-physical health aspects, including those related to human behaviour, connected with, for example, food provisions and services or leisure facilities.

What aspects are considered in a specific SEA depends very much on the specific context, which may differ for different sectors of application. Furthermore, the institutional setup is important. English spatial plan SEAs, for example, consistently consider a range of social and economic aspects. This is not surprising, as SEA is applied here within the overall context of sustainability appraisal. Reasons for why certain aspects are/are not considered differ. Fischer, Martuzzi and Nowacki (2010), for example, found that whilst English SEAs usually considered economic and social aspects, these were not normally covered in German and Dutch local spatial plan SEAs. However, in the German case, many municipalities were found to prepare separate development plans on various health issues which are the responsibility of other authorities. This means that spatial planning and health planning are done separately, rather than being integrated. In Dutch practice, a range of socioeconomic aspects are covered in local spatial plans. However, subsequently these are not assessed in SEA. This appears to be connected with a more narrow interpretation of what types of health impacts should be considered in SEA here. Also, and interestingly, in English transport planning, opposite to spatial planning, SEA rather than sustainability appraisal is applied and here, socioeconomic aspects are considered to a much smaller extent. Issues that are considered include accessibility with regards to social exclusion and physical health impacts of transport, in particular with regards to noise and other emissions (see Tomlinson, 2006). These findings are hardly surprising, though, in the light of the findings by Nowacki, Martuzzi and Fischer (2010) who established that only a few current SEA guidelines internationally fully considered non-physical health aspects.

In current practice only biophysical aspects consistently feature in SEAs

What aspects are considered depends very much on the specific context

Only few SEA guidelines internationally fully considered non-physical health aspects

Regarding the extent to which specific determinants of health were considered in SEA, Schmidt (2011) in his study on United Kingdom and German spatial plan related practice found that the three most frequently considered were:

- in the United Kingdom “access to and availability of health facilities”, “green infrastructure/open space” and “leisure and recreation facilities”; and
- in Germany “noise”, “air quality and pollution” and also “leisure and recreation facilities”.

Whilst more social health determinants were considered in English sustainability appraisal based SEA practice, despite of the above mentioned separation of health and spatial planning, German plans and their SEAs still considered some non physical health determinants, such as quality of life, accessibility to public transport and a “humane environment”. Regarding trends on the consideration of health in SEA over time, the same author also showed that there was a steady increase in the number of times health was mentioned in both, English and German spatial plans and their SEAs. Whilst quantification of impacts was not often attempted in English practice, this was routinely done in German SEAs. This is connected with the more specific land allocation orientation of spatial plan making here.

Finally, with regards to Danish practice, Kørnøv found that overall, health aspects were only poorly considered in 100 environmental reports (i.e. SEA reports) of municipal plans. Noise, traffic security, drinking-water, air pollution and recreation/outdoor life were the most extensively considered determinants. However, only noise was actually represented in over 70% of environmental reports with the other aspects featuring in less than 50% of them. Many other determinants were not considered at all, and most of those that were considered were usually transport related.

Facilitating factors and barriers for the effective consideration of health in SEA

Regarding facilitating factors and barriers for the consideration of health in SEA, based on the evidence established so far, it is clear that there do not appear to be any differences between health and other assessment aspects, including, for example, biodiversity or climate change. Facilitators and enablers can be divided into those connected with the process of a specific SEA and those connected with the overall context within which the instrument is applied. The former include the application of a suitable assessment procedure (EIA based/non-EIA based) and the use of suitable methods and techniques. The latter include provisions for the consideration of health, a clear understanding of the issues to be addressed and the roles of those involved in assessment, clear ideas about the expectations and values of stakeholders and their effective involvement in SEA, as well as issues of appropriate funding, time and support (see Bina, 2008; Fischer and Gazzola, 2006; Fischer, 2005; Marsden, 1998).

Facilitating factors and barriers for health consideration are not different to other assessment aspects in SEA

Similarly to the above, Nowacki, Martuzzi and Fischer (2010:13) suggested that facilitating factors for effectively considering health in SEA were linked with institutional, methodological and procedural aspects.

Institutional aspects were said to include effective links between proponents and health authorities, a meaningful involvement of health professionals and other stakeholders as well as effective support by a dedicated body (i.e. with regards to health a health authority or an equivalent body). *Methodological aspects* were said to include an effective distinction between (health) aspects that should always be considered and those that should only be considered at times or in certain sectors, the availability of data from authorities and other bodies and their effective integration in SEA, as well as the definition of meaningful indicators and integrated monitoring systems. Finally, *procedural aspects* were said to include the application of SEA as an instrument that aims at achieving consistency of aims, objectives and actions of different sectors and tiers, an effective coordination with other assessment tools, a pro-active approach (i.e. anticipating developments and impacts), the consideration of social, behavioural, physical and ecological factors of health early on in the process, the consideration of data from different sources, and the effective use of dedicated resources (for example guidance), which considers health.

Facilitating institutional, methodological and procedural aspects

Regarding the effective involvement of health professionals, Bond, Cave and Ballantyne (2013) suggested that spatial planners are frequently ill-equipped to deal with health and that the health profession rarely engages in spatial planning processes (frequently these are actually not statutory consultees). In this context, they suggested that the separation of functions between different professions was a particular serious problem, something which was also observed by Fischer et al. (2009) for German local spatial plan related SEA practice. Finally, Carmichael et al. (2012) summarized a number of barriers to the effective consideration of health in SEA. They suggested that these include aspects of knowledge, partnerships, management and resources. Knowledge aspects are connected with different conceptual understandings of health by different stakeholders. These may, for example, think of health more in terms of a narrow rather than a broader definition. Partnerships' aspects determine the extent to which stakeholders are able to effectively engage with the SEA process. They suggest that this may be connected in particular with the specific cultures of different disciplines. Finally, management and resources related aspects are said to be connected with an ability to coordinate different appraisal processes. This includes both, the technical (management) ability and the necessary (time, technical and monetary) resources.

Health professionals rarely engage in spatial planning processes

Knowledge aspects are connected with different conceptual understanding of health by different stakeholders

Conclusions

There can be no doubt that health already plays an important role in SEA. The United States NEPA includes requirements on the consideration of health in environmental assessment. Furthermore, the European SEA Directive requires all EU Member States, and the SEA (Kiev) protocol to the

Health already plays an important role in SEA

Biophysical aspects are routinely considered in SEA practice globally

Espoo Convention asks all its signatories, to explicitly address health in SEA and to consult with health authorities. Finally, development banks and organizations frequently ask for health to be addressed in their SEAs. As a consequence, biophysical determinants of health are already routinely considered in SEA practice globally. However, this is currently happening in a fairly general way only, without distinguishing between, for example, specific population groups. Depending on the specific context and policy, plan or programme making system within which SEA is applied and the sector of application, other determinants of health (social and behavioural) are also considered, albeit less frequently. Whilst the consideration of health does not mean resulting PPPs are automatically “healthy”, based on the empirical evidence emerging, it is safe to assume that SEA can lead to its improved consideration, mostly to a moderate extent (Carmichael et al., 2012; Schmidt, 2011; Fischer, Martuzzi and Nowacki, 2010).

Shortcomings with regards to the consideration of health

A number of shortcomings have been observed with regard to the consideration of health in current SEA practice. Importantly, in many SEA systems, health stakeholders do not get engaged in SEA processes. One reason is that frequently they are not statutory consultees. Another is that health professionals are often uncomfortable to getting involved, as SEA is not a platform they are familiar with. Furthermore, spatial and other policy, plan and programme makers often appear to lack understanding of health issues and may, as a consequence only consider biophysical determinants of health. Getting health stakeholders involved in SEA and increasing capacity amongst policy, plan and programme makers and assessors is therefore key to improving practices. Finally, it is important that despite of the rapidly growing practice of SEA globally, empirical evidence produced so far for health and SEA is still thin and that only a tiny fraction of the now substantial body of professional literature on SEA explicitly deals with health.

Getting health stakeholders engaged in SEA process is key

Integration of different environmental, social and behavioural health determinants need to be approached with care

Whilst integration of different environmental, social and behavioural health determinants in SEA is possible, empirical evidence suggests that this may need to be approached with care, in particular when there are tensions between, for example, economic growth objectives on the one hand and environmental and social issues, on the other. In certain situations, different assessment aspects are probably better kept separate (for example in dedicated assessment instruments) rather than being fully integrated in SEA. An important reason for applying a cautious approach is power differences between the various contributors to an “integrated” SEA. For example, integrating transport assessment into SEA in the presence of a powerful road building lobby is unlikely to result in reduced environmental impacts from less road construction. In the absence of strong vested interests, however, integration of different impact assessments may be more unproblematic. Furthermore, problems may be reduced in the presence of formally established trade-off rules. Another important barrier which may be in the way of effective integration includes technical, human and financial resource limitations. Finally, responsibilities for health issues

may not be with the authority preparing a specific policy, plan or programme, but may lie with a different body which possibly prepares their own PPP. In this case, achieving effective coordination is important. However, if institutional barriers are high, even this may already be a challenge. Despite of these potential barriers, it is important that integration can succeed, though, if those contributing to SEA are open to different outcomes.

Whilst there are various problems of current practices with regards to the effective consideration of health, most of these are actually not specific to health, but are generic, applying to all substantive aspects considered in SEA. They include in particular an only moderate impact on policy, plan and programme making, an inability to pro-actively identify reasonable alternatives, and a lack of capacity to successfully address cumulative and indirect impacts. Furthermore, in particular at higher tiers of decision-making (i.e. policies), it is often difficult to get stakeholders and the public to engage in assessment, as the issues at stake are often thought of as being abstract and remote.

Overall, however, SEA is an instrument which can work effectively towards a better consideration of health in policy, plan and programme making, not least because “environmental reports require collecting and presenting data from various sources, which would otherwise not exist” (Schmidt, 2011:105). Also, requirements to consider health through SEA have shown to make policy, plan and programme makers and assessors reflect on issues that they otherwise would not have. Whilst in current practice globally, it is mainly the biophysical determinants of health that are advanced through SEA, social and behavioural determinants may also be included. However, this is only likely to become more widespread in the presence of associated government policy, legal mandates or official guidance (Bond, Cave & Ballantyne, 2013).

There is only a moderate impact on policy, plan and programme making of SEA

SEA is an instrument which can work effectively towards a better consideration of health in policy, plan and programme making

References

- Arbter K (2004). SEA of waste management plans – an Austrian case study. In: Schmidt M, João E, Albrecht E, editors. Implementing Strategic Environmental Assessment. Berlin: Springer-Verlag.
- Barton H (2009). Land use planning and health and well-being. *Land Use Policy*, 26: 115–23.
- Barton H, Grant M (2006). A health map for the local human habitat. *The Journal for the Royal Society for the Promotion of Health*, 126(6):252–3. doi: 10.1177/1466424006070466.
- Belčáková I (2008). Report preparation and impact assessment methods and techniques. In: Fischer TB, Gazzola P, Jha-Thakur U, Belčáková I, Aschemann R, editors. *Environmental Assessment Lecturers' Handbook*. Bratislava: ROAD:159–67.

- Bina O (2008). Context and systems: thinking more broadly about effectiveness in strategic environmental assessment in China. *Environmental Management*, 42:717–33.
- Bond A, Cave B, Ballantyne R (2013). Who plans for health improvement? SEA, HIA and the separation of spatial planning and health planning. *Environmental Impact Assessment Review*, 42:67–73.
- Breeze CH, Lock K, editors (2001). Health impact assessment as part of strategic environmental assessment. Copenhagen: WHO Regional Office for Europe (http://www.who.int/hia/network/en/HIA_as_part_of_SEA.pdf, accessed 3 April 2014).
- Burns J, Bond A (2008). The consideration of health in land use planning: barriers and opportunities. *Environmental Impact Assessment Review*, 28:184–97.
- Caratti P, Dalkmann H, Jiliberto R (2005). *Analysing Strategic Environmental Assessment*. Cheltenham: Edward Elgar.
- Carmichael L, Barton H, Gray S, Lease H, Pilkington P (2012). Integration of health into urban spatial planning through impact assessment: Identifying governance and policy barriers and facilitators. *Environmental Impact Assessment Review*, 32(1):187–94.
- Cozens PM, Saville G, Hillier D (2005). Crime prevention through environmental design (CPTED): a review and modern bibliography. *Property Management*, 23(5):328–56.
- Curtis SE, Cave B, Coutts A (2002). Is urban regeneration good for health? Perceptions and theories of the health impacts of urban change. *Environment and Planning C: Government and Policy*, 20(4):517–34.
- Dalal-Clayton B (2013). Turning green the strategic way: the role and potential of strategic environmental assessment in securing a green economy, London: IIED (<http://pubs.iied.org/16537IIED.html>, accessed 24 April 2014).
- Dalal-Clayton B, Sadler B. (2000). *Strategic Environmental Assessment – A Rapidly Evolving Approach*. London: IEED.
- Devlin JF, Yap NT (2008). Contentious politics in environmental assessment: blocked projects and winning coalitions. *Impact Assessment and Project Appraisal*, (26):17–27.
- Douglas MJ, Carver H, Katikireddi SV (2011). How well do strategic environmental assessments in Scotland consider human health? *Public Health*, 125(9):585–91.
- EC (2009). Study concerning the report on the application and effectiveness of the SEA Directive (2001/42/EC). Brussels: European Commission DG Environment.
- Emmelin L, editor (2006). *Effective Environmental Assessment Tools: critical reflections on concepts and practice*: Blekinge Institute of Technology; 44–59 (Research Report No 2006:03, Report No 1 from the MiSt-programme).

- European Parliament and Council of the EU (2001). 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. Official Journal of the European Communities, L197:30–7.
- Fischer TB (1998). Die Strategische Umweltprüfung – Vorteile ihrer Anwendung und Klassifizierungsmöglichkeiten. UVP-Report (2/3):69–73.
- Fischer TB (2001). The practice of environmental assessment for transport and land use policies, plans and programmes. Impact Assessment and Project Appraisal, 19(1):41–51.
- Fischer TB (2002). Strategic Environmental Assessment in Transport and Land-use Planning. London: Earthscan.
- Fischer TB (2003). Strategic environmental assessment in post-modern times. Environmental Impact Assessment Review, 23(2):155–70.
- Fischer TB (2005). Having an impact? – Context elements for effective SEA application in transport policy, plan and programme making. Journal of Environmental Assessment Policy and Management, 7(3):407–32.
- Fischer TB (2006). SEA and transport planning: towards a generic framework for evaluating practice and developing guidance. Impact Assessment and Project Appraisal, 24(3):183–97.
- Fischer TB (2007). Theory and Practice of Strategic Environmental Assessment – towards a more systematic approach. London: Earthscan.
- Fischer TB (2008). Addressing health impacts through strategic environmental assessment (SEA) – current evidence and potential. Keynote presentation at the 9th international HIA conference, 9–10 October 2008, Liverpool.
- Fischer TB (2010). Reviewing the quality of strategic environmental assessment reports for English spatial plan core strategies. Environmental Impact Assessment Review, 30(1):62–9.
- Fischer (2013). Health and Strategic Environmental Assessment (paper ID 120). In: IAIA13 Conference Proceedings. Impact Assessment: The Next Generation, Calgary, Alberta, Canada, 13 – 16 May 2013. Fargo: International Association for Impact Assessment (<http://www.iaia.org/conferences/iaia13/final-papers.aspx>, accessed 15 September 2014).
- Fischer TB (2014). Integration of SEA with other assessment tools. In: Sadler B, Dusik J, editors. Handbook of Strategic Environmental Assessment II, London: Earthscan.
- Fischer TB, Gazzola P (2006). SEA good practice elements and performance criteria — equally valid in all countries? The case of Italy. Environmental Impact Assessment Review, 26(4):396–409.
- Fischer TB, Gazzola P, Jha-Thakur U, Kidd S, Peel D (2009). Learning through EC Directive based SEA in spatial planning? Evidence from the Brunswick Region in Germany. Environmental Impact Assessment Review, 29(6):421–28.

- Fischer TB, Martuzzi M, Nowacki J (2010). The consideration of health in strategic environmental assessment (SEA). *Environmental Impact Assessment Review*, 30(3):200–10.
- Fischer TB, Onyango V (2012). SEA related research projects and journal articles: an overview of the past 20 years. *Impact Assessment and Project Appraisal*, 30(4):253–63.
- Fischer TB, Philip-Jones J (2008). Scoping in environmental assessment. In: Fischer TB, Gazzola P, Jha-Thakur U, Belčáková I, Aschemann R, editors. *Environmental Assessment Lecturers' Handbook*. Bratislava: ROAD; 136–42 (www.twoeam-eu.net, accessed 3 April 2014).
- Fischer TB, Potter K, Donaldson S, Scott T (2011). Municipal waste management strategies, strategic environmental assessment and the consideration of climate change in England. *Journal of Environmental Assessment Policy and Management*, 13(4):541–65.
- Fischer TB, Seaton K (2002). Strategic environmental assessment – effective planning instrument or lost concept? *Planning Practice and Research*, 17(1):31–44.
- George C (2001). Sustainability appraisal for sustainable development: Integrating everything from jobs to climate change. *Impact Assessment and Project Appraisal*, 19:95–106.
- Hilbers B (2008). *The influence of the spatial planning on bicycle use and health*. Bilthoven: Netherlands Environmental Assessment Agency.
- Kørnøv L (2009). Strategic Environmental Assessment as a catalyst of healthier spatial planning: The Danish guidance and practice. *Environmental Impact Assessment Review*, 29(1):60–5.
- IFC (2014). *IFC Sustainability: Environmental, Health, and Safety Guidelines* [website]. Washington, DC: International Finance Corporation (<http://www.ifc.org/ehsguidelines>, 25 September 2014).
- Marmot M, editor (2010). *Fair Society, Healthy Lives. The Marmot Review Executive Summary*. London: The Marmot Review.
- Marsden S (1998). Importance of context in measuring effectiveness of strategic environmental assessment. *Impact Assessment and Project Appraisal*, 16(4):255–66.
- Mindell J, Joffe M (2003). Health impact assessment in relation to other forms of impact assessment. *Journal of Public Health*, 25(2):107–12.
- Morgan K (2011). Health and impact assessment: Are we seeing closer integration? *Environmental Impact Assessment Review*, 31(4):404–11.
- Morrison-Saunders A, Fischer TB (2006). What is wrong with EIA and SEA anyway? – A Sceptic's Perspective on Sustainability Assessment. *Journal of Environmental Assessment Policy and Management*, 8(1):19–39.
- Morris P, Therivel R, (2001). *Methods of Environmental Impact Assessment*. London: SPON Press.
- Moser SC (2012). Adaptation, mitigation, and their disharmonious discontents: an essay. *Climate Change*, 111(2):165–75.
- Nitz T, Brown AL (2001). SEA must learn how policy making works. *Journal of Environmental Assessment Policy and Management*, 3(3):329–42.

- Nowacki J, Martuzzi M, Fischer TB, editors (2010). Health and strategic environmental assessment. WHO consultation meeting, Rome, Italy, 8–9 June 2009. Background information and report. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0006/112749/E93878.pdf, accessed 1 April 2014).
- OECD (2012). Strategic Environmental Assessment in Development Practice. A review of recent experience. Paris: Organisation for Economic Co-operation and Development.
- Partidário MR (2000). Elements of an SEA framework – improving the added-value of SEA. *Environmental Impact Assessment Review*, 20:647–63.
- Partidário MR, Fischer TB (2004). Follow-up in Current SEA Understanding. In: Arts J, Morrison-Saunders A, editors. *Assessing Impact: Handbook of EIA and SEA Follow-up*. Abingdon: Earthscan; 224–47.
- Partidário MR, Moura P (2000). Strategic sustainability appraisal — one way of using SEA in the move toward sustainability. In: Partidário MR, Clark R, editors. *Perspectives on Strategic Environmental Assessment*. Boca Raton: Lewis Publishers; 29–43.
- Richardson T (2005). Environmental assessment and planning theory: four short stories about power, multiple rationality, and ethics. *Environmental Impact Assessment Review*, 25:341–65.
- Runhaar H, Driessen P (2007). What makes strategic environmental assessment successful environmental assessment? *Impact Assessment and Project Appraisal*, 25(1):2–14.
- Schmidt C (2011). The consideration of health impacts from global climate change in UK and German spatial plans and their associated SEAs. Greifswald: Institut für Geographie und Geologie, Ernst-Moritz-Arndt-Universität Greifswald and University of Liverpool.
- Sigal LL, Webb JW (1989). The Programmatic Environmental Impact Statement: Its Purpose and Use. *The Environmental Professional*, 11:14–24.
- SPAHG (2011). *Steps to Healthy Planning: Proposals for Action*. Spatial Planning and Health Group.
- Tajima R, Fischer TB (2013). Should different impact assessment instruments be integrated? Evidence from English spatial planning. *Environmental Impact Assessment Review*, 41:29–37.
- TCPA (2010). *Spatial Planning for Health: A guide to embedding the Joint Strategic Needs Assessment in spatial planning*. London: Town and Country Planning Association.
- Therivel R, Fischer TB (2012). Sustainability Appraisal in England. *UVP Report*, 26(1):16–21.
- Thomson H, Atkinson R, Petticrew M, Kearns A (2006). Do urban regeneration programmes improve public health and reduce health inequalities? A synthesis of the evidence from UK policy and practice (1980–2004). *Journal of Epidemiology & Community Health*, 60(2):108–15.

- Thompson JD, Tuden A (1959). Strategies, structures and processes of organizational decision. In: Thompson JD, Hammond PB, Hawkes RW, Junker BH, Tuden A, editors. *Comparative studies in administration*. Pittsburgh: University of Pittsburgh Press, 195–216.
- Tomlinson P (2006). *Consideration of Health in the SEA of LTP2s*. Wokingham: TRL.
- Verheem RAA, Tonk JAMN (2000). Strategic Environmental Assessment: One Concept, Multiple Forms. *Impact Assessment and Project Appraisal*, 18(3):177–82.
- UNECE (2003). *Protocol on strategic environmental assessment to the convention on environmental impact assessment in a transboundary context*. Geneva: UN Economic Commission for Europe.
- US EPA (1970). *National Environmental Policy Act (NEPA)*. Washington, DC: United States Environmental Protection Agency ([http://ceq.hss.doe.gov/laws and executive orders/the nepa statute.html](http://ceq.hss.doe.gov/laws_and_executive_orders/the_nepa_statute.html), accessed 15 September 2014).
- Whitehead M, Dahlgren C (1991). What can we do about inequalities in health. *The Lancet*, 338:1059–63.
- WHO (1946). *Constitution*. Geneva: World Health Organization (http://www.who.int/governance/eb/who_constitution_en.pdf, accessed 1 April 2014).
- WHO Regional Office for Europe (2004). *Declaration of the Fourth Ministerial Conference on Environment and Health, Budapest, Hungary, 23–25 June 2004*. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/publications/policy-documents/declaration-of-the-fourth-ministerial-conference-on-environment-and-health>, accessed 15 September 2014).
- Wiklund H, Viklund P (2006). Public deliberation in strategic environmental assessment: an experiment with citizens' juries in energy planning. In: Emmelin L, editor. *Effective Environmental Assessment Tools: critical reflections on concepts and practice*. Karlskrona: Blekinge Institute of Technology; 44–59 (Research Report No 2006:03, Report No 1 from the MiSt-programme).
- Wood C, Djeddour M (1992). Strategic environmental assessment: EA of policies, plans and programmes. *Impact Assessment*, 10(1):3–22.
- World Bank (2014). *Strategic Environmental Assessment [website]*. Washington, DC: The World Bank (<http://www.worldbank.org/en/topic/environment/brief/strategic-environmental-assessment>, accessed 25 September 2014).
- Wright J, Parry J, Scully E (2005). Institutionalizing policy-level health impact assessment in Europe: is coupling health impact assessment with strategic environmental assessment the next step forward? *Bulletin of the World Health Organization*, 83(6):472–7.

Sustainability assessment and health

By Alan Bond and Jenny Pope

Summary

The move towards sustainability assessment can be traced back to the 1992 global conference on the environment and development (UN, 1992) that led to the worldwide recognition of “sustainable development”. Soon after, sustainable development became a central goal in the rhetoric of most political parties, and could be argued to have led to a realignment of traditional environmental advocacy tools like EIA and SEA.

Sustainability issues are often structured into three pillars: social, economic and environmental. An assessment attempting to cover all three pillars including tradeoffs between them can be called “integrated assessment” or Triple Bottom Line assessment. However, sustainability assessment goes further, attempting not just to assess but to direct decision-making towards the delivery of more sustainable outcomes.

Sustainability assessment practice has become more widespread in recent years, with very diverse examples reported in numerous countries. Unlike other forms of assessment, however, sustainability assessment is, as often as not, an interpretation of a process as being sustainability assessment rather than a bespoke assessment; there is no consensus on what sustainability assessment should look like, and no typical examples. As a result, this chapter draws on very different practice to illustrate the current approach to incorporating health in sustainability assessment; as such it offers an insight into the way practitioners currently grapple with health issues.

The examples considered are England and Western Australia. England is unusual in having a legal requirement for sustainability appraisal which requires that, for any particular local authority area, a framework of sustainability objectives is drawn up along with associated indicators that can be used to assess draft plan policies against baseline conditions.

In Western Australia, the State Sustainability Strategy (Western Australia Government, 2003) included a commitment to undertake sustainability assessments of complex and strategic projects and to integrate HIA into this process. This led to the development of practice in both sustainability assessment and HIA which has continued in various forms to some extent despite a change in government removing these commitments at the policy level.

Planning in England is primarily driven by spatial (“local”) plans. Each such plan is subjected to sustainability assessment as it is developed, and the sustainability assessment has to conform with the SEA Directive. Concerning health coverage under the sustainability appraisal procedure conducted in England, current practice suggests that England’s local development plans are likely to be assessed against specific health and well-being objectives. The objectives-based approach covers all significant issues associated with a local authority’s existing context. As such, physical, social and economic determinants of health are included as objectives in the sustainability assessment and help to promote good health, albeit not explicitly.

Health professionals are statutory consultees in the Local Plan preparation process, but they are not statutory consultees in the sustainability assessment process. A study (Burns & Bond, 2008; Bond, Cave & Ballantyne, 2013) found that those involved in conducting sustainability assessment felt they had insufficient expertise to fully appreciate the health implications of plans and policies while the engagement with health professionals was sporadic. Even where dialogue did take place, there was a feeling that the health professionals did not fully understand how planning worked and, rather than advise on determinants of health, they tended to focus on the expected demands that would be placed on health infrastructure and the potential need for additional primary care, or hospital capacity.

In two examples of government-led sustainability assessment from Western Australia, biophysically-oriented statutory EIA was supplemented with non-statutory social and economic assessments, and attempts were made to bring the different perspectives together to provide an overarching sustainability perspective to the project proposals. Health considerations were a minor and largely implicit part of the process in both examples. More recently, analysis of the environmental assessment of a proposed industrial precinct found that many aspects of both sustainability assessment and HIA were incorporated into the process despite the lack of any legal requirement to consider anything other than biophysical impacts, demonstrating that the importance of both sustainability and health considerations is recognized in the context of project-level assessment. The analysis found that most determinants of health were acknowledged in the assessment (the exception being consideration of the health of the workers and their families) but the potential impacts associated with these determinants were not always evaluated. Nevertheless, there is evidence that practice of both sustainability assessment and HIA has continued in Western Australia, and that the two are closely related.

Conceptual basis for sustainability assessment and its incorporation of health

Definition of sustainability assessment

Bond and Morrison-Saunders (2011:4), drawing on Hacking and Guthrie (2008), defined sustainability assessment as “a process that directs decision-making towards sustainability”. This definition is deliberately vague and, assuming “sustainability” equates to “sustainable development”, incorporates a term which has strongly normative meaning (Bond & Morrison-Saunders, 2009). The best known definition of sustainable development comes from the World Commission on Environment and Development (WCED), better known as the Brundtland Commission: “development that meets the needs of current generations without compromising the ability of future generations to meet their needs” (WCED, 1987:9). Inherent in this concept of “needs” is the expectation of good “health”, which is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). As such, any process which has as its goal, the achievement (or at least working towards the achievement) of sustainable development, must necessarily encompass consideration of health and well-being.

Definition of sustainable development

Definition of health

Sustainable development concept base on a triple bottom line of integrating environmental, social and economic concerns

That said, the inclusion of health in framings of sustainable development tends to be implicit rather than explicit. The triple bottom line conceptualization of sustainable development as an integration of environmental, social and economic concerns, for example, (Elkington, 1997), leaves no space for explicit mention of health, but is explicit about the three pillars of sustainability which determine health outcomes, that is they are “determinants” of health. The concept of health determinants is critical to an understanding of how sustainability assessment incorporates consideration of health impacts. WHO defines health determinants as “[t]he range of personal, social, economic and environmental factors which determine the *health status* of individuals or populations” (WHO, 1998:6). While there are numerous categorizations of health determinants, for the purposes of this chapter we will adopt those presented in Fig. 1 of Chapter 1 (p. 2) of this book:

Definition of health determinants

- people, including age, sex and hereditary factors;
- lifestyle, including diet, physical activity and work-life balance;
- community, including networks and social capital;
- local economy, including wealth creation and markets;
- activities, including working, shopping, moving, living, playing and learning;
- built environment, including buildings, places, streets and routes;
- natural environment, including natural habitat, air, water and land; and
- global ecosystem, including climate change and biodiversity.

Individual health and well-being is a complex function of each of these inter-related determinants. In practice, sustainability assessments do tend to investigate the implications of proposed actions on a range of health determinants such as those listed above, although the word “health” may not be used at all. For example, air quality is an environmental determinant of health, but assessments are often undertaken in relation to environmental standards. For the construction of a new fossil-fuel burning power station, the existing baseline air quality would be compared with the predicted air quality should the power station be operational. If air quality standards were likely to be exceeded, mitigation measures would be needed to reduce them. Whilst health is not necessarily mentioned explicitly, it is implicit in two ways: firstly because air quality is a determinant of health (see the bullet list above); secondly, because air quality standards are set based on current understanding of health effects of air pollution. As an example, the EU has an ambient air quality Directive which sets limit values for pollutants which are not to be exceeded:

‘limit value’ shall mean a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained (European Parliament and Council of the EU, 2008:5).

Likewise, WHO state that “Clean air is considered to be a basic requirement for human health and well-being” (WHO Regional Office for Europe, 2000:vii).

Sustainability assessment practice has become more widespread in recent years. Bond and Morrison-Saunders (2011) cite examples of practice in Canada, China (Hong Kong Special Administrative Region), Namibia, South Africa, Western Australia and England. Bond, Morrison-Saunders & Howitt (2013) review sustainability assessment case studies from a subset of these (Canada, South Africa, Western Australia and England). Further examples of some level of practice have been reported in:

- Austria (Döberl, Ortmann & Frühwirth, 2013)
- China (Tsung et al., 2013)
- Japan (Sharifi & Murayama, 2013)
- Malaysia (Saadatian, Sopian & Salleh, 2013)
- Mexico (Santana-Medina et al., 2013)
- Switzerland (Speiser et al., 2013)

Health might not be mentioned but usually health determinants are investigated

Definition of ‘limit value’

Sustainability assessment has become more widespread

- United States (Sharifi & Murayama, 2013).

Whilst this burgeoning list of sustainability assessments gives the impression of rapid growth in practice, many of these claims for the conduct of sustainability assessments are actually based on post-practice interpretation of an assessment methodology as being sustainability assessment (for example, Sharifi & Murayama, 2013), or interpretation of the sustainability goals of environmental legislation as entailing a form of sustainability assessment (as in South Africa, see Retief, 2013).

So whilst practice is increasing, and there is evidence of an exponential increase in academic interest into sustainability assessment (Bond, Morrison-Saunders & Pope, 2012), the legal basis for a separate process called “sustainability assessment” is extremely limited, as will be discussed further in the following sections. On this point, it is relevant that SEA is very closely related to sustainability assessment in that sustainable development is often regarded, or stated, as its main purpose (for example, Feldmann, Vanderhaegen & Piroette, 2001), and SEA systems are claimed to be in place in at least 60 countries (Fundingsland Tetlow & Hanusch, 2012). However, SEA is covered elsewhere in this book, and the focus of this chapter will be constrained by processes which are called sustainability assessment or some similar variation, including sustainability appraisal.

An important distinction between SEA and sustainability assessment is that sustainability assessment might be applied to projects (with examples from Western Australia (Morrison-Saunders & Pope, 2013) and Canada (Gibson, 2011)), as well as plans (for example, practice in England, Thérivel et al., 2009), or policies (for example, through the application of impact assessment in the EU (Adelle & Weiland, 2012)). It would be fair to conclude, therefore, that sustainability assessment is extremely diverse, both in scope and application. This wide diversity of practice and application contexts complicates a review of where health fits into practice, so the following text will focus on examples in England, where sustainability appraisal at the plan level has been mandatory since 2004 (Thérivel et al., 2009) and Australia, focusing on Western Australia, where considerable efforts were made in the mid-2000s to establish both sustainability assessment (Morrison-Saunders & Pope, 2013) and HIA, particularly at the project level (Harris & Spickett, 2011).

In the following two sections, we consider how health is addressed within sustainability assessment practice in these two very different applications, giving particular consideration to the policy and legislative basis for consideration of health issues, including HIA; whether guidance on methodologies and tools for considering health have been utilized; which health determinants have been included; and the extent to which public health experts have been involved in the assessment process.

The legal basis for sustainability assessment is extremely limited

SEA is very closely related to sustainability assessment

Sustainability assessment can be applied to projects, plans or policies

Sustainability assessment is extremely diverse in scope and application

Health and Sustainability Appraisal in England

Policy and legislative basis

Planning in England is primarily driven by spatial plans which themselves conform to a National Planning Policy Framework (Department for Communities and Local Government, 2012). Spatial Plans, called Local Plans, are prepared for each local authority to set out local planning policy covering the next 10–15 years. Each Local Plan is subjected to sustainability appraisal as it is developed, and the sustainability appraisal has to conform with the SEA Directive (European Parliament and Council of the EU, 2001).

Although there is no statutory requirement for HIA, there is broad recognition of the links between planning and health outcomes. Bond, Cave and Ballantyne (2013:72) report that

PCT [primary care trust] responsibilities for local health improvement will transfer to local authorities, who will employ the Director of Public Health jointly appointed with the National Public Health Service, allied with an emphasis on localism in planning, could provide opportunities to break down some of the barriers that currently exist.

In the meantime, at least one local authority has decided that sustainability appraisal at the plan-level only in England is too limited, as there is no sustainability assessment at project level, and no statutory obligation for HIA. South Cambridgeshire District Council has therefore adopted a Supplementary Planning Document that requires HIA for any “major development” proposal (South Cambridgeshire District Council, 2011). Thus, EIA at project level is not seen as having a sufficient focus on health and has led in this example to a separate assessment, potentially leading to tradeoffs with the EIA.

Guidance, methodologies and tools for incorporating health

In terms of current practice of sustainability appraisal, assessments to date have been undertaken using Government-prepared guidance which promotes an objectives-driven approach (Planning Advisory Service, 2010). This means that for any particular local authority area, given the specific context and issues (for example, is it a high crime area with significant obesity and unemployment, or a rural area with low crime rates, low obesity but significant access to amenity issues?), a framework of sustainability objectives is drawn up along with associated indicators that can be used to assess draft plan policies against the baseline. Specific examples of objectives and indicators are provided in the Practical Guide to the Strategic Environmental Assessment Directive (Office of the Deputy Prime Minister et al., 2005) (see Table 1).

The implications of this approach are that sustainability appraisals of English plans are likely to be assessed against specific health and well-being objectives. However, the objectives-based approach covers all significant issues associated with a local authority’s existing context. As such, physical, social and economic determinants of health are included as objectives in

Planning is driven by spatial plans, called Local Plans

Links between planning and health are recognized

Government-prepared guideline presents a framework of sustainability objectives and associated indicators

Physical, social and economic determinants of health are included as objectives in English sustainability appraisal

the sustainability appraisal and help to promote good health, albeit not explicitly.

Table 1: Specific reference to health and well-being in English sustainability appraisal guidance.

Sustainability assessment Topic	Possible objectives	Possible indicators and ways of quantifying baseline
Population and human health	<ul style="list-style-type: none"> ▪ create conditions to improve health and reduce health inequalities ▪ promote healthy living ▪ protect and enhance human health ▪ reduce and prevent crime, reduce fear of crime ▪ decrease noise and vibration ▪ increase opportunities for indoor recreation and exercise 	<ul style="list-style-type: none"> ▪ size of population ▪ changes in demography ▪ years of healthy life expectancy/infant mortality rate ▪ mortality by cause ▪ recorded crimes per 1,000 population ▪ fear of crime surveys ▪ number of transport/pedestrian/cyclist road accidents ▪ number of people affected by ambient noise levels ▪ proportion of tranquil areas ▪ percentage of population living in most deprived areas/reliant on key benefits/income deprived ▪ general resident perception surveys

Source: adapted from the Office of the Deputy Prime Minister et al. (2005:65). Crown copyright.

Coverage of health determinants

Systematic studies have not been conducted to examine the coverage of health in sustainability appraisal in the same way that authors have examined the coverage of socioeconomic effects in EIA (for example, Chadwick, 2002), or the coverage of health in SEA (Fischer, Martuzzi and Nowacki, 2010), although one analysis of the consideration of health in SEA does include a single case study on an English sustainability appraisal (Nowacki, Martuzzi & Fischer, 2010). However, Burns and Bond (2008) did examine the extent to which land-use planners felt that they considered a variety of determinants of health in the plan-making process. They conducted a questionnaire survey of planners working in 32 different district councils in the Eastern region of England. The survey coincided with a time shortly after sustainability appraisal became mandatory. An analysis was made of the specific areas on which planners are legally bound to focus by virtue of national planning policy:

- economy
- housing
- retail
- countryside
- telecommunications
- minerals
- waste

Legally binding areas on which planners have to focus

- transport
- open space
- sport and recreation
- energy.

Table 2 indicates the responses to two specific questions by topic areas: which of the following planning policy topics do you consider will impact on human health; which three topics do you consider the planning system has greatest potential to influence?

Table 2: Scope of health in planning policies and ability of land-use planning to influence health determinants as perceived by planners in the East of England.

Topic Areas	Proportion of planners (% of respondents) recognizing health implications of policy area	Proportion of planners (% of respondents) identifying policy as one of the three most likely to be influenced through planning system
Open Space, sport & recreation	100	59
Housing	94	84
Economy	91	31
Transport	84	53
Waste	81	19
Telecommunications	69	6
Countryside	66	3
Energy	56	16
Minerals	37	0
Retail	28	0

Source: Adapted from Burns and Bond (©2008:188). Reproduced with permission from Elsevier.

The results make it clear that planners largely appreciate that the areas on which the plan focuses are determinants of health (even if they might not be familiar with the term “determinants”, they understand there are health implications). Some notable exceptions related to retail, where the location of retail has a significant effect on the transport mode of consumers and, therefore, the health implications. Also energy is a significant determinant of health, especially in relation to families suffering from fuel poverty, although only just over half of planners recognized this fact. Of more concern is the column on the right which indicates that even where planners are aware of an issue within their remit being a determinant of health, they are rarely of the opinion that they can have much, or even any, influence over the determinant (housing, transport and recreation being notable exceptions). This raises a particular concern about the expertise of those responsible for spatial planning and associated decision-making in relation to health.

The single case study of the coverage of health in sustainability appraisal referred to above (in Nowacki, Martuzzi & Fischer, 2010), specifically the Peterborough Development Plan, involved the researchers seeking answers to a predetermined set of questions regarding the inclusion of health in the

Planners largely recognize that areas on which plans focus are determinants of health

Planners are rarely of the opinion that they can have much or even any influence over the determinant

Based on the guidance a range of health determinants were covered in a exemplary case study

process. The results indicated coverage of a range of determinants in keeping with the Government guidance to derive objectives based on the current sustainability context (Office of the Deputy Prime Minister et al., 2005). However, no detailed assessment was provided for any determinant. Assessment was mentioned (but not detailed) for

- access to health services
- affordable housing
- air
- crime rates
- education
- effects on soils
- flora and fauna
- health inequalities
- health of minorities (with detailed baseline provided in most cases)
- healthy lifestyles
- leisure activities
- noise and light pollution
- open and green space
- poverty
- social exclusion
- social inequality
- unemployment
- waste
- water
- weather/climate/flooding,

but assessment was not mentioned for

- food
- health and safety
- houses and buildings
- satisfying employment (Nowacki, Martuzzi & Fischer, 2010).

The case study review suggested the scoping exercise identifying the issues to examine in the sustainability appraisal was very thorough, as was collection of baseline data, but the evidence for use of the baseline data in subsequent analysis was weak.

Involvement of public health experts

Bond, Cave and Ballantyne (2013) analysed the consideration of health within planning in England over a six-year period (2005–2010) and explored the role of health professionals. The legal context is that health professionals are statutory consultees in the Local Plan preparation process, but they are not statutory consultees in the sustainability appraisal process. Bond, Cave and Ballantyne (2013) found that those involved in the sustainability appraisal, including the planners and statutory consultees, felt they had insufficient expertise to fully appreciate the health implications of the decision they were making. Engagement with health professionals was

Evidence for use of the baseline data in subsequent analysis was weak

Planners feel that they have insufficient expertise to fully appreciate the health implications of the decision they were making.

Engagement with health professionals was found to be sporadic

found to be sporadic and varied widely on a spectrum varying between no contact at all, and regular dialogue. Even where dialogue did take place, there was a feeling that the health professionals did not fully understand how planning worked and, rather than advise on determinants of health, they tended to focus on the expected demands that would be placed on health infrastructure and the potential need for additional primary care, or hospital capacity. There was a strong feeling that, without legal requirement to have dialogue between planners and health professionals, the existing workloads of both parties would often preclude meaningful contact. This despite the Kiev Protocol (UNECE, 2003) requiring the appointment of health professionals as statutory consultees in the SEA process and being ratified by the EU. To date, there has been no move to alter the wording of the SEA Directive to demand consultation in the SEA process with health professionals, which would then place obligations on the United Kingdom to require the same dialogue as part of sustainability appraisal.

Health professions did not fully understand how planning worked

Health and sustainability assessment in Australia

Policy and legislative basis

In the Australian context both HIA and sustainability assessment remain emerging and somewhat marginalized forms of impact assessment, although HIA is better established with stronger legislative backing than sustainability assessment: Harris and Spickett (2011) note that HIA is mandated in three Australian jurisdictions (Victoria, New South Wales and the Australian Capital Territory) though not at the Commonwealth level nor in the remaining five States or Territories. They also note that practice to date has focused mainly on the integration of health considerations into project EIA and suggest that this is well established, while there is more patchy uptake of “policy HIA” which they define as HIA conducted outside a regulatory EIA framework. There is however, evidence of HIA practice across a diverse range of applications in Australia (Harris-Roxas et al., 2012).

HIA and sustainability assessment are emerging with HIA being better established with stronger legislative backing

In contrast, sustainability assessment is not specifically mandated in any Australian jurisdiction. In practice, many forms of planning and even EIA can be considered forms of sustainability assessment if they seek to deliver positive contributions to environmental, social and economic objectives, noting that the scope of EIA depends largely upon the definition of “environment” within environmental legislation and the extent to which this embraces social dimensions, including health, as well as biophysical ones. In Western Australia, a previous government led several experimental sustainability assessments of project proposals that were specifically designed to overcome limitations (from a sustainability perspective) of the biophysical definition of environment in the Environmental Protection Act 1986 (Western Australia Minister for Environment, 1986), under which EIA is conducted (Morrison-Saunders & Pope, 2013). While the Western Australia EIA system has been held up to be particularly strong in an international context (Wood, 2003), consideration of the social and health

Many forms of planning and EIA can be considered to be forms of sustainability assessment

Considerations of social and health dimensions in Western Australian EIA is less systematic and robust than considerations of the environment

Sustainability assessment stopped after change in government

State Sustainability Strategy committed to develop and implement HIA

There is no legal requirement for the Environmental Protection Agency to consult with the Department of Health

Both sustainability assessment and HIA have continued in practice despite lack of statutory backing

dimensions is far less systematic and robust. In the following discussion we will focus specifically on the Western Australian context and the incorporation of health into project sustainability assessment.

When the Western Australian Government released the Western Australian State Sustainability Strategy in 2003 (Western Australia Government, 2003), included amongst the broad range of actions outlined in the Strategy was a commitment to undertake sustainability assessment of complex and strategic projects. Two such sustainability assessments were conducted before a change of Premier and then Government brought about the end of the experiment (Morrison-Saunders & Pope, 2013). In both cases, biophysically-oriented statutory EIA was supplemented with non-statutory social and economic assessments, and attempts were made to bring the different perspectives together to provide an overarching sustainability perspective to the project proposals. Health considerations were a minor and largely implicit part of the process in both cases.

The State Sustainability Strategy also included a commitment to develop and implement processes for HIA, and specifically to incorporate HIA into the evolving practice of sustainability assessment, in recognition of the strong links between human health and sustainability (Western Australia Government, 2003). The barriers to broad HIA uptake were also recognized in this work, particularly the lack of statutory backing and the limitations of the Public Health Act 1911 (Western Australia Government, 2008) in providing an appropriate framework for HIA (Harris & Spickett, 2011). In addition the Department of Health is not designated as a Decision-Making Authority under the Environmental Protection Act 1986 and therefore there is no legal requirement for the Environmental Protection Agency (EPA) to consult with Department of Health on the health implications of proposals under the EIA process. Despite these challenges, considerable progress on HIA was made, even after sustainability assessment effectively disappeared from the policy agenda in 2006. A proposal was put forward for a new Public Health Act; it was agreed that all strategic projects subject to the new Integrated Project Approvals System (IPAS) would be referred to the Department of Health; and a Memorandum of Understanding between the EPA and Department of Health was mooted to promote consideration of health impacts within EIA as well as the application of Health Risk Assessment. Despite the fact that the new Act and the Memorandum of Understanding have not eventuated, and IPAS has been replaced by other processes in which health requirements are more ambiguous, there is real evidence of HIA practice in Western Australia today.

In summary, what is perhaps most interesting about the current state of practice of both sustainability assessment and HIA in Western Australia is that despite lack of statutory backing or even clear policy support, both HIA and sustainability assessment have continued in practice, particularly in a project context. This is largely due to the efforts of private proponents who realize that a broad sustainability approach is essential if they are to obtain and maintain a social licence to operate.

Guidance, methodologies and tools for incorporating health

As a result of the State Sustainability Strategy commitments, a considerable amount of work was undertaken by the Department of Health to establish HIA processes and practice in the state. In addition to integration into sustainability assessment, the HIA in the Western Australia Discussion Paper identifies opportunities for the integration of HIA into EIA (including EIAs of smaller projects that would not be subject to sustainability assessment), regional land-use planning (facilitated by the State), and local government land-use planning (Western Australia Department of Health, 2007). Guidelines promoting the use of tools such as the health risk assessment were also issued during this period (Western Australia Department of Health, 2006). Health risk assessment guidelines specifically for projects were subsequently also prepared (Spickett, Katscherian & Miang Goh, 2012), although it is not clear whether these are utilized within EIA practice.

Coverage of health determinants

Project proposals can cause significant impacts on determinants of health many years in advance of any work commencing, particularly if the project is large enough to significantly impact on a particular community. Fear and apprehension in individuals clearly have potential health impacts, and in many cases social capital and community cohesion are affected when some sectors of the community support the project development while others oppose it. Then, when the project actually commences, further, more tangible issues also come into play, including impacts on the local environment and pressures on local infrastructure and services. The potentially disruptive force of major projects is particularly evidenced by major resource development projects proposed in areas that have previously not been industrialized. Importantly, however, such developments in remote areas are also increasingly viewed as opportunities to significantly improve the health and well-being of marginalized groups, particularly indigenous communities located near these projects. In addition to financial compensation in return for access to traditional land, such projects offer training, employment and business opportunities to people who may have been previously excluded from the mainstream economy. Indeed, the potential for a project to contribute positively to the lives of disadvantaged people is often a key factor in evaluating the overall sustainability of such a proposal (see, for example, Gibson, 2011). Thus projects have the potential to bring about rapid and fundamental change within a community and dramatically affect determinants of health, arguably far more so than planning initiatives that tend to be based on comparatively minor amendments to the status quo.

In the discussion that follows, we will use a particular case study to evaluate the extent to which health issues are (or potentially can be) covered within sustainability assessment in Western Australia: the strategic assessment of the proposed Browse Liquefied Natural Gas (LNG) Precinct. In the following

Projects in remote areas are also increasingly viewed as opportunities to significantly improve health and well-being of marginalized groups

Projects have the potential to dramatically affect determinants of health

evaluation, we draw on the determinants of health presented in Fig. 1 (Barton & Grant, 2006:2). We assess the extent to which these determinants were considered in the assessment processes; consider whether or not the health implications of changes to these determinants were considered; and reflect on what the case study suggests about both HIA and sustainability assessment practice in Western Australia.

Firstly it is important to state that the Browse assessment process was neither technically a sustainability assessment nor a project. The proposal by the Western Australian Government (through the Department of State Development) to establish a multiuser LNG processing precinct at James Price Point north of Broome was the subject of strategic assessment under both the Environmental Protection Act 1986 (Western Australia Minister for Environment) and the Environment Protection and Biodiversity Conservation Act 1999 (Australian Government, 1999). Despite this, it can be argued that the proposal is much closer to a project (albeit a large one) than to a land-use plan such as those that are subject to sustainability appraisal in England. And although the Browse strategic assessment was not termed a sustainability assessment, and in fact both the Western Australian and Commonwealth legislation are largely limited to a biophysical focus, social and socioeconomic impact assessments were undertaken by the Western Australian Government and these reports were included within the Strategic Assessment Report (Western Australia Department of State Development, 2010). A specific Aboriginal SIA was also conducted by the Kimberley Land Council, the group representing traditional owners. Thus it can be argued for the purposes of this discussion that the Browse proposal was subject to a project-level sustainability assessment. The following analysis is based upon the publically available Strategic Assessment Report (Western Australia Department of State Development, 2010).

Starting at the centre of Fig. 1 (p. 2) to look at the first two spheres of “people” and their “lifestyle”, it is important to note that there are several potentially affected groups of people who needed to be considered at this level:

- the workers, the vast majority of whom would be “fly in/fly out” either from the Western Australian capital city of Perth or increasingly from regional centres and even South East Asia;
- the families they left behind in the city;
- the local community of Broome; and
- the nearby Aboriginal communities.

Many of the lifestyle impacts would be borne by the workers and their families; while high levels of remuneration could bring many positive changes, the negative impacts of the fly in/fly out regime and associated long shifts are becoming increasingly well known. Despite recognition of the issues, the Strategic Assessment Report did not discuss the health and well-being of the workforce or identify poor work/life balance as a determinant

Legislation is largely limited to biophysical focus, but social and socio-economic impact assessment were included in the report

Affected population groups that needed to be considered in the assessment

The Strategic Assessment Report did not discuss health and well-being of fly-in/fly-out workforce

of health. Some consideration was given to the potential for drug and alcohol issues to develop in the workers' camps and for an illegal sex industry to develop, which could have also potentially impacted the health of the workers. While it is known that individuals within the local communities could also be affected at a personal level, for example, through fear or uncertainty about the potential impacts of the proposed development on their lives, or a sense of powerlessness to influence the course of future events, these issues were not considered in any detail in the Strategic Assessment Report.

Beyond individuals, the next sphere considers the community as a whole, and in this case the appropriate focus was the town of Broome and the Aboriginal communities. In addition to social capital identified in Fig. 1 (p. 2), other determinants here could include community identity, sense of place and social mix, all of which are considered in the Strategic Assessment Report. It was repeatedly acknowledged in the document that the sense of place of the local community was likely to be negatively affected as Broome shifted from being a tourism centre to also becoming a support base for a major industrial development, and that this could also impact on the tourism industry by affecting the Broome "brand". There was also extensive discussion of the impacts of a large workforce (mainly in the construction phase), comprising mainly young men earning high salaries on the town, as well as the potential for an influx of opportunistic workers arriving in Broome seeking a job on the project. The Strategic Assessment Report acknowledged both impacts on social cohesion and potential increases in anti-social behaviour and crime. Culture is another important determinant of health and well-being at the community level, and this is particularly so for indigenous people whose traditional cultures are often under threat from many angles. This issue was well recognized in the Aboriginal SIA and also reflected in the Strategic Assessment Report, which acknowledged that almost everything about the proposal, including its physical presence, had the potential to impact negatively on indigenous culture.

At the next level of the local economy, the Strategic Assessment Report had much to say. It considered the potential positive impacts of employment and business opportunities for the local communities, and also acknowledged potential negative impacts on other industries such as fishing and tourism, which were the subject of specialist impact assessments.

Similarly, determinants of health and well-being at the level of "activities" were generally well considered. It was acknowledged that the proposed development would have far-reaching impacts on the ways in which the people of Broome work, play, shop and move around. For example, it was predicted that prices would be likely to rise, roads would become more congested, access to some local recreation areas would be prohibited, and local workers could be enticed to leave their roles in the service industry to earn higher salaries on the project, thus impacting the social fabric of the town and the services offered. Less consideration was given to the next

Impacts on local communities at personal level were not assessed

Community identity, sense of place and social mix were discussed in the assessment

Cultural issues were covered in the Aboriginal SIA and reflected in the strategic assessment report

Positive as well as negative impacts on the local economy were especially assessed

Impacts on Broome citizens at the level of activities were well assessed

The built environment was less considered, as the new camp would be 50 km away

sphere of the built environment, which is probably appropriate in this case seeing as the development and associated workers' camp would be located approximately 50 km from the town of Broome itself.

The natural environment was comprehensively considered, including potential impact for the indigenous culture

The natural environment was comprehensively considered in the environmental volumes of the Strategic Assessment Report, in keeping with standards for EIA in Western Australia. As has been noted previously, in many cases environmental determinants have a direct impact on human health (for example air pollution). The potential for cultural impacts, particularly indigenous culture was also recognized, for example, vegetation clearing and altered fire regimes could cause a loss of culturally significant species. Nuisance impacts such as noise, vibration and light were also considered. In the sphere of global systems, the potential of the project to contribute to climate change was acknowledged.

Most determinants of health were at least acknowledged but significant gaps related to the individual level of community members

In summary, it can be concluded that most of the determinants of health were at least acknowledged in the Browse LNG Precinct Strategic Assessment Report. Significant gaps were found, however, at the level of individuals and include the lack of focus on the health and well-being of workers and their families and lack of recognition of the impact of fear, uncertainty and powerlessness amongst local community members. A particular strength was the acknowledgement of the impact of changes in the natural environment on indigenous cultural values. A number of potential health impacts were summarized in Part 5: Social Assessment of the Strategic Assessment Report (Western Australia Department of State Development, 2010) and can be found in Table 3 below. These did not include the potential impacts arising from all the determinants acknowledged in the report with only air emissions, physical presence, vehicle movements, workforce and "general population factors" identified as stressors.

Three main flaws with respect to health considerations in project EIAs

Harris et al. found in their study of project EIAs in the State of New South Wales in Australia that there were three main flaws with respect to health considerations (Harris et al., 2009):

- Little or no health data were used to inform the analysis;
- No consideration of causal pathways between determinants and health outcomes; and
- Little consideration of equity and distribution issues.

It is not clear if health data were directly used to inform the assessment

The Browse assessment reflected some of these concerns to some degree. It is not clear that health data were directly used to inform the analysis, and there is no quantitative assessment of health risks using the Department of Health's Health Risk Assessment methodology. However, it can be argued that since the LNG Precinct is located 50 km from the major population centre of Broome and at least 20 km from indigenous communities, and that the workforce is to be housed in a closed camp near the site, that health risks are actually very low due to the lack of proximity of the hazards to the receptor communities. Furthermore, while causal pathways are not always explicitly articulated in the Strategic Assessment Report, the

Low health risks to the receptor communities due to lack of proximity

determinants of health have clearly been understood and fairly comprehensively considered in the assessment process itself. Equity and distribution issues have been considered, particularly with respect to vulnerable Aboriginal communities.

Table 3: Impact assessment summary for human health

Socioeconomic Aspect (stressor)	Potential Impact	Mitigation Measures			Significance of Residual Impact
		State Government Measures	Proposed Environmental Condition (where relevant to socioeconomic factors)	Future proponent management plans	
Air emissions	Potential health impacts associated with air emissions, primarily potential increase in particulate matter.	Prepare and implement a closure and decommissioning strategy for the Browse LNG Precinct and related activities for the purpose of providing a timely and consistent approach to removal or retention of plant and infrastructure, rehabilitation of disturbed areas.	No specific environmental condition proposed.	Development of Precinct Health, Emergency Services, Policing (State will be responsible for policing) and Security to ensure that health and emergency services required to service the BLNG Precinct do not impact on Broome services. Prepare and implement a CEMP to the satisfaction of the Western Australian Minister for Environment, which addresses the following: schedule of construction activities; details of the construction methods to be used; objectives and targets; environmental management environmental training and inductions; and environmental monitoring, contingencies and reporting, and stakeholder consultation. Prepare and implement an Air Quality Management plan. To incorporate buffer zone requirements. Prepare and implement a Traffic Management Plan. Prepare and implement Waste Management Plan	Very Low
Physical Presence	Potential impacts resulting from potential pollution incidents, creation of areas of standing water (increasing the likelihood of insect borne disease), waste management.	Prepare an overarching Emergency Response Plan that addresses: <ul style="list-style-type: none"> o risk assessment of potential emergencies (including bushfires, introduction of foreign pests, flooding and spills); o emergency response equipment and training; o emergency response procedures; o responsibilities during emergency response; and o reporting, review and improvement as required. 			Very Low
Vehicle movements	Potential impacts from increase vehicle numbers, particularly in relation to increases in heavy vehicle during the construction period.				Very Low
Workforce	There is the potential impacts of the workforce potentially require use of existing facilities which may result in increased pressure on existing services [sic]. There is also the potential impact on the current population in terms of increased risks of STIs and drug and alcohol abuse, associated with the workforce.				Low
General population factors	Wider indirect impacts associated with general population increase that may be accelerated due to the presence of the BLNG Precinct, and the impacts associated with increased pressure on existing resources.				Low

Source: Western Australia, Department of State Development (2010:4–172). Reproduced with permission.

Sustainability assessment provides a valuable framework for meaningful consideration of health

The involvement of health professionals in broader assessments is ad hoc

There are significant overlaps between levels of assessment

Sustainable development became a central goal in the rhetoric of political parties

This generally good result is largely due to the processes of the social, socioeconomic and Aboriginal impact assessments, which were undertaken for this proposal but are not generally common practice in Western Australian EIA due to the lack of statutory requirement. However, since these studies are essential to any sustainability assessment, it can be argued that sustainability assessment can provide a valuable framework within which the health impacts of project proposals can be meaningfully considered. In the Browse case, as for most project proposals in which rigorous analysis and prediction of social and health impacts is extremely difficult, the actual outcomes of the project are largely dependent upon monitoring and management programmes.

Involvement of public health experts

In their study of EIA in New South Wales, Harris et al. also identify the potential for health professionals to engage more directly in EIA processes (Harris et al., 2009). In the case of the Browse LNG precinct assessments process both local health service and Department of Health representatives were extensively involved, representing another strength of the process. However, due to the lack of clearly defined and agreed processes, the involvement of health professionals in HIA undertaken as part of a broader assessment process in Western Australia is ad hoc, and largely dependent upon the awareness and networks of the individuals involved. The proposed new Public Health Act and Memorandum of Understanding between the EPA and Department of Health would go a long way to providing the required level of formality in this respect.

Existing ties with other impact assessment processes

A recent special issue of “Impact Assessment and Project Appraisal” specifically examined the state-of-the-art of impact assessment processes, focusing on:

- EIA (Morgan, 2012),
- HIA (Harris-Roxas et al., 2012),
- policy assessment (Adelle & Weiland, 2012),
- SEA (Fundingsland Tetlow & Hanusch, 2012),
- SIA (Esteves, Franks & Vanclay, 2012), and
- sustainability assessment (Bond, Morrison-Saunders & Pope, 2012).

This issue, together with a reflection on the state-of-the-art of impact assessment in general provided in Bond, Morrison-Saunders and Pope (2012), make it clear that there are significant overlaps between levels of assessment, and that the existing range of different tools creates a somewhat confusing picture for both observers and some stakeholders alike.

The move towards sustainability assessment can be traced back to the 1992 global conference on the environment and development that led to the globalization of “sustainable development” and the subsequent creation by governments around the world of sustainable development strategies. In

effect, this made sustainable development a central goal in the rhetoric of political parties, and could be argued to have led both to a realignment of traditional environmental advocacy tools like EIA and SEA (see, for example, Morrison-Saunders & Fischer, 2006). Some specific examples are indicated below.

EIA is the decision-tool most widely legislated for globally. Even within this one specific tool-type, the scope of the “environment” varies dramatically, although is usually focused on the bio-physical environment. This reflects the arguments for the need for EIA in the 1960s that led to the NEPA (1969) in the United States. The biophysical environment is sufficiently broad that it can still lead to expensive and time consuming studies, and accusations that particular environmental components are investigated in insufficient depth, or using tools which cannot accommodate inherent uncertainty. Observers anxious to see an increased scope for EIA encompassing sustainability goals rather than biophysical conservation have been quick to point out the lack of adequate coverage of, for example, socioeconomic or health impacts. For the latter, significant progress has been made in Europe under the auspices of UNECE.³ This Commission recognized the need for EIA processes to consider transboundary effects many years ago, and produced the Convention on Environmental Impact Assessment in a Transboundary Context (UNECE, 1991) (known as the Espoo Convention) which entered into force in 1997. The parties to the Convention (those that have ratified) meet regularly and develop other agreements, such as the Protocol on Strategic Environmental Assessment (UNECE, 2003) (known as the Kiev Protocol) which entered into force in 2010. The discussions over new agreements include relevant NGOs and this allowed WHO to ensure that the Kiev Protocol uses the term *environment and health* throughout, thereby increasing the profile of the health component within SEA conducted in compliance with the Protocol.

At the same time, WHO was active in the development of European Ministerial Conferences on Environment and Health the third one of which, taking place in London in 1999, led to the “London Declaration” which promised to “carry out environmental impact assessments fully covering impacts on human health and safety” (WHO Regional Office for Europe, 1999:4). In 2014 the European Commission (EC) adopted a proposal for an amendment to the EIA Directive (EC, 2012) which aims to add to the scope of the environment, adding the need for consideration of “human health” to the existing requirement to consider effects on the “population” (EC, 2014)⁴.

Scope of the environment varies dramatically in EIA

UNECE Kiev Protocol on SEA increased the profile of health component within SEA

WHO European Ministerial Conferences on Environment and Health supported the inclusion of health in EIA and SEA.

Consideration of human health and effects on population are to be included in the EIA Directive

³ UNECE is covering 56 countries including the United States and Canada.

⁴ The initial EIA Directive (85/337/EEC) of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13 December 2011. Directive 2011/92/EU has been amended in 2014 by Directive 2014/52/EU; see <http://ec.europa.eu/environment/eia/eia-legalcontext.htm>.

EIA is increasing its scope also in regard to biodiversity, vulnerability and resilience

Legal basis of EIA and SEA Directives provide a greater guarantee of inclusion of health

There is a need to ensure that sufficient health expertise exists within EIA and SEA processes

Sustainability assessment requires the consideration of the policy context

As such, there is evidence of EIA beginning to encompass human health within the overarching definition of the “environment”. There is other evidence of a shift in EIA to encompass a greater scope, with the same proposal for an amended EIA Directive also including a need to examine effects on biodiversity and exposure, vulnerability and resilience to man-made and natural risks. Such increases in the scope of EIA may have implications for the future practice of sustainability assessment if it becomes to be seen as redundant. These changes reflect a shift in the stated purposes of assessment processes towards a definition of sustainability in which human health is a key consideration. In any case, the legal requirement to consider human health within the SEA Directive, and possibly within an amended EIA Directive, provides a much greater guarantee of inclusion of health in assessment processes than does a determinants-driven approach guided by the objectives and goals of a specific decision context, where the very nature of sustainable development leads to a reductionist approach (Bond & Morrison-Saunders, 2011) in which health determinants may be marginalized purely because of the need to ensure a sustainability framework is practicable.

Outlook

Whether health is considered through a determinants-based approach within a form of sustainability assessment, or specifically as an “environmental” variable within SEA or EIA, there is a need to ensure that sufficient expertise exists to fully predict and understand the health consequences of proposed actions. Evidence has indicated that health and planning functions are often separated in modern societies, and this has the potential to bring with it unintended ignorance when considering proposals. In moving forward, health professionals need to work alongside environmental and planning professionals to ensure a thorough understanding of health implications is conveyed.

Sustainability assessment, as currently practiced, invariably requires the consideration of the existing policy context to set the boundaries of the study. This boundary needs to include the goals set out in National Environmental Health Action Plans (NEHAPs) to ensure that sustainability objectives and indicators encompass the recognized health issues.

References

- Adelle C, Weiland S (2012). Policy assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):25–33.
- Australian Government (1999). *Environment Protection and Biodiversity Conservation Act 1999*. ACT: Australian Government (<http://www.comlaw.gov.au/Series/C2004A00485>, accessed 3 April 2014).

- Barton H, Grant M (2006). A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health* 126(6):252–3. doi: 10.1177/1466424006070466.
- Bond A, Cave B, Ballantyne R (2013). Who plans for health improvement? SEA, HIA and the separation of spatial planning and health planning. *Environmental Impact Assessment Review*, 42:67–73. DOI: 10.1016/j.eiar.2012.10.002.
- Bond A, Morrison-Saunders A (2009). Sustainability appraisal: Jack of all trades, master of none? *Impact Assessment and Project Appraisal*, 27(4):321–9.
- Bond A, Morrison-Saunders A (2011). Re-evaluating Sustainability Assessment: aligning the vision and the practice. *Environmental Impact Assessment Review*, 31(1):1–7.
- Bond A, Morrison-Saunders A, Howitt R, editors (2013). *Sustainability assessment: pluralism, practice and progress*. London: Routledge.
- Bond A, Morrison-Saunders A, Pope J (2012). Sustainability assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):53–62.
- Burns J, Bond A (2008). The consideration of health in land use planning: barriers and opportunities. *Environmental Impact Assessment Review*, 28(2–3):184–97.
- Chadwick A (2002). Socioeconomic Impacts: Are They Still the Poor Relations in United Kingdom Environmental Statements? *Journal of Environmental Planning and Management*, 45(1):3–24.
- Department for Communities and Local Government (2012). *National Planning Policy Framework*. London, Department for Communities and Local Government (<http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf>, accessed 3 April 2014).
- Döberl G, Ortman M, Frühwirth W (2013). Introducing a goal-oriented sustainability assessment method to support decision making in contaminated site management. *Environmental Science & Policy*, 25:207–217.
- EC (2012). Proposal for a Directive of the European Parliament and of the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. *Official Journal of the European Union*, L26:1–21 (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:EN:PDF>, accessed 17 January 2013).
- EC (2014). Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment Text with EEA relevance. *Official Journal of the European Union*, L124:1–18 (<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0052>, accessed 25 September 2014).
- Elkington J (1997). *Cannibals with forks: The triple bottom line of 21st century business*. Oxford: Capstone Publishing Limited.

- Esteves AM, Franks D, Vanclay F (2012). Social impact assessment: The state of the art. *Impact Assessment and Project Appraisal*, 30(1):34–42.
- European Parliament and Council of the EU (2001). 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. *Official Journal of the European Communities*, L197:30–7.
- Feldmann L, Vanderhaegen M, Pirotte C (2001). The EU's SEA Directive: status and links to integration and sustainable development. *Environmental Impact Assessment Review*, 21(3):203–22.
- Fischer TB, Martuzzi M, Nowacki J (2010). The consideration of health in strategic environmental assessment (SEA). *Environmental Impact Assessment Review*, 30(3):200–10.
- Fundingsland Tetlow M, Hanusch M (2012). Strategic environmental assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):15–24.
- Gibson R (2011). Application of a contribution to sustainability test by the Joint Review Panel for the Canadian Mackenzie Gas Project. *Impact Assessment and Project Appraisal*, 29(3):231–44.
- Hacking T, Guthrie P (2008). A framework for clarifying the meaning of Triple Bottom-Line, Integrated, and Sustainability Assessment. *Environmental Impact Assessment Review*, 28(2–3):73–89.
- Harris P, Harris E, Thompson S, Harris-Roxas B, Kemp L (2009). Human health and wellbeing in environmental impact assessment in New South Wales, Australia: Auditing health impacts within environmental assessments of major projects. *Environmental Impact Assessment Review*, 29(5):310–18.
- Harris P, Spickett J (2011). Health impact assessment in Australia: A review and directions for progress. *Environmental Impact Assessment Review*, 31(4):425–32.
- Harris-Roxas B, Vilianni F, Bond A, Cave B, Divall M, Furu P et al. (2012). Health impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):43–52.
- Morgan RK (2012). Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):5–14.
- Morrison-Saunders A, Fischer TB (2006). What is wrong with EIA and SEA anyway? – A Sceptic's Perspective on Sustainability Assessment. *Journal of Environmental Assessment Policy and Management*, 8(1):19–39.
- Morrison-Saunders A, Pope J (2013). Chapter 10: Learning by doing: sustainability assessment in Western Australia. In: Bond A, Morrison-Saunders A, Howitt R. *Sustainability Assessment: Pluralism, Practice and Progress*. London: Routledge; 140–66.
- Nowacki J, Martuzzi M, Fischer TB, editors (2010). Health and strategic environmental assessment. WHO consultation meeting, Rome, Italy, 8–9 June 2009. Background information and report. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0006/112749/E93878.pdf, accessed 1 April 2014).

- Office of the Deputy Prime Minister, Scottish Executive, Welsh Assembly Government, Northern Ireland Department of the Environment (2005). *A Practical Guide to the Strategic Environmental Assessment Directive*. London: Office of the Deputy Prime Minister.
- Planning Advisory Service (2010). *Sustainability Appraisal Advice Note*. London: Planning Advisory Service.
- Retief F (2013). Sustainability assessment in South Africa. In: Bond A, Morrison-Saunders A, Howitt R, editors. *Sustainability assessment: pluralism, practice and progress*. London: Routledge; 184–96.
- Saadatian O, Sopian K, Salleh E (2013). Adaptation of sustainability community indicators for Malaysian campuses as small cities. *Sustainable Cities and Society*, 6(1):40–50.
- Santana-Medina N, Franco-Maass S, Sánchez-Vera E, Imbernon J, Nava-Bernal G (2013). Participatory generation of sustainability indicators in a natural protected area of Mexico. *Ecological Indicators*, 25:1–9.
- Sharifi A, Murayama A (2013). A critical review of seven selected neighborhood sustainability assessment tools. *Environmental Impact Assessment Review*, 38:73–87.
- South Cambridgeshire District Council (2011). *Health impact assessment Supplementary Planning Document*. Cambourne: South Cambridgeshire District Council.
- Speiser B, Stolze M, Oehen B, Gessler C, Weibel FP, Bravin E et al. (2013). Sustainability assessment of GM crops in a Swiss agricultural context. *Agronomy for Sustainable Development*, 33(1):21–61.
- Spickett J, Katscherian D, Miang Goh Y (2012). A new approach to criteria for health risk assessment. *Environmental Impact Assessment Review*, 32(1):118–22.
- Thérivel R, Christian G, Craig C, Grinham R, Mackins D, Smith J et al. (2009). Sustainability-focused impact assessment: English experiences. *Impact Assessment and Project Appraisal*, 27(2):155–68.
- Tsung N, Corotis R, Chinowsky P, Amadei B (2013). A retrospective approach to assessing the sustainability of the Grand Canal of China. *Structure and Infrastructure Engineering*, 9(4):297–316.
- UN (1992). *Report of the United Nations Conference on Environment and Development. Annex I: Rio Declaration on Environment and Development*. New York: United Nations (A/CONF.151/26(Vol.I); <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>, accessed 2 April 2014).
- UNECE (1991). *Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) – the ‘Espoo (EIA) Convention’*. Geneva: United Nations Economic Commission for Europe (http://www.unece.org/env/eia/about/eia_text.html, accessed 7 April 2014).
- UNECE (2003). *Protocol on strategic environmental assessment to the convention on environmental impact assessment in a transboundary context*. Geneva: United Nations Economic Commission for Europe (http://www.unece.org/env/eia/sea_protocol.html, accessed 3 April 2014).

- Western Australia, Department of Health (2006). Health Risk Assessment in Western Australia. Perth: Department of Health, Western Australia (http://www.public.health.wa.gov.au/cproot/1499/2/Health_Risk_Assessment.pdf, accessed 3 April 2014).
- Western Australia, Department of Health (2007). Health impact assessment in WA. Discussion Paper. Perth: Department of Health, Western Australia (http://www.public.health.wa.gov.au/cproot/1495/2/Health_Impact_Assessment_in_WA_Discussion_Paper.pdf, accessed 3 April 2014).
- Western Australia, Department of State Development (2010). Browse Liquefied Natural Gas Precinct: Strategic Assessment Report. Part 5 Social Assessment. Perth: Department of State Development, Western Australia (<http://www.dsd.wa.gov.au/8249.aspx>, accessed 3 April 2014).
- Western Australia, Government (2003). Hope for the Future: The Western Australian State Sustainability Strategy. Perth: Department of the Premier and Cabinet.
- Western Australia, Government (2008). Health Act 1911. Perth: Department of the Premier and Cabinet.
- Western Australia, Minister for Environment (1986). Environmental Protection Act 1986. Perth: Department of Environment Regulation.
- Wood C (2003). Environmental impact assessment: A Comparative Review. Edinburgh: Prentice Hall.
- WCED (1987). Report of the World Commission on Environment and Development: Our Common Future. New York: United Nations (<http://www.un-documents.net/our-common-future.pdf>, accessed 3 April 2014).
- WHO (1946). Constitution. Geneva: World Health Organization (http://www.who.int/governance/eb/who_constitution_en.pdf, accessed 1 April 2014).
- WHO (1998). Health Promotion Glossary. Geneva: World Health Organization (<http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf>, accessed 3 April 2014).
- WHO Regional Office for Europe (1999). London Declaration on Action in Partnership. Third Ministerial Conference on Environment and Health, London, 16-18 June 1999. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0007/88585/E69046.pdf, accessed 3 April 2014).
- WHO Regional Office for Europe (2000). Air Quality Guidelines for Europe. Second Edition. Copenhagen: WHO Regional Office for Europe (http://www.euro.who.int/__data/assets/pdf_file/0005/74732/E71922.pdf, accessed 3 April 2014).

Health in SIA

By Lea den Broeder and Frank Vanclay

Summary

Social impact assessment (SIA) developed alongside EIA in the early 1970s as a mechanism to consider the social impacts of planned interventions. The early understanding tended to limit the practical application of SIA to the project level, usually within the context of regulatory frameworks, and primarily considered only the direct negative impacts. However, like other types of impact assessment, SIA has evolved over time and has diverged considerably from EIA. Nowadays, SIA has widened its scope to become a “philosophy about development and democracy”. Ideally SIA considers the pathologies, goals, and processes of development. In this broad understanding, it now focuses on the management of all social issues, intending to bring about a more sustainable and equitable biophysical and human environment.

The SIA field defines “social” very broadly, as “anything that affects people and their communities”. Thus, for example, all environmental impacts are also social impacts because people depend on the environment for their livelihoods as well as their physical and spiritual well-being. Social impact concepts include people’s way of life, their culture, community, political systems, environment, health and well-being, personal and property rights, and their fears and aspirations.

Formerly seen as a regulatory tool required by regulatory agencies but resented by proponents, SIA, for a variety of reasons, is now increasingly being embraced by corporations and used as an internal process for managing social issues. Such a shift towards corporate acceptance, of course, does not guarantee that SIA will always be done properly, or that it is able to adequately influence company operations.

Several other shifts have been observed:

- *greater consideration of benefits;*
- *moving towards developing and implementing Social Impact Management Plans;*
- *communities themselves actively commissioning, or doing, their own SIA studies;*
- *SIA playing an important part in ensuring “free, prior and informed consent” and gaining a “social license to operate”.*

Health issues have a central place in SIA. Many of the social impacts of projects could also be described as health impacts, and all health impacts would be regarded as social impacts in SIA. In SIA, health impacts are considered amongst a wide range of impacts on people and communities. SIA practitioners are supposed to look from an integrated perspective. Arguably, this means that the determinants of health should be addressed when SIA is carried out properly. Nevertheless, SIA guidelines do not typically require a detailed analysis of the origins of, or pathways to, specific health conditions. There is, however, a strong awareness of indirect effects and cumulative effects.

In actual practice, the SIA approach used highly depends on the type of policy, plan or project being considered, as well as on the legal and cultural context, on client requirements, and on the commitment of the individual practitioner or consultancy. The SIA case studies considered in this chapter usually discussed the broader determinants of health but did not necessarily recognize them as such. The pathways from social impacts to health, and the linkages between health and social impacts, were not explicitly part of the analysis. Overall, the input of health expertise into SIAs seemed to be lacking. However, given the close connections between the HIA and SIA approaches, more cooperation and cross-fertilization between these two types of impact assessment can be expected in the future.

SIA developed in the early 1970s alongside EIA

Introduction to SIA

SIA developed alongside EIA in the early 1970s as a mechanism to consider the social impacts of planned interventions (Burdge & Vanclay, 1995). However, the early understanding of SIA was narrowly conceived, tending to apply SIA only at the project level (rather than at the policy level), only considering a narrow selection of immediate direct impacts (rather than indirect and cumulative effects), with the role of SIA being limited to the predictive assessment of negative consequences within the context of a regulatory framework (Vanclay, 2006). This limited understanding of SIA pervaded and continues to dominate the legislation, policy, procedures and organizational cultures of the environmental management agencies of many countries as well as of many environmental consultancies.

In contrast, nowadays most SIA professionals consider that SIA is more than a technique or step; it is philosophy about development and democracy. As such, ideally it considers the pathologies of development (i.e. impacts), the goals of development (for example, poverty alleviation), and the processes of development (for example, participation, capacity building) (Vanclay, 2003, 2004). Thus, SIA should also be involved in assisting communities to determine their development priorities, as well as being a process for incorporating the social dimensions into development projects (Esteves & Vanclay, 2009; Esteves, Franks & Vanclay, 2012).

Definitions of SIA

The contemporary understanding is that SIA is about “the processes of managing the social issues associated with planned interventions” (Esteves, Franks & Vanclay, 2012:35), and is largely equivalent to what is often called “social performance” in the corporate world. An elaboration of that definition is:

Social impact assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment (Vanclay, 2003:6).

Developments in SIA

Although SIA arguably applies to policies, plans and programs, the practice and thinking of SIA still tends to be at the project level because this is where the demand for SIA exists. A major change over time has been from SIA being seen only as a regulatory tool required by regulatory agencies and resented by proponents, to also being an internal corporate process of managing social issues actively embraced by leading corporations. This change has occurred for multiple reasons, including: the neoliberalist turn in notions about the role of governments; the growing acceptance by companies of the corporate social responsibility and sustainability agendas and their desire to be a “developer of choice”; the increasing expectations, activism and empowerment of communities; an increasing acceptance of the concept of “social licence to operate”; high profile litigation cases; as well as the fact that the SIA community has actively promoted the business case for doing SIA (Vanclay & Esteves, 2011; Vanclay, 2014).

Unfortunately, such a shift does not guarantee that SIA will always be done properly, have sufficient time and resources, or that the SIA process is able to adequately influence company operations (Kemp, 2011). In most settings, there remains many structural limitations affecting SIA, including the lack of training or accreditation of SIA practitioners, the lack of adequate peer review processes, and greenwashing by companies (Vanclay, 2004; Kemp, 2011; van der Ploeg & Vanclay, 2013). The level of funding and timing allocated to social issues continue to be inadequate.

Alongside the increasing corporate acceptance of SIA is a shift towards greater consideration of benefit enhancement in SIA processes. Thus, SIA not only predicts harm and plays a role in developing mitigation strategies, it also advises on how project benefits might be enhanced through local procurement and other actions. Related to this is an increasing expectation that projects actively contribute to community development, not through unfocused philanthropic gestures but through strategic local social investments (Esteves & Vanclay, 2009; João, Vanclay & den Broeder, 2011).

In government, too, there is a shift away from the evaluation of SIAs in terms of the extent to which they have adequately predicted the likely social impacts (akin to an EIS) to evaluation of the extent to which there is a reasonable plan for the management of social impacts, in other words, a Social Impact Management Plan (SIMP) (Franks & Vanclay, 2013).

A further change is that communities themselves are actively commissioning their own SIA studies or seeking to do them themselves. This is especially the case in situations where communities are negotiating Impacts and Benefits Agreements (IBAs) with proponents (O’Faircheallaigh, 2011). SIA becomes a particularly important part of ensuring “free, prior and informed consent” (FPIC). While FPIC is an expectation – and in certain jurisdictions a requirement – of companies dealing with indigenous communities (Hanna & Vanclay, 2013), it is also being conceived as a philosophy applicable to all communities (Vanclay & Esteves, 2011).

Whether proponent-directed or community-led, and whether for regulatory approval or company management, there is a set of activities that would typically be expected in a good practice SIA process (see Box 7).

Challenges for SIA

Increasing corporate acceptance of SIA

Shift in the understanding of SIA in governments

SIA helps to ensure “free, prior and informed consent”

Box 7: Activities to be undertaken in the course of doing an SIA**Overarching activities**

- facilitating participatory processes and deliberative spaces to enable community discussions about desired futures, the acceptability of likely impacts and proposed benefits, and community input into the SIA process, consistent with the principle of FPIC;
- facilitating an agreement-making process between the affected communities and the developer leading to the drafting of an IBA that is mutually acceptable and compatible with FPIC;
- ensuring that the proponent has fully considered all impacts on human rights by either ensuring that human rights impacts are considered in the SIA, or that a separate human rights impact assessment will be conducted.
- ensuring that the proponent has fully considered all health impacts by either ensuring that impacts on health are considered in the SIA, or that a separate HIA will be conducted.
- ensuring that a grievance mechanism – consistent with Principle 30 in the United Nations Guiding Principles on Business and Human Rights (UN, 2011) – is established to ensure that affected people with complaints against the proponent have a mechanism by which their concerns can be heard and resolved.

Scoping activities

- gaining a thorough understanding of the communities likely to be affected by the planned intervention (i.e. profiling), including undertaking a thorough stakeholder analysis to understand the differing needs and interests of the various sections of those communities;
- identifying community needs and aspirations;
- scoping the key social issues associated with the planned intervention (the significant negative impacts as well as the opportunities for creating benefits);
- collecting baseline data to provide a benchmark to measure change over time

Assessment activities

- predicting the social changes that may result from the policy, program, plan or project;
- establishing the significance of the predicted changes, and determining how the various affected groups and communities will likely respond;
- examining other options, especially in terms of social issues;

Mitigation & enhancement, monitoring and adaptive management activities

- identifying ways of mitigating potential impacts and maximizing positive opportunities;
- developing a monitoring plan to monitor change over time;
- implementing an adaptive management process to address unanticipated changes;
- assisting the proponent in the drafting of a SIMP that operationalizes all benefits, mitigation measures, monitoring arrangements and governance arrangements that were agreed to in the IBA, as well as plans for dealing with any ongoing unanticipated issues as they arise;
- putting processes in place to enable proponents, government authorities and civil society stakeholders to implement arrangements implied in the SIMP and IBA and to develop their own respective management action plans and embed them in their own organizations, establish respective roles and responsibilities throughout the implementation of those action plans, and maintain an ongoing role in monitoring.

Source: developed further from Vanclay & Esteves (2011); Esteves, Franks & Vanclay (2012), Vanclay (2012).

SIA is now an ongoing process of adaptive management

The shift in SIA – from being a regulatory tool to being a corporate process or management system – has changed the language of SIA and the way it is done. SIA is no longer a relatively short-term technique to produce a statement of predicted social impacts, which may (or more likely may not) influence decision-making and project management, it is now an ongoing process of adaptive management.

While reporting to stakeholders is still needed at various intervals, the emphasis is not on producing a report of the once-off prediction of impacts to inform a go/no go decision (as is the case with EISs), instead the focus is on the ongoing processes of managing the social issues, engaging the relevant communities, identifying and mitigating negative impacts, enhancing positive benefits, and monitoring outcomes. An EIS-like report (statement of social impacts) might still be important for regulatory approval requirements, but in SIA the concern is more with ensuring that the social management (social performance) processes are in place.

In some ways, and for some companies at least, a “social licence to operate” has become just as important as the formal legal procedures. Thus, the key document is not the EIS-like statement of impacts, but the IBA the community develops with a proponent. Other key issues are the extent to which these agreements and the commitments they contain become embedded into corporate procedures and practices. Consequently, SIA has evolved considerably over time and has diverged considerably from EIA.

SIA helps in gaining a “social licence to operate”

The place of health in SIA

Health issues have a central place in SIA. Vanclay (2002), for example, considers death the most severe social impact that can befall an individual, and notes that the death of an individual also has major social impacts on many people in a family, household, and even in the society more generally. Furthermore, as some indication of the centrality of health issues in SIA, in Vanclay’s (2002) comprehensive analysis of social impacts, the category of health and well-being impacts were listed first. It is clear that many of the social impacts of projects could also be described as health impacts, and most (if not all) health impacts would be regarded as social impacts in SIA.

Health is one of the central issues in SIA

The SIA field defines “social” very broadly as anything that affects people and their communities. Thus, for example, all environmental impacts are also social impacts because people depend on the environment (nature and landscape) for their livelihoods, physical and spiritual well-being, and because the preservation of biodiversity is socially valued (Slootweg, Vanclay & van Schooten, 2001). In general, social impacts are

all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society... [including] changes to the norms, values, and beliefs of individuals that guide and rationalise their cognition of themselves and their society (Burdge and Vanclay, 1995:32).

More specifically, Vanclay (2002) identified the dimensions below, and outlined more than 88 social impact concepts (see Box 8).

Box 8: Dimensions of social impacts

- People’s way of life — how they live, work, play, and interact with one another on a day-to-day basis;
- their culture — their shared beliefs, customs, values, and language or dialect;
- their community — its cohesion, stability, character, services, and facilities;
- their political systems — the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose;
- their environment — the quality of the air and water that people use; the availability and quality of the food they eat; the level of hazard or risk, dust, and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control of resources;
- their health and well-being — where “health” is understood in a manner similar to the WHO definition: “a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity”;
- their personal and property rights [and human rights] — particularly whether people are economically affected or experience personal disadvantage which may include a violation of their civil liberties; and
- their fears and aspirations — their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and that of their children.

Source: Vanclay (2002:185–6)

Because health is for a large part socially defined (and influencing the social determinants of health is a major strategy to improve population health), it is reasonable to presume that in jurisdictions that require HIA but not SIA, the social issues would generally be included in the HIA. In jurisdictions where SIA is required but HIA is not, the health issues would typically be included in SIA. In contexts where both are required, a combined or integrated impact assessment would be undertaken. In contexts where neither are required by a regulator, whether they are done depends on the commitment of the proponent (and to some extent the extent of civil society pressure).

HIA and SIA therefore are not mutually-exclusive concepts, but refer to the different orientations taken and to the different discourses or paradigms that are applied to consider an overlapping territory of concern. Because the interests of SIA are so broad, covering environmental and health influences that affect people, SIAs cannot be undertaken by only one person but require a team with a broad suite of skills and expertise. Expertise in HIA is necessarily part of that mix.

Human impact assessment

The conceptual overlap between HIA and SIA led to the development of “human impact assessment” in Finland in the 1990s (Kauppinen et al., 2002; Kauppinen & Nelimarkka, 2004; Kauppinen, 2011). Even though the idea of human impact assessment was considered attractive, the integration process posed a number of important challenges both in terms of combining different disciplines and concepts and combining different institutional and organizational arrangements, as well as in terms of resources and capacity (Rattle & Kwaitkowski, 2003). In practice today, these barriers have not yet been overcome (Kauppinen, 2011). Nelimarkka, Kauppinen and Perttilä (2007) point out that within this integrated human impact assessment, health is most prominently addressed in relation to

SIAs require a team with a broad suite of skills and expertise

Human impact assessment aims to combine HIA and SIA

environmental health risks and that the relations between the expected social consequences of a plan or project and their health impacts are typically not made explicit.

Other approaches to combine SIA and HIA have indicated a positive experience of integration. For example, in an assessment of the South East Queensland Regional Plan (Australia), SIA and HIA practitioners decided to cooperate before the start of the impact assessment process and merged their methods and tools, leading to a rich and informative assessment (Copeland & Young, 2006). In a similar study, a SIA of the Lower Hunter Regional Strategy (in New South Wales, Australia) primarily addressed health benefits (Wells et al., 2006).

Positive examples of combining SIA and HIA exist

The inclusion of health in SIA guidelines and standards

Guidelines and standards can play an important role in the implementation and operationalization of impact assessment processes including SIA. They provide a reference point against which the performance of impact assessment can be evaluated. There are different types of guidelines including generic guidelines, national or regional specific guidelines, international organization guidelines, sector guidelines, and corporate guidelines. Some impact assessment guidelines are focused specifically on social impacts, while others are generic but include social aspects. To gain an impression of the way health is included in these various guidelines and standards, we have selected an indicative example or two for each of these categories (see Table 4).

Table 4: Assessment of the status of health in some indicative social impact guidelines

SIA Guidelines or Standard (an indicative selection only)	Health mentioned	Occupational health mentioned separately	Broad definition of health applied	Interdisciplinarity or integration mentioned	Involvement of health experts required
Generic guidelines/standards					
IAIA International Principles for Social impact Assessment (2003)	+	-	+	+	0
National and regional guidelines/standards					
Guidelines for Social Impact Assessments for mining projects in Greenland (2009)	+	-	+	-	-
Issues and Recommendations for Social and Economic Impact Assessment in the Mackenzie Valley (2007)	+	-	+	+	-

SIA Guidelines or Standard (an indicative selection only)	Health mentioned	Occupational health mentioned separately	Broad definition of health applied	Interdisciplinarity or integration mentioned	Involvement of health experts required
International organization guidelines/standards					
World Bank Social Analysis Sourcebook (2003)	+	-	0	+	-
World Bank Social Analysis Guidelines in Natural Resource Management (2005)	0	-	-	+	-
World Bank Social Analysis in Transport Projects (2006)	+	-	+	-	-
IFC Performance Standards on Environmental and Social Sustainability (2012)	+	+	-	-	-
Sector guidelines/standards					
IPIECA Guide to SIA in the oil and gas industry (2004)	+	-	-	+	-
Corporate guidelines/standards					
A corporate toolbox published by one of the world's largest mining companies (2012)	+	+	+	+	+

Legend: + mentioned; 0 not mentioned but can be implied; – not mentioned and no implication that it is expected

*International Principles for
SIA = generic guideline*

The International Principles for Social Impact Assessment (Vanclay, 2003) is a typical example of a *generic guideline*. The document describes a number of basic values and principles underpinning good practice in SIA. As such, it is a compass for practitioners and those who commission or review SIAs, rather than a toolbox or checklist. The International Principles include health as an important aspect of all social and environmental impacts to be assessed, and explicitly embraces the broad WHO definition of health. It does not, however, specifically mention the need to include health experts, although that can be implied. The need for interdisciplinarity is expressed, but in a generic way: since a broad range of different impacts are involved, SIA can only be carried out with teamwork.

*National or regional
guidelines translate generic
guidelines in their specific
context*

National or regional guidelines are usually in place to translate generic principles into specific national or regional contexts, taking account of, for example, the specific characteristics of the local culture, economy and legal system. Examples of such guidelines are the Guidelines for Social Impact Assessments for Mining Projects in Greenland (Bureau of Minerals and Petroleum, 2009), and the Issues and 7 Recommendations for Social and Economic Impact Assessment in the Mackenzie Valley (Canada) (Mackenzie Valley Environmental Impact Review Board, 2007). Such guidelines focus on properly addressing the capacities, needs and problems of the respective

populations of those regions. The Greenland guideline provides a number of regional specificities that must be taken into account in any SIA carried out: the language of the population, the spread of the population in widely scattered, small communities, the most important economic sectors, both existing (fishing, hunting) and upcoming (tourism), and the current lack of experience with mining in the country. The Mackenzie Valley guideline pinpoints some issues that are imminent to economic developments in this specific region, for example, the influx of workers from elsewhere, changes in the landscape and economy. Several potential negative impacts are mentioned including changes in employment (for example shift work), changes of lifestyle (such as alcohol abuse) and social disruption (for example increase in domestic violence). But the guideline also highlights possible positive impacts: jobs, income, and better infrastructure. Attention is paid to the special needs of indigenous peoples. The history of the region, including the history of land use and land rights, is clearly integrated in the text of the guideline. The guideline sets the scene for the SIA process in a detailed way, tailored to the regional context. Many of the issues mentioned are health-relevant, and health is clearly present in both guidelines. However, health expertise is not explicitly part of the requirements for impact assessments in either guideline, although the Mackenzie Valley guidelines mentioned the need for an interdisciplinary assessment team – which arguably includes professionals from the health field.

In standards from *international organizations*, health is usually part of the social issues addressed, at least in the ones we examined. The World Bank Social Analysis Sourcebook (2003) is a description of good practice, but is explicitly not a standard that must be followed. This implies it is mainly published as an inspirational document. Health is mentioned several times, but mostly either in the framework of health services, or as one of the assets of a given population. Health impacts in a broader sense are not addressed in the sourcebook. Nor does the sourcebook recommend that health expertise be secured in the interdisciplinary assessment team.

A similar image appears regarding the World Bank Social Analysis Guidelines in Natural Resource Management (World Bank, Social Development Department, 2005). The word “health” appears four times in this document — of which one is related to the well-being of crops, land, and waters, not of humans. Although different types of health-relevant impacts are mentioned, the link to health is not made explicit. Much attention is paid to the distributional aspects of the social impacts of projects. Vulnerable groups are to be identified and attention is paid to gender issues. Human rights are present in the Guidelines, albeit in a relatively generic way. In several places, the Guidelines mention that human rights approaches are increasingly part of the impact assessment process, and that they should be considered. However, this is not elaborated in a practical way. Like the sourcebook discussed above, these

Health expertise is not usually a stated requirement within the guidelines

The broader concept of health is not reflected in guidelines of international organizations

guidelines are presented as a source of knowledge, but not as a legal document.

A third World Bank guide, World Bank Social Analysis in Transport Projects (World Bank, Social Development Department, 2006) defines health in a broader way. A range of health aspects and health determinants that may be impacted are addressed. For example, health impacts of air pollution (respiratory disorders), increased physical inactivity and related chronic diseases as a result of the increased use of motorized transport, and mental health problems caused by the stress of urban sprawl and congestion are mentioned, as well as infectious diseases, occupational health risks and injuries caused by traffic accidents. Moreover, the guide highlights how transport projects can enhance health, for example, by improving access to health services and facilitating the distribution of vaccines needed for immunization schemes. The guide also argues that transport infrastructure is an essential prerequisite for health monitoring by providing access for health monitoring staff to sparsely populated areas. Interestingly, occupational health is ignored. The guide gives no clue as to the composition of assessment teams, and therefore it is not clear whether health expertise is expected to be included. Like the other two World Bank guides, this guide refers to the social scientist as the core professional, while other disciplines are not specifically identified.

Many other international bodies also have an interest in SIA, notably the International Finance Corporation (IFC), especially with respect to their Performance Standards on Environmental and Social Sustainability (IFC, 2012). These authoritative performance standards include, amongst others, a performance standard on Community Health, Safety, and Security (PS4) focusing on a few health aspects but ignoring others. Accidents and injuries, emergency preparedness, exposure to hazardous substances, and exposure to infectious diseases are addressed. However, mental health and noncommunicable diseases are not discussed, nor are significant health determinants such as housing, food, healthy lifestyles, health care and other facilities, and social cohesion. Such wider health determinants are partly addressed in other IFC standards, which means that health determinants are to some extent mainstreamed throughout the IFC performance standards. Various health issues are also mentioned in other standards. In PS3, Resource Efficiency and Pollution Prevention, environmental health risks are considered. In PS2, Labour and Working Conditions, some occupational health and safety issues are discussed. However, in none of these IFC standards is there an explicit statement requiring the interdisciplinarity of the team or the specific involvement of health experts.

Several industry bodies have developed sector-specific guidelines for SIA at an international level. One example is the Guide to Social Impact Assessment in the Oil and Gas Industry prepared by the International Petroleum Industry Environmental Conservation Association (IPIECA) in 2004. This guide is meant to instruct managers in the oil and gas industry

IFC standards include standards on Community Health, Safety and Security (PS4)

Health impacts are mentioned within the closer context of the specific sector

about the basics of SIA. The health issues mentioned in this guide are infectious diseases, occupational health, and health care. Health is also present in the list of baseline data that, according to this guide, need to be collected within the SIA framework. What exact health data should be gathered is not specified. The participation of health experts in the assessment team is not mentioned; although the guide recommends an interdisciplinary team and gives examples of the kinds of expertise that need to be included: social scientists, communications specialists, and development specialists. This guide notes that several types of impact assessment exist (including HIA), and that they are partly overlapping and complementary to each other. It gives an overview of these forms of impact assessment and recommends integration. IPIECA has also published a separate guidance document on HIA, in which the same recommendation regarding integrative approaches is repeated (Krieger & Balde, 2005). That guide is more substantial and contains considerable detail on processes and methods, for example, several epidemiological tools for calculating health outcomes are presented. Also, the range of potential impacts included in the HIA guide is larger – including issues such as cultural health practices, psychosocial health and accidents and injuries, but leaving out noncommunicable diseases.

Some companies have developed their own SIA guidance/toolbox. A prominent example of such corporate guidelines was a toolbox published by one of the world's largest mining companies which was given the Corporate Initiative Award by the International Association for Impact Assessment (IAIA) in 2012 for the way the toolbox helps incorporate impact assessment into the ongoing management of all its operations. This guideline or toolbox is by far the most extensive of all guidance documents discussed in this chapter and discusses a wide range of issues. The guide consists of seven “steps”, each of which contains a number of “tools”. One of the tools concerns community health and provides a framework for HIA. A comprehensive overview of health issues is presented in that tool, and a broad model of health is applied. Health issues are explicitly mainstreamed throughout the whole toolbox. For example, health data are part of the baseline data to be gathered during the profiling stage, the health impacts of corporate social investment activities are to be considered, and changes in health status are a specific category in the list of potential issues and impacts that need to be assessed. The relations between social and health impacts are repeatedly highlighted. Interdisciplinarity is part of the working routines described in the guidance. Several times, the guide mentions the requirement for the consultation of health experts in the assessment procedure.

The inclusion of health in actual SIA studies

While health issues are addressed in the guidance documents discussed above, the approach used in actual SIA practice depends greatly on the type of policy, plan or project being considered, as well as on the situational

By far the most extensive of all guidance documents discussed

Interdisciplinarity is an essential part of the assessment

context (legal, cultural etc.) of the region where it takes place, and on the commitment of the individual practitioner, SIA consulting company and proponent. The inclusion of health and health determinants varies in SIA practice. Three indicative examples are discussed (see Table 5), drawn from publicly-available SIA reports of projects in the Russian Federation, South Africa and Australia.

Table 5: Assessment of the status of health in some indicative SIA reports

Examples of SIA reports	Broad model of health applied	Causal pathways and linkages between social and health impacts identified	Distribution of health impacts discussed	Occupational health issues considered	Health expertise included
Sakhalin II phase 2 project (Russian Federation)	0	0	-	-	0
Camden-Mbewu power line (South Africa)	0	-	0	-	-
Outer harbour development, Port Hedland (Australia)	-	-	0	-	+

Legend: + mentioned; 0 not mentioned but can be implied; – not mentioned and no implication that it is expected

Case Study 1: Sakhalin II Phase 2 Project, Russian Federation

The Sakhalin II Phase 2 Project (2005) concerns the development of an integrated oil and gas project on Sakhalin Island on the eastern coast of the Russian Federation, close to Japan. Sakhalin Island has a population of around 550 000 people and is characterized by a harsh climate. The project developer is a consortium comprising of three international acting companies. The project entails installation of two offshore platforms, pipeline linkages, an onshore processing facility, a new liquid natural gas plant, and an oil and gas export terminal. A health and social impact assessment was undertaken in 2003 and updated with an environmental and social impact assessment in 2005. The outcomes led to the publication of a Health, Safety, Environmental and Social Action Plan, which has been modified several times, with the most recent version being 2010. This plan is very generic and contains a list of commitments made regarding the management of environmental, health and social issues. There is a distinct separation between the environmental, social and health impact assessments.

Focusing on how the HIA and SIA components relate to each other, in the SIA section the main issues are:

- community disruption
- impacts on livelihoods and employment

Generic plan containing commitments regarding environmental, health and social issues

- loss of land
- relocation of homes, small companies, and farms
- impacts on recreation.

Vulnerable population groups are identified, such as elderly people, people with low income, and reindeer herders and other indigenous groups. The health impacts reported in the HIA section includes issues such as:

- infectious diseases
- lifestyle concerns (alcohol, drugs)
- accidents and injuries
- health care facilities.

The crossover between the two fields is not discussed, except for the linkage between changes in socioeconomic circumstances and lifestyle factors. The health of vulnerable groups is not examined. The report does not provide information on the composition of the assessment teams.

Case Study 2: Camden-Mbewu transmission line, South Africa

A SIA was carried out on the proposed Camden-Mbewu transmission line in the provinces of Mpumalanga and KwaZulu Natal, South Africa (Aucamp, 2011). The project involved the construction of a 765 kV transmission line over a distance of approximately 360 km. The affected area comprised forest land, sugar cane and other farms, livestock farms, open fields and residential areas. The aim of the report was to compare several alternatives, and the effects on different stakeholder groups. Social impacts were defined in a generic way and thus included health (consistent with the understanding presented towards the beginning of this chapter). The assessment team looked into the probability of the impacts, the number of people that would be affected and the duration of the impact, as well as cumulative impacts. The distribution of impacts across different population groups was not explicitly addressed. However, the report clearly reveals that some municipalities have a greater chance to experience impacts. Certain vulnerable groups were highlighted, such as women with little or no income. However, no relation was made between vulnerability and health.

Health impacts were mentioned, but only in relation to HIV/STD transmission, and asthma and allergies. Nevertheless, the report describes many issues that are highly health relevant, such as:

- increased alcohol consumption
- psychosocial stress
- family and community disruption
- increased transport pressure
- changes in employment opportunities
- hygiene issues regarding waste
- criminal behaviour.

The health impacts of these are not discussed in the report, but could potentially include:

Social impacts included health impacts

Many health issues were indirectly covered through the description of health relevant issues but without description of their health impacts

- high blood pressure
- liver cirrhosis
- increased STDs
- unwanted pregnancies
- abortions
- increased alcohol-related violence
- accidents and injuries.

The concept of health as such was not discussed in the report and no definition of “health” was given. The report does not say whether health expertise was used in the assessment process. Based on the absence of health baseline data in the report and the fact that the references cited did not include references from the health field, it is not likely that this was the case.

Case Study 3: Port Hedland outer harbour development, Australia

A third case example is the SIA carried out on a proposed outer harbour development at Port Hedland in Western Australia (2011). The project assessed the social impacts associated with

- constructing and developing infrastructure on land and off-shore to accommodate the handling;
- transport and export of iron ore, including rail connections, a wharf and jetty, road infrastructure; and
- the construction of various buildings.

The issues considered were grouped into a number of “key factors” and a number of “relevant factors”. Key factors were community services, indigenous heritage, public amenity, and visual amenity. Public health was discussed as one of the “relevant factors”, alongside with European heritage, recreation, commercial fisheries, and climate change.

Potential positive impacts mentioned in the report included:

- taxes paid to the national, state and local governments;
- increased employment opportunities in the company and in associated services;
- training for indigenous peoples (and targets for indigenous employment);
- a stated commitment to support local businesses (small and medium sized enterprises); and
- a community investment program.

However, the extent of investment in these activities was not stated. Potential negative impacts that were discussed primarily relate to:

- the influx of a large workforce and associated increased cost of living for the local population
- barriers in accessing services including health services
- antisocial behaviour
- drug and alcohol abuse.

Assessment of social impacts defined ‘key factors and ‘relevant factors’

Positive and negative impacts were described but relations between these factors were not discussed

While the connection between the expected social impacts and pressure on health care facilities is expressed, relations between the factors mentioned and other aspects of health are not adequately discussed. However, the effect of increased transport on safety is briefly mentioned.

Attention is given to the impacts of the project on local Aboriginal populations. Health is addressed in two ways: in relation to environmental factors (noise and dust, mosquito-borne diseases, and waste) and in relation to health care infrastructure. Mental and spiritual health, noncommunicable diseases and related lifestyle factors are not addressed. The report does not provide information on what health expertise was present in the assessment team. However, the nature of the results presented regarding environmental factors suggests that environmental health specialists were involved.

Discussion: the place of health in SIA

In SIA, health impacts are considered amongst a range of impacts on people and communities. SIA practitioners are supposed to look at the impacts on people and communities from an integrated and/or holistic perspective. In principle, this means that the wider determinants of health should be addressed when SIA is properly carried out. All nine SIA guidelines in our selection made mention of health as an aspect to be addressed, and most expressed in some way that health is a broad concept. Some do this extensively and refer to broad health determinants (for example Mackenzie Valley Environmental Impact Review Board, 2007; and the aforementioned corporate toolbox, 2012) or to the official WHO definition of health, while in other guidelines this is done implicitly. Although health is broadly defined, the approach within SIA typically does not encourage a detailed analysis of the origins of, or pathways to, specific health conditions through other impacts in the way that is pertinent to stand-alone HIA processes, although there is a strong awareness of indirect effects and cumulative effects. The above-mentioned corporate guideline is an exception here, as it includes a HIA process that requires consideration to be given to the specific relations of broader health determinants of the expected impacts.

The approach to health varied in the actual cases of SIA practice we considered. The broader determinants of health were visible in all reports, but were not necessarily recognized as such. The pathways from social impacts to health, and the links between health and social impacts were not explicitly part of the analysis. In none of the cases was the impact of health on social factors part of the analysis.

With SIA usually taking place in the context of economic and spatial development projects, perhaps it might be expected that occupational health should be a concern as it is a key component of the health of those employed by the project. However, occupational health tends not to be a component of SIAs, and only two of the guidelines we considered explicitly included an occupational health focus. However, the health of employees is addressed in most guidelines within the broader framework of the health

SIA should look at the impacts on people and communities from an integrated and/or holistic perspective and therefore should include health

SIA guidelines do not encourage an analysis of the origins or pathways to specific health conditions, but there is a strong awareness of indirect and cumulative effects

Pathways from social to health impacts and linkages between them were not part of the SIA reports reviewed

Occupational health tends not to be a component of SIA

impacts of a project. For example, the World Bank guidance on Social Analysis in Transport Projects discusses HIV infection of workers in the project both as a risk for the workers and as a risk of transmission to the local community. In none of the practice cases we considered was occupational health an extensive part of the considerations. It may well be that the inclusion of this topic was deemed unnecessary in guidance documents since it is normally part of other regulations governing worker protection that are applicable to the companies operating in this field.

The interdisciplinarity of SIA is reflected in the nine guidelines we studied. In different ways, most guidelines we reviewed made mention of the need for involvement of different types of expertise. However, out of the nine guidelines studied, only the corporate guideline explicitly recommended involving health experts in the process. Some guidelines recommended integration of impact assessment processes, and one guideline (again the corporate one) puts this into practice by taking an integrated approach itself. The reports we studied typically do not reveal what health expertise was used. However, our impression is that the input of health expertise was lacking. In addition to being carried out as a separate exercise, SIA is often part of a wider assessment covering environmental, social and health issues. In such integrated assessments, health is not necessarily combined with “social”; it is sometimes addressed as a separate issue. Although most SIA guidelines make mention of health as a broad concept, the conception of health in integrated assessment guidelines and practice is sometimes quite narrow.

Conclusion and future prospects

SIA and HIA complement each other very well. Both are necessary, but greater integration would lead to more complete assessments and a clearer understanding of the links and causal relations between the different impacts. However, there is a noticeable gap between theory and practice, with contemporary assessments not always being adequate.

There are a number of recent developments that are likely to affect the SIA field in the near future. These developments create opportunities for developing the linkages between SIA and HIA. The most important of these developments is the rise of human rights as an issue of concern, especially with the adoption of the United Nations Guiding Principles on Business and Human Rights (UN, 2011; also see Kemp & Vanclay, 2013). Although “health” is not mentioned in the United Nations Guiding Principles, it can be implied because the minimum standards for human rights observance include the Universal Declaration of Human Rights which mentions health in Article 25 (UN, 1948). A right to health and access to health care can thus be inferred. The emerging human rights agenda is establishing a range of human rights in areas not previously widely considered as rights. The rights agenda is also gaining a strong legal foothold and thus will significantly influence impact assessment into the future.

Guidelines reflect the interdisciplinarity of SIA but only one recommends involving health experts

Reports do not reveal what health expertise was used

Sometimes only a narrow conception of health can be found

Greater integration of SIA and HIA would lead to more complete assessments

The United Nations Guiding Principles on Business and Human Rights creates an opportunity for better integration of SIA and HIA

Somewhat related to human rights is the concept of FPIC. This concept gained prominence through its mention in the United Nations Declaration on the Rights of Indigenous Peoples (UN, 2007) and in the International Labour Organization Convention 169 (ILO, 1989). Although these agreements strictly only apply to indigenous peoples, there is a view that FPIC is an appropriate philosophy which should be extended to all communities (Vanclay & Esteves, 2011; Hanna & Vanclay, 2013; Vanclay, 2014). At its extreme interpretation (albeit challenged), FPIC implies that a project should not proceed unless:

- all local communities affected by the project have given their consent;
- any such consent be given freely (without duress);
- the time provided to enable them to consider the project was sufficiently in advance of any works starting;
- all aspects of the project were fully disclosed; and
- the local people were able to comprehend what the implications of the project would be on them.

Impact assessment (addressing all the environmental, health and social consequences on people) becomes of fundamental importance in ensuring a common understanding of the likely impacts of a project for the community. The concept of “informed consent” is well recognized as the ethical principle underpinning the provision of medical treatment and social research (Vanclay, Baines & Taylor, 2013). It seems only appropriate that it should also be extended (as FPIC) to be a fundamental principle in HIA and SIA.

Proponents of projects that do proceed are increasingly developing IBAs with local peoples. These quasi-legal agreements specify the scope of the project, what the likely impacts will be, what mitigation measures will be enacted and what benefits the company promises to provide to the affected communities. The agreements enable a platform for discussions about benefits, mitigation measures, compensation measures, jobs for local people, local procurement arrangements, local enterprise development opportunities, and company contributions to local economic and social development. A strength of SIA is in considering, not only the risks, but also the enhancement opportunities. In HIA, both positive and negative impacts have always been assessed – and this developing SIA approach is highly relevant for HIA practitioners and researchers to connect with.

SIA has changed considerably over time, and has departed considerably from the EIA model it once tried to emulate. Nevertheless, in its revised format as a process-based model used by companies to achieve a social licence to operate, to meet human rights expectations, to demonstrate that they have undertaken negotiations on the basis of the principle of FPIC, it is clear that SIA has a strong and secure future. The business case for SIA is clearly established.

'Free, prior and informed consent' is a fundamental principle in SIA and HIA

Impact assessment is of fundamental importance in ensuring a common understanding of project impacts

Impacts and Benefits Agreements serve as platform for discussion between communities and proponents

A strength of SIA and HIA is to consider not only risks but also to enhance opportunities

References

- Anglo-American (2012). SEAT Toolbox. Socio-Economic Assessment Toolbox Version 3. London: Anglo American.
- Aucamp I (2011). Proposed 765kV Camden-Mbewu Power Line. Social Impact Assessment. Faerie Glen: Ptersa Environmental Management Consultants.
- BHP Billiton (2011). Western Australia Iron Ore, Proposed Outer Harbour Development, Port Hedland. Public Environmental Review/Draft Environmental Impact Statement. Section 11 Social Impact Assessment. Melbourne: BHP Billiton.
- Burdge RJ, Vanclay F (1995). Social impact assessment. In: Vanclay F, Bronstein DA, editors. *Environmental and Social Impact Assessment*. Chichester: Wiley; 31–65.
- Bureau of Minerals and Petroleum, Greenland (2009). Guidelines for Social Impact Assessments for mining projects in Greenland. Nuuk: Bureau of Minerals and Petroleum.
- Copeland AC, Young AM (2006). Health and social impact assessment of the South East Queensland Regional Plan (2005–2026). *NSW Public Health Bulletin*, 18(9–10):177–79.
- Esteves AM, Franks D, Vanclay F (2012). Social impact assessment: The state of the art. *Impact Assessment and Project Appraisal*, 30(1):35–44.
- Esteves AM, Vanclay F (2009). Social Development Needs Analysis as a tool for SIA to guide corporate-community investment: Applications in the minerals industry. *Environmental Impact Assessment Review*, 29(2):137–45.
- Franks D, Vanclay F (2013). Social Impact Management Plans: Innovation in corporate and public policy. *Environmental Impact Assessment Review*, 43:40–8.
- Hanna P, Vanclay F (2013). Human rights, Indigenous peoples and the concept of Free, Prior and Informed Consent. *Impact Assessment and Project Appraisal*, 31(2):146–57.
- IFC (2012). IFC Performance Standards on Environmental and Social Sustainability. Washington, DC: International Finance Corporation.
- ILO (1989). Indigenous and Tribal Peoples Convention, 1989 (No. 169). Geneva: International Labour Organization.
- IPIECA (2004). A Guide to Social Impact Assessment in the Oil and Gas Industry. London: International Petroleum Industry Environmental Conservation Association.
- João E, Vanclay F, den Broeder L (2011). Emphasizing enhancement in all forms of impact assessment: Introduction to a special issue. *Impact Assessment and Project Appraisal*, 29(3):170–80.
- Kauppinen T (2011). Human impact assessment. In: Vanclay F, Esteves AM, editors. *New Directions in Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham: Edward Elgar; 341–54.
- Kauppinen T, Nelimarkka K (2004). A review of Finnish social and health impact assessments. *Journal of Environmental Assessment Policy and Management*, 6(1):1–17.

- Kauppinen T, Sihto M, Wiman R, Lintula A, editors (2002). *Human Impact Assessment: Report on the Seminar on Human Impact Assessment*, Helsinki-Kellokoski, Finland, 24–25 January, 2002. Helsinki: National Research and Development Centre for Welfare and Health (STAKES).
- Kemp D (2011). Understanding the organizational context. In: Vanclay F, Esteves AM, editors. *New Directions in Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham: Edward Elgar; 20–37.
- Kemp D, Vanclay F (2013). Human rights, and impact assessment: clarifying the connections. *Impact Assessment and Project Appraisal*, 31(2):86–96.
- Krieger G, Balghe M (2005). *A Guide to Health Impact Assessments in the Oil and Gas Industry*. London: IPIECA.
- Mackenzie Valley Environmental Impact Review Board (2007). *Issues and Recommendations for Social and Economic Impact Assessment in the Mackenzie Valley*. Yellowknife: Mackenzie Valley Environmental Impact Review Board.
- Nelimarkka K, Kauppinen T, Perttilä K (2007). Case study 10: A participative social impact assessment at the local level: supporting the land-use planning process in Finland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The Effectiveness of Health Impact Assessment: Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 191–205.
- O’Faircheallaigh C (2011). SIA and Indigenous social development. In: Vanclay F, Esteves AM, editors. *New Directions in Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham: Edward Elgar; 138–53.
- Rattle R, Kwiatkowski R (2003). Integrating health and social impact assessment. In: Becker HA, Vanclay F, editors. *The International Handbook of Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham: Edward Elgar; 92–107.
- Sakhalin Energy Investment Company (2005). *Executive summary of the phase 2 environmental and social impact assessment process*. Sakhalin II Phase 2 Project. Yuzhno-Sakhalinsk: Sakhalin Energy Investment Company.
- Slootweg R, Vanclay F, van Schooten M (2001). Function evaluation as a framework for the integration of social and environmental impact assessment. *Impact Assessment and Project Appraisal*, 19(1):19–28. Doi: 10.3152/147154601781767186.
- UN (1948). *The Universal Declaration of Human Rights*. New York: United Nations.
- UN (2007). *United Nations Declaration on the Rights of Indigenous Peoples*. New York: United Nations.
- UN (2011). *Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework*. New York: United Nations Human Rights Office of the High Commissioner.

- van der Ploeg L, Vanclay F (2013). Credible claim or corporate spin: A checklist to evaluate corporate sustainability reports. *Journal of Environmental Assessment Policy and Management*, 15(3), article 1350012.
- Vanclay F (2002). Conceptualising social impacts. *Environmental Impact Assessment Review*, 22(3):183–211.
- Vanclay F (2003). International Principles for Social Impact Assessment. *Impact Assessment and Project Appraisal*, 21(1):5–11.
- Vanclay F (2004). The Triple Bottom Line and Impact Assessment: How do TBL, EIA, SIA, SEA and EMS relate to each other? *Journal of Environmental Assessment Policy and Management*, 6(3):265–88.
- Vanclay F (2006). Principles for Social Impact Assessment: A critical comparison between the International and US documents. *Environmental Impact Assessment Review*, 26(1):3–14.
- Vanclay F (2012). The potential application of Social Impact Assessment in integrated coastal zone management. *Ocean & Coastal Management*, 68:149–56.
- Vanclay F (2014). Developments in social impact assessment: An introduction to a collection of seminal research papers. In: Vanclay F, editor. *Developments in Social Impact Assessment*. Cheltenham: Edward Elgar; xv–xxxix.
- Vanclay F, Baines J, Taylor CN (2013). Principles for ethical research involving humans: Ethical professional practice in impact assessment Part I. *Impact Assessment and Project Appraisal*, 31(4):243–53.
- Vanclay F, Esteves AM (2011). Current issues and trends in social impact assessment. In: Vanclay F, Esteves, AM, editors. *New Directions in Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham: Edward Elgar; 3–19.
- Wells V, Licata M, Gillham K, Kempton A (2006). *A Social Impact Assessment on the Lower Hunter Regional Strategy: A guide for documenting a Social Impact Assessment*. Newcastle, NSW: The Regional Coordination Management Group – Hunter Branch.
- World Bank (2003). *Social Analysis Sourcebook: Incorporating Social Dimensions into Bank-Supported Projects*. Washington, DC: World Bank.
- World Bank, Social Development Department (2005). *Social Analysis Guidelines in Natural Resource Management. Incorporating Social Dimensions into Bank-Supported Projects*. Washington, DC: World Bank.
- World Bank, Social Development Department (2006). *Social Analysis in Transport Projects: Guidelines for Incorporating Social Dimensions into Bank-Supported Projects*. Washington, DC: World Bank.

Health impact assessment

By Monica O'Mullane and Gabriel Guliš

Summary

HIA is a multidisciplinary approach and instrument that draws from divergent disciplines such as public health, the social and political sciences, environmental health, urban planning, epidemiology and statistics. Its remit is broad in scope — to protect and promote population health by analysing and estimating potential health impacts of projects, programmes and policies and informing decision-makers about those potential impacts.

The Gothenburg consensus paper of 1999 (Diwan et al., 2000; WHO European Centre for Health Policy, 1999) proposed the most commonly cited definition of HIA: “HIA is a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population”. This definition was expanded by Quigley et al. in 2006 with an additional sentence at the conclusion of the abovementioned definition: “HIA identifies appropriate actions to manage those effects.”

HIA seeks to assess the impact of actions (mostly from non-health sectors) on population health using a comprehensive model of health which includes social and environmental determinants. Also, a core goal of HIA is to address not only the extent of the impacts, but their distribution across subpopulations, i.e., inequalities in health. The proofing of projects, programs and policies for their health impacts is not a new phenomenon. However, the systematic assessment proposed by HIA is unique.

The application of HIA has expanded over the past two decades in many countries worldwide. At the heart of HIA, there are both qualitative and quantitative methods of impact assessment (for example, to evaluate risks and benefits related to defined exposures) and demography (for example, to define age and gender specific characteristics of populations of interest).

To date, the practice of HIA — as some other impact assessments — often focuses on actions which influence environmental determinants, due to two key reasons. The first is that to some extent HIA grew out of EIA. The second is the availability of data and knowledge. There is copious information on physical environmental factors (air, waste, water, chemicals, noise, vibration and so on) and their causal relations with health. Concerning social environmental factors (education, employment, and so on), there is also a growing body of information and knowledge. So far, it remains challenging to integrate all this knowledge successfully into HIA.

Origins of HIA

HIA is a multidisciplinary approach that draws from diverse disciplines such as public health, the social and political sciences, environmental health, urban planning, epidemiology and statistics. Its remit is broad in scope — to protect and promote population health by analysing and estimating potential health impacts of projects, programmes and policies and by informing decision-makers about those potential impacts.

HIA seeks to assess the impact of policies, programmes and projects on population health. From a public health perspective, this is based on the recognition that population health is not merely a product of health sector

HIA is a multi-disciplinary approach

HIA seeks to assess the impact of policies, programmes and projects on population health

activities, but to a large extent determined by living conditions and other societal and economic factors, and is therefore often best influenced by policies and actions beyond the health sector. This approach of “health in all policies” is solidly rooted in the public health sciences and the knowledge of health, governance and public policies (Sihto, Ollila & Koivusalo, 2006:4–6). Correspondingly, the focus of HIA is to address these impacts on population health that occur through activities from the health- and non-health sectors alike.

The Gothenburg consensus paper, developed by HIA practitioners, proposed the most commonly cited definition of HIA (WHO European Centre for Health Policy, 1999:4):

HIA is a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.

This definition was expanded by Quigley et al. (2006:1) to include the action-orientation focus of HIA (Birley, 2011), thereby promoting the core purpose of why we have HIA in the first place, with an additional sentence at the conclusion of the abovementioned definition: “...HIA identifies appropriate actions to manage those effects.”

The Gothenburg consensus paper also defines the values governing HIA: democracy, equity, sustainable development, and ethical use of evidence. First discussions on the need of assessing health impacts within the context of major development projects (Morris & Novak, 1976), HIA has by now spread around the world (Harris-Roxas and Harris, 2011) and is promoted by institutions such as WHO and, to some extent, by IFC and industry associations.

Many countries have been influenced by WHO work and strategy on HIA, which promotes the use of HIA to inform the development of the policy agendas of its Member States. Additionally, following the Gothenburg Consensus paper there has been much development worldwide on HIA practice (Harris-Roxas et al., 2012) with many of the influences and policy drivers originating from within country and regional boundaries. While proofing projects, programmes and policies for their health impacts is not a new idea, introduced solely by the creation of HIA (Krieger et al., 2003), the systematic nature of assessment proposed by HIA is novel.

For many countries, the institutionalization of EIA has paved the path, both for incorporating public health considerations into EIA, and for the development of HIA. For example, shortly after the 1999 Gothenburg meeting, another meeting was convened in Arusha, Tanzania (WHO, 2001) to discuss HIA capacity-building in African countries. It was decided that HIA practice would be progressed within the existing structures of environmental regulations. In 2008 in Libreville (Gabon), the First Inter-ministerial Conference on Health and Environment in Africa took place. The aim of this conference was to gain commitment from African governments for reducing environmental threats to health; HIA is named as one of the 10

Definition of HIA

Expanded definition includes the action orientated focus of HIA

HIA is conducted on different levels and through different approaches

HIA is strongly promoted to be placed on policy agendas

Libreville Declaration names HIA as one out of 10 priorities to reduce environmental threats to health

priorities of the Libreville Declaration (Viliani & Clarke, 2013; WHO Regional Office for Africa, 2009).

HIA rationale

Although the institutionalization of environmental assessments across the globe is a noteworthy success, these assessments are often lacking consideration of human health impacts (Bhatia & Wernham, 2008), which HIA can consider adequately.

HIAs are conducted at different levels and through different approaches: from local, regional, national and subnational level to international level; from a voluntary approach to a mandatory/regulatory approach. Among the voluntary HIAs, one can further distinguish between who undertakes the initiative (this might be the project or plan proponent, the community or other groups). However, all HIAs (mandatory or voluntary) can be seen as aiming to support decision-making.

Even though most HIAs are conducted on a voluntary basis (Harris-Roxas et al. 2012; Winkler et al., 2013) (for example, in most European countries as well as in the United States), some countries have developed different types of legislation and requirements at national levels, either through specific regulations on HIA or through integrating HIA into existing environmental and social assessment frameworks (for example, Brazil, Lao People's Democratic Republic, Lithuania, Republic of Korea, Slovakia, Thailand and Viet Nam). Alternatively, legislation and requirements are in some places only in existence at subnational levels of states or regions (for example, Australia, Canada, New Zealand and Spain). On the international level, organizations like WHO as well as regional development banks such as the Asian Development Bank, the EU or international associations like the International Council on Minerals and Metals (ICMM) and IPIECA promote the use of HIA. Furthermore, the IFC Performance Standards with a special standard on community health, safety and security and related guidance document (IFC, 2009) are widely recognized and used in impact assessments of projects financed by the IFC, thus having considerable influence on large development projects (Vohra, 2007; Winkler et al., 2013).

HIAs, as some other impact assessments, often deal with environmental determinants, in particular with agents of the physical environment. This is mainly caused by two reasons: the first is that HIA grew up, and in fact, out of EIA to some extent; and the second is that there is copious information on physical environmental factors (air, waste, water, chemicals, vibration, noise, etc.) and their causal relations with health. There is also a wealth of data and plausible mechanisms on how aspects of the social environment (for example, education, employment) influence health but quantitative models on how changing attributes of the social environment results in changes to different health outcomes are rarely available, and less reliable. Thus, it remains challenging to integrate all this knowledge successfully into HIA.

*Mandated versus voluntary
HIA*

*HIA mostly deals with
environmental determinants*

Health promotion as another perspective of HIA practitioners

All HIAs advocate “good coverage of health” in the decision making process

A core goal of HIA is to address inequalities in health

HIA identified as an important instrument to allow inter-sectoral work

With a focus on social determinants and equity, HIA shares considerable grounds with health promotion, which is mostly based on an empowerment oriented approach (Harris-Roxas & Harris, 2011). This perspective positions HIA as resource for an “empowered citizen” to request for the conduct of HIA if there is some suspicion that an investment could harm health. Even in this case, such a suspicion is often related to the physical environment. This approach is often considered as a form of advocacy, but the judgement about the value of such an exercise will vary: while some may consider it devoid of scientific value, others will recognize it as form of “citizen science” (Irwin, 1995). In any case, voluntary HIAs are often launched to advocate certain values (for example, in favour of development; in favour of community common goods); and all HIAs ultimately advocate good coverage of health in the decision-making process.

As an approach and instrument to better inform public policy of the foreseen and unforeseen consequences of projects, programmes and policies, and the fact that a comprehensive and social model of health underpins HIA, a core goal of HIA is to address inequalities in health. Inequalities are a result of the negative or positive effects of the determinants of health upon various population groups, within countries or across countries and regions. The research of Wilkinson and Marmot (2003) in particular, has highlighted the impact of the physical and social environment on public health, thus leading to a better understanding of the importance of social determinants of health. HIA adopts such a broad, comprehensive model of health as its basis, differing from EIA for instance, which views health primarily from a biophysical perspective. In this respect, the Declaration on Social Determinants of Health as a global political commitment needs to be mentioned. The declaration calls for action to address the social determinants of health, in order to reduce health inequalities and to improve health equity. The declaration calls for “social and health equity through action on social determinants of health and well-being by a comprehensive intersectoral approach” (WHO, 2011:1). HIA was thus identified as an important instrument to allow intersectoral work and to improve public health by addressing the socioeconomic determinants of health, so as to promote policies and practices that improve health equity and reduce health inequalities (WHO, 2011:5). HIA is increasingly cited and promoted as an appropriate and relevant approach that can inform public policy-making processes by placing health considerations onto the policy agendas (O’Mullane, 2013).

Methods and practice

The defining focus of HIA, of course, is human health. WHO defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). Beyond this well known definition, there are different notions of health, represented in a range of health measurement scales and indices. For HIA, the scope of health concepts includes medical conditions such as noncommunicable and communicable diseases, injuries, and mental illness, but also well-being. An overview from a HIA perspective is given by Birley (2011:36–45), for example, to include the role of vector-, water- and foodborne diseases, sexually transmitted diseases, respiratory infections, nutritional disorders (under-, overnutrition), and unintentional as well as intentional injuries.

Policies, plans, and programmes, in many cases, do not impact on human health directly. Instead, they change health determinants, that is to say, they affect various factors which — in a multitude of pathways — influence our health (see also Fig. 1, p. 4). All health determinants are relevant for HIA, and their broad range can be roughly categorized into physical and socioeconomic environment; personal behaviour; health and medical care. In many cases, health determinants interact or overlap. What used to be regarded as “personal” behavioural decisions (for example, related to nutrition, physical activity, or social interaction) is increasingly recognized as being co-determined by environmental conditions, including housing, employment status or level, transport system, social infrastructure, and access to public open spaces.

Given the multitude of reported associations between potential determinants and human health, it is a challenge to adequately differentiate between causality and mere association. Kemm (2012) discusses both quantitative and qualitative methods of assessment to this effect. Quantitative approaches are typically based on epidemiologic data and methods, including causality criteria, dose-response curves, health metrics, and modelling (Kemm, 2012:25–37). Qualitative assessment includes efforts to adequately include lay and civic knowledge, thus enriching the HIA process, and possibly contributing to consensual policy decisions. In order to promote the necessary extended participation a range of tools including questionnaires, interviews, focus groups, public meetings, and working groups are used. In spite of the emphasis on the crucial role of participation, its practice seems to be less than systematic (Kemm, 2012:38–50).

HIA uses a range of methods in different phases of the conduct. In the table below we identify the most important methods according to the wellaccepted stages of the HIA process.

The scope of health includes well-being, and medical conditions, such as non-communicable and communicable diseases, injuries and mental illness.

Personal behavioural decisions are recognized as being co-determined by environmental conditions

It is a challenge to adequately differentiate between causality and “mere” association

Values governing HIA

Table 6. Stages of HIA within the process of decision-making and implementation

Stage	HIA methods used
Screening stage	Similar to screening in medical or epidemiological terminology, one is looking at proposals to identify signs of potential hazards which can, in certain times, lead to harm to the health status of a population. The result of the screening is a decision whether to conduct an HIA or not. Usually literature searching, documentation analysis, database searching and interview processes are involved as methods to complete screening.
Scoping stage	Scoping aims to define how the HIA should be conducted, basically the terms of reference of HIA, and establish a steering group. Project management methodology is therefore the key method to be employed in this stage; in addition, various communication skills and methods, networking techniques and negotiating methods are used.
Appraisal stage	The appraisal of potential risks and benefits is “at the heart of HIA” and employs a variety of public health methods. Both qualitative and quantitative methods are used to identify exposures and health outcomes related to the proposal, measure strengths of their relation, assess their role in overall impact on health. Risk assessment techniques are often used to estimate risks related to defined exposures. Demographic methods are important to define age and gender specific characteristics of populations of interest.
Reporting/ Decision-making stage	In order to support decision-making, a report needs to be written and submitted to decision-makers with recommendations how to deal with the project or policy subjected to assessment. Consequently the most relevant method in this stage is writing skills and communication methods. Presentation skills are also very important as the recommendation can be transferred to decision-maker in format of a workshop or seminar. The timing of the report submission and presentation of the findings is important at this stage, and it can vary, depending on whether the HIA is retrospective, concurrent or prospective.
Monitoring and evaluation stage	In this stage, HIA aims to monitor the real impact of the proposal implementation. Demographic, vital statistic, epidemiological follow or survey methods are most often used to conduct monitoring. Evaluation can focus on different aspects of the HIA, and mainly it can evaluate the process of conducting the HIA, the impact the HIA has on the decision-making process, and finally outcome evaluation assesses changes in health status and health determinants after implementation of the decision.
Stakeholder engagement	Finally, most guidelines consider stakeholder engagement a component so important to be considered a stage in itself that last as long as the HIA process; while others do not single out this as an independent stage but mention that stakeholder participation should be encouraged at each stage.

HIA is sometimes seen as an “abstract” idea, lacking structured practice. A closer look, however, reveals a different picture. A project concerning the effectiveness of HIA, mapped its use in Europe until 2005. The project analysed the situation in 21 national entities in Europe. Owing to the large number of HIAs found in England and in the Netherlands, only a sample of HIAs was included from these countries. At subnational level, only one single reference region and reference locality per nation were selected. The number of documented HIAs for the countries included in the research was 470. Given the limitations, the actual number of HIAs conducted in Europe by that time was deemed to be probably much higher (Blau et al., 2007) – and has continued growing since then.

The number of HIAs conducted is not known; in 2007, one single publication documented 470 HIAs

Beyond this quantitative perspective, it is also instructive to consider the breadth of topics covered and the range of countries involved. Irrespective of their legal or administrative basis, existing HIAs refer to a broad

spectrum of different topics. A report by Fehr⁵ to the HIA section of the European Public Health Association (EUPHA) selected four HIA reference sources which are easily accessible book publications in English, published after 2000 in Europe, and containing contributions of multiple authors. Aiming to illustrate HIA development in countries & regions, the documentation focuses on case studies and country reports from the following sources: Kemm, Parry and Palmer (2004); Wismar et al. (2007); O'Mullane (2013), and Kemm (2012).

In the report 16 EU countries are represented: Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland, , Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom (with England, Northern Ireland, Scotland and Wales analysed separately) (Table 7). In addition, some case studies involved several countries, for example, on agricultural and food policies, and on transportation. Continents and countries outside Europe represented in the report are: Africa, Australia, Canada, Ghana, India, Japan, New Zealand, Republic of Korea, Thailand and the United States.

Irrespective of their legal or administrative basis, HIAs refer to a broad spectrum of different topics

A recent report enlists HIAs from 18 European countries

Table 7. HIA in EU countries

Country	Chapter title, and selected topics of interest (Authors)
Denmark	<i>Contributing to a public health culture: health and economic impacts of a health promotion campaign in Denmark</i> (Gulis, 2007)
	<i>HIA in Denmark</i> , incl. (i) HIA in the Healthy Cities project and (ii) HIA of noise action plan in Copenhagen (Bistrup, Bronnum-Hansen, 2012)
	<i>Health impact assessment implementation and public health policy systems in Denmark [and Slovakia]</i> , incl. (i) the municipality of Nordborg as a pioneer of HIA in the country, (ii) Horsens municipality initiating an informal group of municipalities who use HIA or work on its development (Gulis & Kollárová, 2013)
Finland	<i>A participative social impact assessment at the local level: supporting the land-use planning process in Finland</i> , incl. a case study on Korteniitty in the city of Jyväskylä (Nelimarkka, Kauppinen, Perttilä, 2007)
France	<i>HIA in France</i> (Simos & Prisse, 2012)
Germany	<i>HIA: the German perspective</i> (Fehr, Mekel & Welteke, 2004)
	<i>The controversial Berlin Brandenburg International Airport: time- and resource-consuming efforts concerning health within planning approval in Germany</i> (Welteke et al., 2007)
	<i>HIA in Germany</i> , incl. (i) HIA projects in Germany, (ii) Examples of HIA in Germany, European Employment Strategy, Demographic change in the Ruhr area, Joint regional land utilization plan Ruhr, Housing subsidy program NRW, Waste site extension, Highway project: circular road, Drinking-water privatization, Non-smoker protection, Living on a contaminated site, Traffic noise and children (Fehr & Mekel, 2012)
	<i>The Ruhr metropolitan area in Germany: rapid health impact assessment of novel spatial planning: The planning officials regarded this rapid HIA as one out of 115 statements received, representing 14 out of a total of 590 suggestions, and provided explicit answers to all suggestions</i> (Fehr, 2013)
Hungary	<i>Removing hurdles towards HIA: pilot project of an obstacle-free environment in Hungary</i> (Eke, 2007)

⁵ Fehr R (in progress). HIA development in countries & regions - Report for EUPHA section HIA.

Country (continued)	<i>Chapter title, and selected topics of interest (Authors) (continued)</i>
Ireland	<i>Traffic and transport at the local level: capacity building for HIA in Ireland (Lavin & Metcalfe, 2007a)</i>
	<i>HIA in the island of Ireland, incl. a case study: HIA on a community allotment / garden proposal (Metcalfe, Higgins, Lavin, 2012)</i>
	<i>The impact of health impact assessment on the policy-making process in Ireland: Northern Ireland and the Republic of Ireland, incl. (i) HIA of the Service Framework for Cardiovascular Health and Well-being (CVSFW): facing the common misconception that health policies donot require HIA because of their nature of improving health, this HIA was undertaken to strengthen the implementation of the CVSFW in relation to tackling health inequalities, (ii) HIAs on 3 elements of the Limerick city regeneration process: physical regeneration; early school leaving, absenteeism, and truancy; integrated youth space(s) (Higgins, Metcalfe & Cotter, 2013)</i>
Italy	<i>Ecosystem revitalization: community empowerment through HIA in Tuscany, Italy: case study of creating a wet zone (Siliquini, Nante & Ricciardi, 2007)</i>
	<i>HIA in Italy, incl. HIA and waste management in the Province of Florence (Bianchi & Cori, 2012)</i>
Lithuania	<i>A local-level HIA in the transport sector: following legal requirements in Lithuania: Reconstruction of the southern railroads in Klaipeda National Seaport (Stricka, Zurlyte & Grabauskas, 2007)</i>
Netherlands	<i>HIA and national policy in the Netherlands, incl. a table of HIAs and Health Impact Screening results, produced or coordinated by the Netherlands School of Public Health (25 reports on 23 subjects) (Roscam Abbing, 2004)</i>
	<i>HIA in Schiphol Airport (Staatsen et al., 2004)</i>
	<i>HIA and intersectoral policy in urban planning: a checklist for health impact screening in Leiden, the Netherlands (van Reeuwijk-Werkhorst & van Herten, 2007)</i>
	<i>Development of HIA in the Netherlands, incl. a case study: Expansion of Amsterdam Schiphol airport. RIVM carried out a monitoring programme during the period 2002-2008 to keep a close watch on the ongoing impacts of the expansion on health; the results confirmed most health impacts as predicted in the HIA studies of the 1990s (den Broeder & Staatsen, 2012)</i>
	<i>From instrument towards a health in all policies programme for intersectoral decision support: health impact assessment in The Netherlands,, incl. Study 1: Health in all Polices in Dutch municipalities, and Study 2: Coaching municipalities in setting-up intersectoral policies (Bekker et al., 2013)</i>
Poland	<i>“Buzz” around electromagnetic fields: a lengthy environmental HIA in Poland (Bubak & Nowak, 2007)</i>
Slovakia	<i>Health impact assessment implementation and public health policy systems in [Denmark and] Slovakia incl. (i) HIA PHASE and HIA-NMAC projects, (ii) Multisectoral expert group, and (iii) HIA licensing system (Gulis & Kollárová, 2013)</i>
Slovenia	<i>Using intersectoral networks towards the adoption of the Common Agricultural Policy: an HIA on the Food and Nutrition Action Plan in Slovenia (Blenkus & Scagnetti, 2007)</i>
Spain	<i>A private sector HIA initiative: a smoke-free workplace policy in Spain (Barroso, 2007)</i>
	<i>HIA in Spain (Aldosoro, Artundo & Rivadeneyra, 2012)</i>
	<i>Implementing and institutionalizing health impact assessment in Spain: challenges and opportunities, incl. (i) HIA initiatives in Spain, with synopsis of 15 case studies in 6 regions, and (ii) synopsis of policy regulations that provide a framework for HIA institutionalization in Spain (Martín-Olmedo, 2013)</i>
Sweden	<i>HIA at the local level in Sweden (Berensson, 2004)</i>
	<i>HIA speeding up the decision-making process: the reconstruction of route 73 in Sweden (Knutsson & Linell, 2007)</i>
Switzerland	<i>Moving towards the development of an HIA methodology: the effects of air pollution in Ticino, Switzerland (von Bremen, 2007)</i>

Country (continued)	Chapter title, and selected topics of interest (Authors) (continued)
Switzerland (continued)	<i>HIA in Switzerland</i> , incl. (i) Situation in Swiss cantons: Legislation for HIA in Geneva; Attempts to embed HIA in Ticino; Agenda 21 and HIA in Jura, and (ii) Swiss HIA platform aiming to pool and enhance knowledge by sharing experience (Simos & Cantoreggi, 2012)
United Kingdom (England)	<i>Health impact assessment and its role in shaping government policy-making: the use of HIA at national policy level in England</i> : (i) Project-level HIA is now widely undertaken in England on housing, regeneration, waste, energy, and transport projects, (ii) Impact Assessment process in England: Examples of health and well-being impacts considered but often seen as social welfare and quality of life issues in IAs: Crime reduction, alcohol, terrorism, apprenticeships, formal and informal learning, climate change, housing/regeneration, fire service, environmental protection, aviation, public transport, dangerous goods, road networks, driver licensing (Vohra, Amo-Danso & Ball, 2013)
	<i>The HIA of crime prevention</i> , incl. (i) Target Hardening programme in Liverpool, (ii) Reducing Burglary Initiative, a national crime prevention policy (Hirschfield, 2004)
	<i>Expanding the number of places for medical student training in England: an assessment of the impacts</i> (Mathers & Parry, 2004)
	<i>HIA and the National Alcohol Strategy for England</i> (Kemmm, 2004)
	<i>The Finningley Airport: a case study</i> , referring to Doncaster, South Yorkshire (Aziz, Radford & McCabe, 2004)
	<i>HIA and urban regeneration: the Ferrier estate, England</i> , located in Greenwich, London (Barnes, 2004)
	<i>HIA and policy development in London: using HIA as a tool to integrate health considerations into strategy</i> (Bowen, 2004)
	<i>Using HIA in local government</i> , referring to North East England (Milner, 2004)
	<i>A large-scale urban development HIA: focusing on vulnerable groups in London, England: King's Cross construction projects (6 projects, > 20 years)</i> (Collins & Taylor, 2007)
(Northern Ireland)	<i>A city council's air quality action plan: building capacity for HIA in Northern Ireland</i> (Lavin & Metcalfe, 2007b:2)
	<i>HIA in the island of Ireland</i> , incl. a case study: HIA on a community allotment / garden proposal (Metcalfe, Higgins, Lavin, 2012)
	<i>The impact of health impact assessment on the policy-making process in Ireland: Northern Ireland and the Republic of Ireland</i> , incl. (i) HIA of the Service Framework for Cardiovascular Health and Well-being (CVSFW): facing the common misconception that health policies donot require HIA because of their nature of improving health, this HIA was undertaken to strengthen the implementation of the CVSFW in relation to tackling health inequalities, (ii) HIAs on 3 elements of the Limerick city regeneration process: physical regeneration; early school leaving, absenteeism, and truancy; integrated youth space(s) (Higgins, Metcalfe & Cotter, 2013)
(Scotland)	<i>HIA in Scotland</i> , incl. Scottish Needs Assessment Programme HIA pilots (Douglas & Muirie, 2004)
	<i>HIA in Scotland</i> , incl. the Scottish HIA Network (SHIAN) (Douglas & Higgins, 2012)
	<i>Integrating health into impact assessments in Scotland</i> , incl. Strategic environmental assessment (SEA) and Equality impact assessment (Douglas, Palmer & Higgins, 2013)
(Wales)	<i>The experience of HIA in Wales</i> , incl. case studies on (i) "Objective 1 Programme", i.e. economic regeneration, and (ii) the National Skills and Employment Action Plan (Breeze, 2004)
	<i>Citizen involvement in a local HIA: informing decisions on the future of a landfill site in Wales</i> (Elliott, Golby & Williams, 2007)
	<i>Devolution, evolution, and expectation: HIA in Wales</i> , incl. the Wales HIA Support Unit (WHIASU) (Elliott et al., 2012)

Source: compiled from Kemmm, Parry and Palmer (2004); Wismar et al. (2007); O'Mullane (2013), Kemmm (2012).

The collection of HIAs could easily be extended, especially by including earlier publications (for example, the report on the Göteborg workshop of 1999), publications from outside Europe; in other languages; single-author book publications; journal publications; etc. Convenient access to HIA reports as well as to HIA-related information at large is provided by HIA gateways and websites in the following box.

Box 9. Key information sources on HIA

- the HIA gateway – www.apho.org.uk/default.aspx?QN=P_HIA – reports, tools, related references, causal diagrams are enclosed. Links to other HIA websites included;
- general WHO website on HIA – www.who.int/topics/health_impact_assessment/en/ and www.who.int/hia/en/ – this site contains general description of HIA, reports and experience with use of HIA as well as useful links;
- IAlA health section blog: <http://healthimpactassessment.blogspot.com>;
- a toolkit for cities – www.euro.who.int/en/health-topics/environment-and-health/urban-health/activities/health-impact-assessment – this toolkit contains a detailed description what is HIA, a short brochure for politicians on why is HIA needed, a training manual for HIA including a screening tool developing table and reports of two case studies from testing the toolkit in a municipality in Slovakia and in Italy;
- Environmental health and HIA – www.enhis.org/object_class/enhis_healthimpactassessment.html – this website contains a tool to conduct risk assessment on environmental health issues including selection of indicators;
- the Welsh HIA Support Unit has been set up very soon and became a leader of HIA work in Wales (www.wales.nhs.uk/sites3/home.cfm?orgid=522);
- Australia, New South Wales HIA project www.hiaconnect.edu.au/nsw_hia_project.htm and www.hiaconnect.edu.au/;
- (Asian-Pacific) HIA information system of the Republic of Korea at <http://hia.kihasa.re.kr/eng/index.jsp>; and
- Spanish HIA information system (in Spanish): <http://www.creis.es/>.

And there are many other smaller but important HIA resources available on the web. Most of them can be accessed via the HIA gateway (see above link).

Existing ties with other forms of impact assessments

There is potential for HIA to harmonize with other impact assessments, or for public health experts to be part of an integrated impact assessment. This issue, to integrate or not to integrate, has been a subject of some discussion and debate within the impact assessment community (Fehr & Gulis, 2012). On the one hand, if amalgamating HIA with other impact assessments, especially those with similar value systems such as Equality Impact Assessment, integration would be smoother and more feasible than those with different value systems, such as Regulatory Impact Assessment of the United Kingdom (Douglas, Palmer & Higgins, 2013). On the other hand, integrating health with other impact assessments foci such as economic, environmental, regulatory, social, and poverty may dilute the health dimension within the issues assessed in the impact assessment framework.

In the following we focus on HIA ties with EIA and SEA as these are regulated internationally.

When amalgamating HIA with other impact assessments representing similar value systems, integration may be smooth and feasible

Integrating health with impact assessments representing different foci may dilute the health dimension

HIA ties with EIA and what HIA can add to EIA

HIA is analogous with EIA in the sense that they share similar methodological steps. Although the institutionalization of environmental assessments across the globe is a noteworthy success, these assessments are often lacking adequate consideration of human health impacts (Bhatia and Wernham, 2008) which HIA brings to the fore.

While usually EIAs do consider health impacts of project or plans, this is rarely done explicitly or with input from public health experts. Furthermore, there is often a purely toxicological and illness-focused conceptualization of health and an emphasis on mitigating harmful risks, as opposed to also considering opportunities whereby health could be promoted and benefits of plans could be increased (WHO Regional Office for Europe, 1979). Hence there seems to be a need in EIA to take a more systematic view and use a more inclusive model of health (Hilding-Rydevik et al., 2005). As stated by Harris and Spickett (2010) EIA not only often misses cumulative and synergistic mechanisms, but it also rarely addresses social issues. In addition even though public participation is a given in the EIA process, practice shows often problems with it (Morgan, 2012).

As described above one of the HIA roots lies in community development and empowerment, hence HIA could help with meaningful public participation in integrated impact assessment, as HIA has the potential to engage polarized stakeholders and build common ground between community groups, local and central government, industry and other interests (Wernham, 2012). In addition to the health influences often analysed by an EIA and described in the EIS, HIA can add further information, as for example the baseline prevalence of relevant air pollution or water pollution related diseases, and identify vulnerable population locations (for example schools) relevant to sources (for example truck traffic, operations equipment). More examples can be found in Table 8 below.

HIA can support meaningful public participation and build common ground between multiple interests

HIA can add further information, for example baseline prevalences and vulnerable population locations

Table 8. Information HIA can add to an EIA

Health influence (often part of EIS)	Information added by HIA
Air – criteria pollutants	<ul style="list-style-type: none"> • Baseline prevalence of relevant diseases, • Local concerns • Impact pathways, susceptibility analysis, cumulative factors
Water – metals, organics, and microbial pollution	<ul style="list-style-type: none"> • Baseline prevalence of relevant diseases • Local concerns/ traditional environmental knowledge • Often discussion of potential impacts: what discharges are expected, what health effects do they cause, what are the pathways through which they might contact people? • Impact pathways, diet/subsistence practices, cumulative factors. • Sometimes: incorporating health risk assessment (HRA) approach

Health influence (often part of EIS) (continued)	Information added by HIA (continued)
Noise	<ul style="list-style-type: none"> • Baseline prevalence of relevant diseases • Local concerns/traditional environmental knowledge • Identify vulnerable populations (e. g. schools), locations relevant to sources (truck traffic, operations equipment) • Mitigations: sound walls and housing modifications, truck routes, hours of operation.
Demographic change – for example, influx of non-resident workers	<ul style="list-style-type: none"> • Potential impact pathways: <ul style="list-style-type: none"> ▪ Strain on services ▪ Social change: violence, crime • Infectious disease
Economy – revenues	<ul style="list-style-type: none"> • Service needs – education, water/sanitation, public safety, clinics/hospitals, emergency medical services
Economy – costs	<ul style="list-style-type: none"> • Change in demands/length of hospital stays hospitals, emergency services, police, fire

Source: adapted from Wernham (2012)

HIA ties with SEA and what HIA can add to SEA

While EIA applies to single projects at local level, the SEA applies to PPP. Generally SEA is not as detailed as an EIA of a local project, instead taking account of broader regional and global issues (Mindell & Joffe, 2003; Byrne, 2006).

Given HIA's emphasis on upstream strategic planning and assessment of policies as well as projects and programmes, HIA is considered to have more commonalities with SEA than EIA (Mahoney, 2009).

In addition consultation with health experts in SEA is also legally required for example by the UNECE Protocol on SEA to the Convention on EIA on a transboundary context (UNECE, 2003, Art. 9) and the importance of health integration into SEA was also recognized by the ministries of environment and ministries of health of the WHO European Region by adopting the declarations of the European Ministerial Conferences on Environment and Health of Budapest 2004 and Parma 2010 (WHO Regional Office for Europe, 2004, 2010).

Based on these considerations, one could assume that health is more meaningfully integrated in SEA practice than in EIA. However, research shows that similar problems as with health in EIA persist and within SEA mainly biophysical determinants of health are considered and only rarely the wider spectrum of health determinants (Nowacki, Martuzzi & Fischer, 2010).

A further integration of health into SEA or complementing SEA with HIA could provide important additional information similar as described above for EIA in Table 8. For example within urban planning HIA could identify

The importance of health integration into SEA was recognized by the Ministries of Environment and Ministries of Health of WHO European Region in Budapest 2004 and Parma 2010

Concerning integration of health into SEA, similar problems as with health in EIA persist

vulnerable population locations (such as schools) and assess health benefits from green space and physical activities.

The way forward

HIA, just like the other forms of impact assessment, went through important developments. By now, it has achieved high recognition at least in the research field, and is established in all continents. However, information on HIA current practice and on the effectiveness of different ways of implementation of HIA is somewhat limited. To enhance practice, mutual information and standardized tool exchange with other impact assessment professionals within a country and across countries would definitely increase the use of HIA and strengthen the value and power of impact assessment in general.

The ways in which HIA is implemented vary a lot across the globe, and there is a lack of knowledge regarding which methods work best. More comparative research is needed to address this question and identify the best method of implementation in different specified political and cultural contexts. Clear assets of HIA, however, are its richness and diversities; thus there seems to be room for improving HIA practice by more careful consideration of its different purposes.

Also, the rapidly expanding practice of HIA requires a collegial reflection on the underlying values and ethical issues. Several of them are firmly established, captured by the commitment of HIA to the “ethical use of evidence”, for example, health equity, environmental justice, intergenerational justice and others. However, other questions invite more careful attention. One example is the question of how the legitimacy of HIA practice may be affected by conflict of interest, whereby the proponents of certain developments are also undertaking or commissioning the assessments. In line with a strong tradition of open and constructive debate within the HIA discipline, it is important that these questions continue to be addressed and that consensus is built amongst practitioners and all interested parties. This will ensure HIA maintains and further expands its role in policy-making.

In any case, it is not too early to identify a set of recommendations for integrating HIA with public policy processes on various administrative levels (O’Mullane, 2013:207–8). For example, transnational and cross-sectoral partnerships should continue to flourish; and HIA must continue to be promoted and used in the international arena. On the national level, government ministries should establish and resource either internal HIA support units or external HIA support agencies, and secure training and education in HIA and associated approaches. Local government and health authority structures should have the necessary infrastructure for HIA implementation. A key element is high-level political and policy support. All partners with an interest in the development of HIA must be involved in the development of research, educational, and training endeavours to promote intersectoral collaboration and enhance co-ownership for HIA.

HIA is established in all continents, yet there is a lack on information on how HIA is doing in practice

Exchange with other impact assessment professionals would increase the use of HIA

HIA implementation varies across the globe. There is a lack of knowledge on which methods work best

Reflection on underlying values and ethical issues of HIA is further required

Recommendation for integrating HIA with public policy processes are needed

Ministries should establish/support HIA support agencies and training in HIA

References

- Aldosoro E, Artundo C, Rivadeneyra A (2012). Health Impact Assessment in Spain. In: Kemm J, editor. *Health Impact Assessment: Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 150–5.
- Aziz MIA, Radford J, McCabe J (2004). The Finningley Airport HIA: a case study. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 285–98.
- Barnes R (2004). HIA and urban regeneration: the Ferrier Estate, England. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 299–308.
- Barroso F (2007). A private sector HIA initiative: a smoke-free workplace policy in Spain. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 147–60
(http://www.euro.who.int/_data/assets/pdf_file/0003/98283/E90794.pdf, accessed 16 September 2014)
- Bekker M, Steenbakkens M, Storm I, Jansen M (2013). From instrument towards programmatic approach for Health in All Policies (HiAP) decision support? *Health Impact Assessment in the Netherlands*. In: O`Mullane M, editor. *Integrating Health Impact Assessment with the Policy Process: Lessons and experiences from around the world*. Oxford: Oxford University Press; 129–39.
- Berensson K (2004). HIA at the local level in Sweden. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 213–22.
- Bhatia R, Wernham A (2008). Integrating human health into environmental impact assessment: an unrealized opportunity for environmental health and justice. *Environmental Health Perspectives*, 116(8):991–1000. doi: 10.1289/ehp.11132.
- Bianchi F, Cori L (2012). Health Impact Assessment in Italy. In: Kemm J, editor. *Health Impact Assessment: Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 192–198.
- Birley M (2011). *Health Impact Assessment: Principles and Practice*. London: Routledge.
- Bistrup ML, Bronnum-Hansen H (2012). Health Impact Assessment in Denmark. In: Kemm J, editor. *Health Impact Assessment: Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 168–176.

- Blau J, Ernst K, Wismar M, Baro F, Gabrijelčič Blenkuš M, von Bremen K et al. (2007). Chapter 3: The use of HIA across Europe. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The Effectiveness of Health Impact Assessment: Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 37–55 (http://www.euro.who.int/__data/assets/pdf_file/0003/98283/E90794.pdf, accessed 4 April 2014).
- Blenkus MG, Scagnetti N (2007). Using intersectoral networks towards the adoption of the Common Agricultural Policy: an HIA on the Food and Nutrition Action Plan in Slovenia. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 137–46.
- Bowen C (2004). HIA and policy development in London: using HIA as a tool to integrate health considerations into strategy. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 235–42.
- Breeze C (2004). The experience of HIA in Wales. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 201–12.
- Bubak A, Nowak E (2007). "Buzz" around electromagnetic fields: a lengthy environmental HIA in Poland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 225–33.
- Byrne G (2006). EPA Perspective: SEA Directive. Presentation at the International Association for Impact Assessment UK-Ireland Launch Meeting "Up, Down and Sideways: Extending and Integrating Assessments", 24 March 2006. Dublin: University College Dublin.
- Collins K, Taylor L (2007). A large-scale urban development HIA: focusing on vulnerable groups in London, England. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 81–93.
- den Broeder L, Staatsen B (2012). Health Impact Assessment in Netherlands. In: Kemm J, editor. *Health Impact Assessment: Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 141–50.
- Diwan V, Douglas M, Karlberg I, Lehto J, Magnússon G, Ritsatakis A, editors (2000). *Health Impact Assessment: from theory to practice*. Report on the Leo Kaprio Workshop, Gothenburg, 28–30 October 1999. Göteborg: Nordic School of Public Health.

- Douglas M, Higgins M (2012). Health Impact Assessment in Scotland. In: Kemm J, editor. Health Impact Assessment: Past achievement, current understanding, and future progress. Oxford: Oxford University Press; 126–34.
- Douglas M, Muirie J (2004). HIA in Scotland. In: Kemm J, Parry J, Palmer S, editors. Health Impact Assessment: Concepts, theory, techniques, and applications. Oxford: Oxford University Press; 191–200.
- Douglas M, Palmer S, Higgins M (2013). Integrating health into impact assessments in Scotland. In: O`Mullane M, editor. Integrating Health Impact Assessment with the Policy Process: Lessons and experiences from around the world. Oxford: Oxford University Press; 176–86.
- Eke E (2007). Removing hurdles towards HIA: pilot project of an obstacle-free environment in Hungary. In: Wismar M, Blau J, Ernst K, Figueras J, editors. The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 257–70.
- Elliott E, Golby A, Williams G (2007). Citizen involvement in a local HIA: informing decisions on the future of a landfill site in Wales. In: Wismar M, Blau J, Ernst K, Figueras J, editors. The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 177–88.
- Elliott E, Williams G, Chadderton C, Green L (2012). Devolution, evolution, and expectation: Health Impact Assessment in Wales. In: Kemm J, editor. Health Impact Assessment. Past achievement, current understanding, and future progress. Oxford: Oxford University Press; 117–25.
- Fehr R (2013). “Ruhr” metropolitan area in Germany: rapid HIA of novel spatial planning. In: O`Mullane M, editor. Integrating Health Impact Assessment with the Policy Process. Lessons and experiences from around the world. Oxford: Oxford University Press; 66–75.
- Fehr R, Gulis G (2012). Impact Assessments: Ready to start (or continue) running for health protection and promotion? H.3. Workshop at the 5th European Public Health Conference “All Inclusive Public Health”, Portomaso, St. Julian’s, Malta, 8–10 November 2012. *Eur J Public Health* 22(suppl.2):46-48 (http://eurpub.oxfordjournals.org/content/22/suppl_2/10.full.pdf+html, accessed 17 September 2014).
- Fehr R, Meikel O (2012). Health Impact Assessment in Germany. In: Kemm J, editor. Health Impact Assessment. Past achievement, current understanding, and future progress. Oxford: Oxford University Press; 156–67.
- Fehr R, Meikel O, Welteke R (2004). HIA: the German perspective. In: Kemm J, Parry J, Palmer S, editors. Health Impact Assessment: Concepts, theory, techniques, and applications. Oxford: Oxford University Press; 253–64.

- Gulis G (2007). Contributing to a public health culture: health and economic impacts of a health promotion campaign in Denmark. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe, on behalf of the European Observatory on Health Systems and Policies; 246–55.
- Gulis G, Kollárová J (2013). HIA implementation and public health policy systems in Slovakia and Denmark. In: O`Mullane M, editor. *Integrating Health Impact Assessment with the Policy Process. Lessons and experiences from around the world*. Oxford: Oxford University Press; 55–65.
- Harris P, Spickett J (2010). Health impact assessment in Australia: A review and directions for progress. *Environmental Impact Assessment Review*, 31(4):425–432.
- Harris-Roxas B, Harris E (2011). Differing forms, differing purposes: A typology of HIA. *Environmental Impact Assessment Review*, 31(4):396–403
- Harris-Roxas B, Viliani F, Bond A, Cave B, Divall M, Furu P et al. (2012). Health impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):43–52.
- Higgins M, Metcalfe O, Cotter N (2013). The impact of HIA on the Policy-Making Process in Ireland: Northern Ireland and the Republic of Ireland. In: O`Mullane M, editor. *Integrating Health Impact Assessment with the Policy Process: Lessons and experiences from around the world*. Oxford: Oxford University Press; 46–54.
- Hilding-Rydevik T, Vohra S, Ruotsalainen A, Pettersson Å, Pearce N, Breeze C et al. (2005). Health aspects in EIA. D 2.2 Report WP 2. *IMProving the IMPlmentation of Environmental IMPact Assessment*. Vienna: Österreichisches Institut für Raumplanung (Sixth Framework Programme; <http://bit.ly/MpuV2v>, accessed 15 September 2014).
- Hirschfield A (2004). The HIA of crime prevention. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 341–50.
- IFC (2009): *Introduction to Health Impact Assessment*. Washington, DC: International Finance Corporation (www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_healthimpactassessment_wci__1319578475704, accessed 4 April 2014).
- Irwin A (1995). *Citizen Science*. London: Routledge.
- Kemm J (2004). HIA and the National Alcohol Strategy for England. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 389–402.
- Kemm J, editor (2012). *Health Impact Assessment: Past Achievement, Current Understanding, and Future Progress*. Oxford: Oxford University Press.

- Kemm J, Parry J, Palmer S, editors (2004). *Health Impact Assessment: Concepts, theory, techniques and applications*. Oxford: Oxford University Press.
- Knutsson I, Linell A (2007). HIA speeding up the decision-making process: the reconstruction of route 73 in Sweden. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 161–75.
- Krieger N, Northridge M, Gruskin S, Quinn M, Kriebel D, Davey-Smith G et al. (2003). Assessing health impact assessment: multidisciplinary and international perspectives. *Journal of Epidemiology and Community Health*, 57:659–62 (<http://jech.bmj.com/content/57/9/659.full.pdf+html>, accessed 4 April 2014).
- Lavin T, Metcalfe O (2007a). Traffic and transport at the local level: capacity building for HIA in Ireland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 271–81.
- Lavin T, Metcalfe O (2007b). A city council's air quality action plan: building capacity for HIA in Northern Ireland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 127–36.
- Mahoney M (2009). *Imperatives for Policy Health Impact Assessment: perspectives, positions, power relations*. Unpublished PhD thesis. Victoria, Australia: Deakin University.
- Martín-Olmedo P (2013). *Implementing and institutionalising HIA in Spain: challenges and opportunities*. In: O'Mullane M, editor. *Integrating Health Impact Assessment with the policy process. Lessons and experiences from around the world*. Oxford: Oxford University Press; 165–75.
- Mathers J, Parry J (2004). Expanding the number of places for medical student training in England: an assessment of the impacts. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 351–62.
- Metcalfe O, Higgins M, Lavin T (2012). *Health Impact Assessment in the island of Ireland*. In: Kemm J, editor. *Health Impact Assessment. Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 135–40.
- Milner SJ (2004). Using HIA in local government. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 243–52.

- Mindell J, Joffe M (2003). Health Impact Assessment in relation to Other Forms of Impact Assessment. *Journal of Public Health Medicine*, 25(2):107–13
- Morgan RK (2012). Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1):5–14.
- Morris SC, Novak EW (1976). Environmental health impact assessment. *Journal of Environmental Engineering*, (102):549–54.
- Nelimarkka K, Kauppinen T, Perttilä K (2007). A participative social impact assessment at the local level: supporting the land-use planning process in Finland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 191–205.
- Nowacki J, Martuzzi M, Fischer TB, editors (2010). *Health and strategic environmental assessment*. WHO consultation meeting, Rome, Italy, 8–9 June 2009. Background information and report. . Copenhagen: WHO Regional Office for Europe (www.euro.who.int/__data/assets/pdf_file/0006/112749/E93878.pdf, accessed 1 April 2014).
- O’Mullane M (2013). The Conceptual Roots. In: O’Mullane M, editor. *Integrating Health Impact Assessment with the Policy Process: Lessons and experiences from around the world*. Oxford: Oxford University Press; 8–24.
- Quigley R, den Broeder L, Furu P, Bond A, Cave B, Bos R (2006). *HIA International Best Practice Principles*. Fargo: International Association for Impact Assessment (Special Publication Series No. 5; <https://www.iaia.org/publicdocuments/special-publications/SP5.pdf>, accessed 4 April 2014).
- Roscam Abbing EW (2004). HIA and national policy in the Netherlands. In: Kemm J, Parry J, Palmer S, editors. *Health Impact Assessment: Concepts, theory, techniques, and applications*. Oxford: Oxford University Press; 177–90.
- Sihto M, Ollila E, Koivusalo M (2006). Principles and challenges of Health in All Policies. In: Ståhl T, Wismar M, Ollila E, Lahtinen E, Leppo K, editors. *Health in All Policies. Prospects and potentials*. Helsinki: Ministry of Social Affairs and Health Finland; 3–20 (http://ec.europa.eu/health/archive/ph_information/documents/health_in_all_policies.pdf, accessed 1 April 2014).
- Siliquini R, Nante N, Ricciardi W (2007). Ecosystem revitalization: community empowerment through HIA in Tuscany, Italy. In: Wismar M, Blau J, Ernst K, Figueras J, editors. *The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 95–103.
- Simos J, Cantoreggi N (2012). HIA in Switzerland. In: Kemm J, editor. *HIA. Past achievement, current understanding, and future progress*. Oxford: Oxford University Press; 177–84.

- Simos J, Prisse N (2012). Health Impact Assessment in France. In: Kemm J, editor. Health Impact Assessment. Past achievement, current understanding, and future progress. Oxford: Oxford University Press; 185–91.
- Staatsen B, Lebret E, Franssen E, van Wiechen C, Houthuijs D (2004). HIA in Schiphol Airport. In: Kemm J, Parry J, Palmer S, editors. Health Impact Assessment: Concepts, theory, techniques, and applications. Oxford: Oxford University Press; 224–32 .
- Stricka M, Zurlyte I, Grabauskas V (2007). A local-level HIA in the transport sector: following legal requirements in Lithuania. In: Wismar M, Blau J, Ernst K, Figueras J, editors. The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 105–13.
- UNECE (2003). Protocol on Strategic Environmental Assessment to the convention on Environmental Impact Assessment in a transboundary context. Geneva: United Nations Economic Commission for Europe (http://www.unece.org/env/eia/sea_protocol.htm, accessed 1 March 2014).
- van Reeuwijk-Werkhorst J, van Herten L (2007). HIA and intersectoral policy in urban planning: a checklist for health impact screening in Leiden, the Netherlands. In: Wismar M, Blau J, Ernst K, Figueras J, editors. The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 115–126.
- Viliani F, Clarke E (2013). Realities and Opportunities for Health Impact Assessment in Africa. In: O’Mullane M, editor. Integrating Health Impact Assessment with the Policy Process: Lessons and experiences from around the world. Oxford: Oxford University Press; 153–64.
- Vohra S (2007). International perspective on health impact assessment in urban settings. *NSW Public Health Bulletin*, 18(9–10):152–4 (http://www.publish.csiro.au/?act=view_file&file_id=NB07085.pdf, accessed 4 April 2014).
- Vohra S, Amo-Danso G, Ball J (2013). HIA and its role in shaping government policy-making: the use of HIA at national policy level in England. In: O’Mullane M, editor. Integrating Health Impact Assessment with the policy process. Lessons and experiences from around the world. Oxford: Oxford University Press; 76–87.
- von Bremen K (2007). Moving towards the development of an HIA methodology: the effects of air pollution in Ticino, Switzerland. In: Wismar M, Blau J, Ernst K, Figueras J, editors. The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies; 283–91.
- Welteke R, Claßen T, Mekel O, Fehr R (2007). The controversial Berlin Brandenburg International Airport: time- and resource-consuming efforts concerning health within planning approval in Germany. In:

- Wismar M, Blau J, Ernst K, Figueras J, eds, (2007). The effectiveness of HIA. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies.
- Wernham A (2012). Health Impact Assessment for Shale Gas Extraction. Presentation at the Workshop on the Health Impact Assessment of New Energy Sources: Shale Gas Extraction. 30 April 30—1 May 2012. Washington, DC: Health Impact Project (<http://www.iom.edu/~media/Files/Activity%20Files/Environment/EnvironmentalHealthRT/2012-04-30/Wernham.pdf>, accessed 16 September 2014). (Video of the presentation <http://www.iom.edu/Activities/Environment/EnvironmentalHealthRT/2012-APR-30/Day-1/Session-1/2-Wernham.aspx>, accessed 21 August 2014)
- WHO (1946). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19–22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948 (www.who.int/about/definition/en/print.html, accessed 3 April 2014).
- WHO (2001). Health Impact Assessment(HIA). Report of an inter-regional meeting on harmonization and mainstreaming of HIA in the World Health Organization, and of a partnership meeting on the institutionalization of HIA capacity building in Africa. Arusha, 31 October – 3 November 2000. Geneva: World Health Organization (WHO/SDE/WSH/01.07; http://www.who.int/water_sanitation_health/resources/wsh0107.pdf, accessed 4 April 2014)
- WHO (2011). Rio Political Declaration on Social Determinants of Health. Geneva: World Health Organization (<http://www.who.int/sdhconference/declaration/en/>, accessed 4 April 2014).
- WHO European Centre for Health Policy (1999). Health Impact Assessment: main concepts and suggested approach. Gothenburg consensus paper. Brussels: WHO Regional Office for Europe on behalf of the European Centre for Health Policy.
- WHO Regional Office for Africa (2009). Libreville Declaration on Health and Environment in Africa. Libreville, 29 August 2008. Brazzaville: WHO Regional Office for Africa (http://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=2223, accessed 1 April 2014).
- WHO Regional Office for Europe (1979). Environmental Health Impact Assessment: Report on a WHO Seminar, Argostoli, Kefalonia, Greece, 2–6 October 1978. Copenhagen: WHO Regional Office for Europe (Euro Reports and Studies vol.7; http://whqlibdoc.who.int/euro/r&s/EURO_R&S_7.pdf, accessed 19 September 2014).

- WHO Regional Office for Europe (2004). Declaration. Fourth Ministerial Conference on Environment and Health, Budapest, Hungary, 23–25 June 2004. Copenhagen: WHO Regional Office for Europe (EUR/04/5046267/6; http://www.euro.who.int/_data/assets/pdf_file/0008/88577/E83335.pdf?ua=1, accessed 17 September 2014).
- WHO Regional Office for Europe (2010). Declaration. Fifth Ministerial Conference on Environment and Health “, Parma, Italy, 10–12 March 2010. Copenhagen: WHO Regional Office for Europe (EUR/55934/5.1 Rev. 2; http://www.euro.who.int/_data/assets/pdf_file/0011/78608/E93618.pdf?ua=1, accessed 17 September 2014).
- Wilkinson R, Marmot M, editors (2003). Social determinants of health: The solid facts. 2nd edition. Copenhagen: WHO Regional Office for Europe (www.euro.who.int/_data/assets/pdf_file/0005/98438/e81384.pdf, accessed 4 April 2014).
- Winkler MS, Krieger GR, Divall MJ, Cissé G, Wielga M, Singer BH et al. (2013). Untapped potential of health impact assessment. Bull World Health Organ, 91:298–305 (<http://www.who.int/bulletin/volumes/91/4/12-112318/en/>, accessed 4 April 2014).
- Wismar M, Blau J, Ernst K, Figueras J, editors (2007). The effectiveness of Health Impact Assessment. Scope and limitations of supporting decision-making in Europe. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies (http://www.euro.who.int/_data/assets/pdf_file/0003/98283/E90794.pdf?ua=1, accessed 17 September 2014).

Enhancing health in impact assessments

It is the aim of this publication to promote discussion on health and impact assessments. For this purpose, a range of impact assessments was selected. In the preceding chapters, the specific origins and dynamics of these assessments have been outlined; how health issues are covered has been analysed; and some perspectives on future developments have been given.

General observations

All different types of impact assessments share a common rationale: societies, especially in situations of change and crisis, need prudence and foresight. Securing and improving societal welfare and well-being requires pro-active approaches, involving cross-sectoral action at all administrative levels. Impact assessment is one of the key instruments to this end and has been shown to contribute effectively to foresight efforts. However, the potential may not have been exploited in full and there seems to be room for improvement.

Recently, a special issue of the journal *Impact Assessment and Project Appraisal* examined the state-of-the-art of impact assessments (IAPA, 2012), focusing on policy assessment, sustainability assessment, SIA, SEA, HIA, and EIA. The analysis showed significant overlaps between the different types of (impact) assessment, creating a picture which — due to the overlaps and potential inconsistencies — may not easily be understood by observers or stakeholders.

It is beyond the remit of this publication to analyse in detail where the impact assessment field is moving. Nevertheless, a focused view on health and impact assessments requires awareness of essential trends and perspectives in the field. For an adequate consideration of health in impact assessments, the following essential elements need to be included in the assessment (extended after Harris et al., 2009):

- explicit analysis of health-related issues;
- comprehensive consideration of health determinants including physical and social environment, personal behaviour, and health care system;
- causal pathways from health determinants to health outcomes, including interactions;
- distribution of health impacts across various subgroups within an affected population (health equity); and
- utilization of health data to inform the analysis and possibly quantify health impacts.

The principles, theory and practice of different forms of impact assessment, and their full or partial inclusion or exclusion of human health differ widely. The interpretation of impact assessments, even where these are based on legal regulations, changes over time. Generally, impact assessments are evolving concepts. From a health perspective, this fact introduces

Impact assessment has become a reference conceptual framework for decision-making

Significant overlaps between types of impact assessment

Impact assessments are evolving concepts

Human health seems to be widely accepted as a crucial component of 'overall impact'

significant opportunities towards improved integration of health in various forms of impact assessments. The basic attitude of impact assessors towards health tends to be positive: human health seems to be widely accepted as a crucial component of the *overall impact*, and the integration of health is expected to be in line with stakeholders' and the public's expectations.

Conclusions

The previous chapters offer important insights into whether and how health is considered in different types of impact assessment, what are the strengths and weaknesses, and what opportunities exist for stronger, more health-friendly impact assessment. We discuss these points, addressing the four questions posed in the introduction.

Question 1: How can the various assessments contribute to promoting and protecting human health?

Health as a topic is not foreign to any of the impact assessments considered

Health as a topic is *not foreign* to any of the impact assessments considered here. At least in terms of concepts, health and even more so the determinants of health fall within the range of interest for all of these impact assessments. In EIA, the focus is on issues of environmental health, but there is a recent tendency to develop a broader perspective (Faith-Ell, Kalle & Lund-Iversen, 2014). In SEA, there is a similar situation, but apparently further advanced towards a broader coverage (Fischer, 2014). In SIA, health has been identified as one central topic (den Broeder & Vanclay, 2014). In sustainability assessment, a broad range of health determinants are seen as falling into its remit (Bond & Pope, 2014). HIA, obviously, is fully devoted to human health (O'Mullane & Guliš, 2014).

In current practice there is limited coverage of health – practice has to be brought closer to aspirations

Thus, the aspirations of all these impact assessments seem to evolve in the direction of a more comprehensive inclusion of human health. In practice, however, there is still limited coverage. Therefore, from a health perspective, a good step for all impact assessments is to bring practice closer to aspirations.

The contributions of the various impact assessments to protecting and promoting human health would benefit greatly from:

- consistent use of a clear conceptualization of health, including the physical, mental, and social dimension;
- access to reliable health data and information, including on proximate as well as distant health determinants;
- involvement of health experts from early stages, contributing substantive conceptual knowledge (health, determinants, interactions, vulnerabilities, etc.) as well as on methodological issues (epidemiology, risk assessment, burden of disease, etc.) and experience; and
- awareness by other impact assessors as well as decision-makers on the interconnections of policies and projects with health.

It should be noted that in many cases policies and projects do not impact on health directly but through chain of events beginning upstream in the causal web of health determinants. The health impacts may then become manifest at some distance (in space and/or time) from the initial action and effectively become externalities – a foresight failure. Adequate consideration of human health, therefore, calls for integration of *upstream* analyses (as provided largely by experts from various fields outside health) with more *downstream* analyses involving specific health expertise.

Adequate consideration of human health calls for integration of upstream with downstream analyses

Based on emerging evidence in SEA, the improvement in the consideration of health may be measurable, albeit moderate (Fischer, 2014). Furthermore, as mentioned in the sustainability assessment chapter (Bond & Pope, 2014), although planners largely appreciate that the areas in which a plan focuses are determinants of health, they are rarely of the opinion that they can have much influence on these determinants and finally on health. Impact assessors should therefore be encouraged to continue their efforts to better integrate health.

With most impact assessments constantly evolving over time, it is useful to evaluate emerging trends with respect to health. One important development is the rise of *human rights* as an issue of concern. The human rights agenda is gaining a strong legal foothold and thus may come to dominate impact assessment. The minimum standards for human rights observance include the Universal Declaration of Human Rights which mentions health; a right to health can thus be inferred (den Broeder & Vanclay, 2014).

Another relevant concept is the *FPIC*. Originating in the context of impacts on indigenous peoples, there is a view that such consent is an appropriate philosophy which should be extended to all communities. Impact assessment becomes of fundamental importance in ensuring a common understanding of the likely impacts of a project on a community (den Broeder & Vanclay, 2014).

Obviously, the coverage of health in an impact assessment does not guarantee the improved consideration of health in decision-making, let alone improvements in the *real* world. Securing adequate consideration of the findings of impact assessments in actual decision-making, to the extent possible, serves the promotion and protection of human health as well as the broader (environmental, social, sustainability-related) aims of impact assessment.

Securing adequate consideration of impact assessment on actual decision-making serves the promotion and protection of health

Question 2: How can further integration of health support other forms of impact assessments and what experiences can be shared across the various impact assessment types?

As indicated earlier, health is an issue which is widely accepted as a cornerstone of societal well-being as well as prerequisite for participation in education, work, and multiple other aspects of social life. For this reason, comprehensive and meaningful inclusion of health in different forms of

Impact assessments that include explicitly human health can be expected to meet with greater levels of acceptance

Better coverage of health reflects proper adjustments to shifting frameworks and expectations

impact assessments can strengthen their relevance for interested communities and thus their acceptability and legitimacy.

Although the basic idea of impact assessments is in line with a modern understanding of good governance, there are reservations, including evocations of *red tape* and risks of *impact assessment fatigue*. Where human health is explicitly included into the scope of impact assessments in a transparent and evidence-based way, such impact assessments can be expected to meet with greater levels of acceptance in all quarters, from policy-makers and stakeholders to the public at large.

A case study from West Australia (Bond & Pope, 2014) highlights how both HIA and sustainability assessment have continued (independently) in practice despite lack of statutory backing or even clear policy support, largely due to the efforts of private proponents who realize that a broad sustainability approach is essential if they are to obtain and maintain a social licence to operate. Explicit coverage of human health is indeed increasingly demanded by the regulatory frameworks governing several impact assessments, especially in relation to EIA and SEA. Also for sustainability assessment, the interpretation is shifting towards a definition of sustainability in which human health is a key consideration. Better coverage of health thus reflects adjustments to shifting frameworks and expectations within different types of impact assessments.

Along this line, it should be noted that performance standards and guidance notes as issued by the World Bank Group's IFC now require the private sector to prepare impact assessments that include community health, safety and security. For example, IFC Performance Standard No. 4 applies to infrastructure and equipment design and safety; hazardous materials management and safety; ecosystem services; community exposure to disease; and emergency preparedness and response (IFC, 2012). However, such regulatory basis still needs to be implemented in actual practice.

In some countries, proponents of projects are increasingly developing quasi-legal IBAs with local people, specifying the scope of the project, what the likely impacts will be, what mitigation measures will be enacted, and what benefits the company promises to provide to the affected communities. Here, the adequate coverage of health issues is likely to increase the acceptability of such agreements (den Broeder & Vanclay, 2014).

Question 3: What forms of, and what levels of, integration seem advisable?

As indicated earlier, the existing range of impact assessments is not likely to be perceived by observers as completely rational or convincing. Reasons to consider integration of existing impact assessments include the following:

- there is obvious topical overlap between impact assessments;
- with current trends towards enlarging the scope of topics covered by specific impact assessments, this overlap can be expected to increase;

- such topical overlap, at the very least, implies a certain waste of efforts and an example of societal inefficiency;
- for a given action being assessed, contradictory statements may be made by different forms of impact assessment, which is bound to undermine their credibility with policy-makers, stakeholders, and the public at large; and
- even short of such contradictions, the existence of multiple impact assessments conducted in parallel may wear out the goodwill and patience of all parties involved, contributing to impact assessment *fatigue*.

The health sector, by crafting and promoting HIA, can be regarded as contributing to fragmentation among impact assessments. Given the considerable value of impact assessments from a societal perspective, this is a risk not to be taken lightly. Without doubt, health is widely agreed upon as a fundamental value in society. But impact assessments are *means to an end*, not an end in themselves. So, the need of, and justification for separate HIA cannot automatically be derived from the universally accepted significance of health; rather, it should be demonstrated whether and how HIA offers a comparative advantage in terms of societal benefits.

From this perspective, considering HIA as an element of the public health strategies toolkit or embarking on the concrete assessment of a specific policy or project requires careful consideration. If the objectives pursued via a separate HIA can successfully be integrated into other impact assessments, then typically such integration would be the way to go. Even where full integration of health seems out of reach, the benefits of a separate HIA need to be weighed carefully against the potential damage, for example, concerning fragmentation and overall credibility. It may be challenging to weigh the short-term benefits such as an undiluted statement on health impacts of some current proposal against the long-term benefits of building strong coalitions for health across sectors and stakeholders.

Incidentally, reflections on how to optimize health coverage in impact assessments might contribute to identify new and useful ways of impact assessment integration.

The impact assessment practiced by the EC is to some extent *integrated* across economic, social, and environmental issues. The EC practice demonstrates that it can be challenging to successfully integrate human health.

As a positive experience of integration, in an assessment of the South East Queensland Regional Plan (Copeland & Young, 2006), SIA and HIA practitioners decided to cooperate before starting the impact assessment process and merged their methods and tools. In Scotland, an integrated assessment for health, equality and human rights was created recently. It was concluded that integrating assessments with similar value systems

The existence of multiple impact assessments conducted in parallel may contribute to impact assessment fatigue

Justification for separate HIA cannot automatically be derived from the universally accepted significance of health

Benefits of separate HIA need to be weighed carefully against potential damage

It can be challenging to successfully integrate human health

would be smoother and more feasible than those with different value systems, such as Regulatory Impact Assessment.

With the reasons in favour of integration being obvious, actors and observers are swift to also point out drawbacks:

- Integrating several or even many different foci such as economic, environmental, regulatory, social, and health may dilute the emphasis of each specific dimension
- Power differences between various contributors may undermine the idea of *integrated impact assessment*; some aspects, for example, economic development or highway construction, tend to dominate and others tend to be subordinated
- Due to institutional barriers, there are difficulties in achieving cooperation across sectors and responsible bodies.

Even where integration is envisaged, actual integration can still be challenging. As discussed in the sustainability assessment chapter (Bond & Pope, 2014), planners and statutory bodies consulted felt they had insufficient expertise to fully appreciate the health implications of the decision they were making but still engagement with health professionals varied widely.

Concerning integration, an important aspect refers to technical, human and financial resources. It is not always clear, however, how to make best use of limited resources. In theory, the integrated approach should benefit from synergies and the avoidance of duplication. Given current realities, it can be more economical to conduct several separate impact assessments.

In summary, at this point in time, strong tendencies towards integration can be observed, and indeed there are numerous reasons in favour of integration. At the same time, there are good reasons to introduce changes prudently, lest existing and functioning mechanisms of foresight be damaged or even lost. Nevertheless, in the future, integrated impact assessments may take on a larger role, and it may even become the norm. More empirical evidence on concrete experiences with specific forms of integration (“partial” or “full”) would be helpful.

For the time being, a cautious approach is needed. The decision to integrate or not requires careful weighing of pro’s and con’s.

From a health-focused perspective, integration per se is neither a “must” nor a “don’t”. Health issues can, and need to, be included irrespective of levels of integration. At the same time, from a civic society perspective, it would be unacceptable for HIA to weaken other impact assessments. A prudent attitude suggests optimizing the coverage of health along all three avenues:

- better consideration of health in existing impact assessments other than HIA,
- dedicated HIA, and
- integrated forms of impact assessment.

Power differences between various contributors may undermine the idea of integrated impact assessment

Actual integration can be challenging

In the future integrate impact assessments may become the norm

From a health focused perspective, integration per se is neither a must nor a don't

Question 4: What should be seen as priorities for further development?

The first priority is to maintain and strengthen existing regulations and practices of impact assessments. Already today, health is featured in many impact assessments (not limited to HIAs), thus contributing on many occasions to the protection and promotion of human health. It is important that this culture remains in *good shape*, constructively moves forward, and stays open for evaluations and discussions.

The success of impact assessments depends on comprehensive cooperation as well as broad societal understanding and acceptance of the rationale of impact assessment. In this respect, the role, goals, process and benefits of impact assessment should be better known also outside the impact assessment profession, for example, within public health, other professions, and civil society.

As indicated above, the field of impact assessment is evolving. Care should be taken not to overlook relevant recent developments, for example, the increasing interest of other impact assessors in human health. Also, the concept of environment has expanded over the years and is increasingly being constructed as an overarching concept that encompasses human health.

Specific health priorities include the following:

- There is a need to ensure that the health consequences of proposed actions are predicted and understood in a reliable, transparent way, based on the available evidence.
- An understanding of health that is plausible and robust beyond the public health profession is needed.
- Health coverage in other impact assessments benefits from access to evidence on the determinants of health, providing information on the temporal, spatial, and social dynamics (“time, place, person” in epidemiology) of the relationship between populations, impacts and the determinants of health.
- Both programmatic endorsement of, and legal requirements for, health coverage in impact assessments are useful, although they do not guarantee effective practice.
- Public health specialists and health institutions should have a stronger role in impact assessments.
- There needs to be training for public health practitioners, especially in the Public Health Service, on impact assessment theory and practice, with the goal to enable health professionals (officials and consultants) to work alongside environmental and planning professionals as well as other impact assessors to ensure a thorough understanding of potential health implications.
- Professional capacity is needed, for example, in the form of dedicated impact assessment units in ministries or governmental agencies and/or HIA consultants in the private sector.

A first priority is to maintain and strengthen existing regulation and practises of impact assessments

Impact assessment should be better known outside the impact assessment profession

Priorities for future development on fostering health in impact assessments

Both programmatic endorsement and legal requirements of health coverage are useful

There is a need to integrate health modules into trainings of impact assessment professionals and impact assessment modules into training of public health experts

- As a practical step, health modules need to be integrated into trainings of impact assessment professionals and impact assessment modules need to be integrated into training of public health professionals.
- Databases, surveys, and methodologies as well as guidelines and reports of “good practice” are needed.
- Professionals (and institutions) from the health, from planning, and other impact assessment arenas should jointly be involved in the development of research agendas, methodologies, and impact assessment capacity-building programs.
- HIA professionals need to be included as part of other impact assessment teams.

At this point in time, it seems premature to decide on the exact limits of the inclusion/exclusion of health and health determinants in various types of impact assessments. Clearly, there should be a keen awareness of health as a potential issue in most, if not all, impact assessments. At the same time, other priorities as well as conceptual and resource limitations need to be acknowledged.

Epilogue

In preparing this publication, research results and practical experiences on health and other impact assessments were encountered which should be of interest well beyond “inner circles”. Nevertheless, many questions remain unanswered. Most importantly, there is no single answer to the question how best to bring together health and impact assessments.

We keep seeing three main paths for the way ahead:

- better coverage of health within the range of existing impact assessments other than HIA;
- further development and practical implementation of HIA; and
- development of better and more use of integrated assessments.

Importantly, these options do not exclude each other.

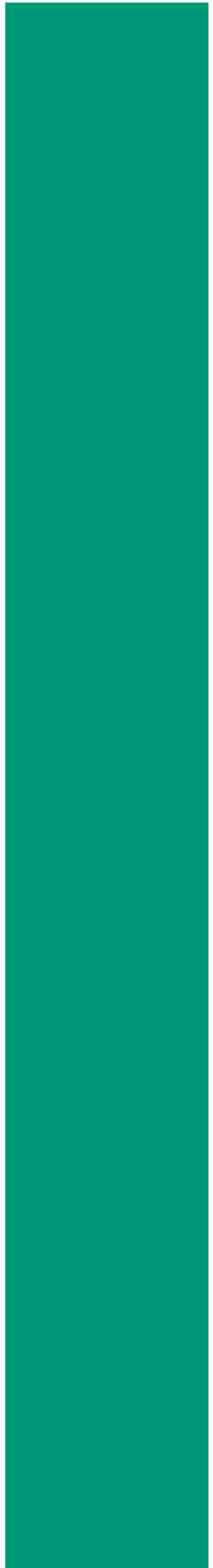
Whichever path is chosen, it will require efforts for public health professionals to deal more explicitly with existing impact assessment cultures, and for professionals from other disciplines and sectors to understand the role of health in impact assessments more clearly. We hope that this publication helps to raise awareness of health as a crucial issue for impact assessment, and to reflect on how the *family of health-inclusive impact assessments* can move forward, in mutually beneficial ways.

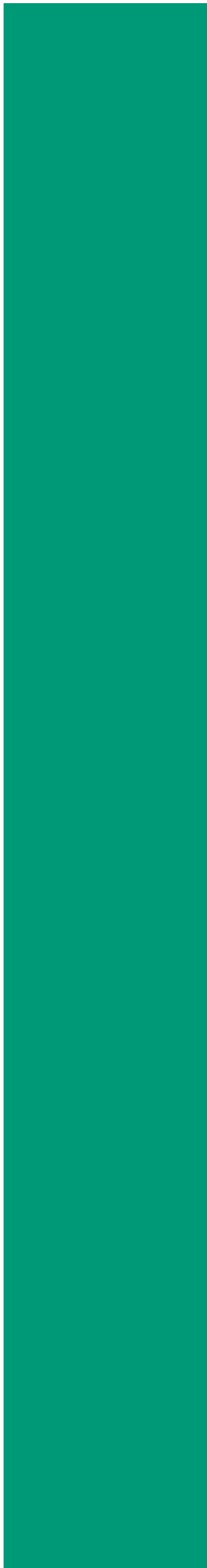
The three main paths for the way ahead

References

- Bond A, Pope J (2014). Sustainability assessment and health. In: Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. Health in Impact Assessments. Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe; 49–71.
- Copeland AC, Young AM (2006). Health and social impact assessment of the South East Queensland Regional Plan (2005–2026). NSW Public Health Bulletin, 18(9–10):177–179.
- den Broeder L, Vanclay F (2014). Health in Social Impact Assessment. In: Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. Health in Impact Assessments. Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe; 73–92.
- Faith-Ell C, Kalle H, Lund-Iversen M (2014). Health in environmental impact assessment in Estonia, Norway and Sweden. In: Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. Health in Impact Assessments. Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe; 11–22.
- Fischer TB (2014). Health in Strategic Environmental Assessment. In: Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. Health in Impact Assessments. Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe; 23–47.
- Harris PJ, Harris E, Thompson S, Harris-Roxas B, Kemp L (2009). Human health and wellbeing in environmental impact assessment in New South Wales, Australia: Auditing health impacts within environmental assessments of major projects. Environmental Impact Assessment Review, 29(5):310–318.
- IAPA (2012). Special Issue: The state of the art of impact assessment in 2012. Impact Assessment and Project Appraisal, 30(1):1–62.
- IFC (2012): Performance Standard 4: Community Health, Safety and Security. Washington, DC: International Finance Corporation (www.ifc.org/wps/wcm/connect/a40bc60049a78f49b80efaa8c6a8312a/PS4_English_2012.pdf?MOD=AJPERES, accessed 4 April 2014).
- O’Mullane M, Guliš G (2014). Health Impact Assessment. In: Fehr R, Viliiani F, Nowacki J, Martuzzi M, editors. Health in Impact Assessments. Opportunities not to be missed. Copenhagen: WHO Regional Office for Europe; 93–102.

Annex





Institutional context and chronology

The following chapter gives an overview of the institutional context of the publishing organization and displays a chronology of “family of impact assessment” related activities undertaken by members of the three institutions.

WHO Regional Office for Europe, European Centre for Environment and Health

In the late 1980s, concerned about the growing evidence of the impact of hazardous environments on human health, the WHO Regional Office for Europe promoted an international process on environment and health process, involving both the health and the environment sectors and developing a broad-based primary prevention public health approach for addressing environmental determinants of health.

The European Environment and Health Process has been marked by ministerial conferences, that bring together the 53 Member States of the WHO Regional Office for Europe, several other organizations and stakeholders to identify environment and health challenges, set priorities, agree on commitments and shape shared European policies and actions on environment and health.

The first Ministerial Conference, held in Frankfurt in 1989, adopted the European Charter on Environment and Health a commitment to basic principles, mechanisms and priorities for future action. The conference also called on WHO to establish the European Centre for Environment and Health, which remains the key institution of the European Environment and Health Process to this day.

Based in Bonn, Germany, the WHO European Centre for Environment and Health is the primary source of knowledge, technical expertise and normative guidance relating to the environment and health in the WHO European Region.

Adequate coverage of health within impact assessments is strongly supported by WHO and by the European Environment and Health Process. At the Fourth European Ministerial Conference on Environment and Health (Budapest, Hungary, 2004) the ministers of environment and ministers of health, in adopting the Conference Declaration, recalled the UNECE Protocol on SEA to the Convention on EIA in a Transboundary Context. The Protocol acknowledges the benefits to the health and well-being of present and future generations that will follow, if the need to protect and improve people’s health is taken into account as an integral part of SEA. The ministers committed themselves to “taking significant health effects into account in the assessment of strategic proposal under the Protocol” (WHO Regional Office for Europe, 2004).

European Public Health Association

EUPHA is an umbrella organization for public health associations and institutes in Europe. Founded in 1992, EUPHA now has 71 members from 40 countries, including 41 national associations, 18 institutional members, and 8 European NGOs. EUPHA is an international, multidisciplinary, scientific organization, bringing together around 14,000 experts for professional exchange and collaboration throughout Europe.

EUPHA's vision is of improved health and reduced health inequalities for all Europeans. EUPHA seeks to support members to increase the impact of public health in Europe, adding value to the efforts of regions and states, national and international organizations, and individual public health experts. The mission is to build capacity and knowledge in the field of public health, and to support practice and policy decisions through scientific evidence and producing and sharing knowledge with members and partners in Europe. The strategic objectives pursued by EUPHA refer to capacity building, knowledge building, and policy building.

In order to bring together researchers, policy-makers and practitioners working in the same field for knowledge sharing and capacity building, there are sections within EUPHA for specific public health themes. One of EUPHA sections is devoted to HIA. Among other issues, the section is interested in the integration of results from various HIA projects and in the interrelationships of different health-related impact assessments (for example, EIA/SEA, SIA, sustainability assessment, EC-type impact assessment), potential conflicts between them, and the pro's and con's of integrated assessments; and health impact quantification. The initiative for this section started in 2010. The section was established by the EUPHA Governing Council at their annual meeting in November 2011; it has more than 500 members now.

Beyond holding annual meetings, EUPHA's HIA section organizes workshops and other contributions to the annual European Public Health (EPH) conferences which are joint activities of EUPHA and the Association of Schools of Public Health in the European Region (ASPHER).

International Association for Impact Assessment

Impact assessment, simply defined, is the process of identifying the future consequences of a current or proposed action.

IAIA is the leading global network on best practice in the use of impact assessment for informed decision-making regarding policies, programs, plans and projects.

IAIA was organized in 1980 to bring together researchers, practitioners, and users of various types of impact assessment from all parts of the world. IAIA involves people from many disciplines and professions. Our members include corporate planners and managers, public interest advocates, government planners and administrators, private consultants and policy analysts, university and college teachers and their students.

One of the unique features of IAIA is the mix of professions represented, which provides outstanding opportunities for interchange: to advance the state of the art and science of impact assessment in applications ranging from local to global to develop international and local capability to anticipate, plan and manage the consequences of development to enhance the quality of life for all. To ensure professional specialty interests are fully addressed, IAIA offers a number of special interest-area sections.

IAIA activities seek to:

1. develop approaches and practices for comprehensive and integrated impact assessment;

2. improve assessment procedures and methods for practical application;
3. promote training of impact assessment and public understanding of the field;
4. provide professional quality assurance by peer review and other means; and
5. share information networks, timely publications, and professional meetings.

IAIA members number more than 1,600 and represent more than 120 countries.

IAIA Affiliates are active in Cameroon, Canada (Ontario, Quebec, Western and Northern Canada), Germany, Ghana, Iran (Islamic Republic of), Italy, Republic of Korea, Mozambique, New Zealand, Nigeria, Portugal, South Africa, Spain and Zambia.

IAIA's first branch (a group comprised entirely of IAIA-International members), the Washington (DC) Area Branch, was organized in September 2001 and the Ireland-UK Branch was formalized in June 2008.

IAIA Sections provide opportunities for IAIA members with mutual interests to share experiences and discuss ideas in an informal setting. Sections provide a forum for active topical debate and for development and promotion of good practice. In the future IAIA hopes to strengthen links with other relevant organizations in section interest areas. Many sections have issued up-to-date key citations, guidance and information on best practice.

“Family of health-related impact assessments” chronology 2009 to today

		WHO-European Centre for Environment and Health (1)	European Public Health Association (2)	International Association for Impact Assessment (3)	HIA International conferences	Other events
2009	I					
	II					
	III	WHO consultation meeting; Health and strategic environmental assessment; Rome, Italy, 8–9 June 2009				
	IV		EUPHA annual conference: “Human ecology and health”. Lodz, Poland, 25–28 November 2009		10th International HIA Conference in Rotterdam, Netherlands, 14–16 October 2009	
2010	I	WHO; Fifth Ministerial Conference on Environment and Health; Parma, Italy, 10–12 March, 2010				
	II			30th IAIA Annual Conference: “The Role of Impact Assessment in Transitioning to the Green Economy”. Geneva, Switzerland 6–11 April 2010		
	III					Deutsche Gesellschaft für Sozialmedizin und Prävention, DGSM (German Society for Social Medicine and Prevention); Individualized Prevention and epidemiology: Modern medicine; Berlin, Germany, 22 September, 2010
	IV		EUPHA annual conference: “Integrated Public Health”. Amsterdam, The Netherlands 10–13 November 2010			
2011	I					
	II			31st IAIA Annual Conference: “Impact Assessment and Responsible Development for Infrastructure, Business and Industry”. Puebla, Mexico 28 May – 4 June 2011	11th International HIA Conference in Granada, Spain, 14–15 April 2011	
	III					
	IV		EUPHA annual conference: “Public Health and Welfare”. Copenhagen, Denmark 10–12 November 2011			

		WHO-European Centre for Environment and Health (1)	European Public Health Association (2)	International Association for Impact Assessment (3)	HIA International conferences	Other events
2012	I	WHO, Capacity building in Environment and Health, Training on health in SEA and EIA; Riga, Latvia; 19–23 March, 2012				
	II	WHO, Strengthening health in environmental assessments, joint workshops for E&H experts in Estonia and Slovenia; June, 2012		32nd IAIA Annual Conference: “Energy Future The Role of Impact Assessment”. Porto, Portugal 27 May–1 June 2012		
	III		European Urban Health Conference; Amsterdam, Netherlands, 12–14 September, 2012		12 th International HIA Conference in Quebec, Canada 29–31 August 2012	
	IV		EUPHA annual conference: “All Inclusive Public Health”. Malta, 7–10 November 2012			
2013	I					
	II			33rd IAIA Annual Conference “Impact Assessment: the next generation”. Calgary, Alberta, Canada, 13-16 May 2013		
	III					8th European Congress of Tropical Medicine and International Health; Copenhagen, Denmark, 10–13 September, 2013
	IV		EUPHA annual conference: “Health in Europe: are we there yet? Learning from the past, building the future”. Brussels, Belgium 13–16 November 2013		13th International Conference on Health Impact Assessment (HIA) Geneva, Switzerland, 2–4 October 2013	
2014	I			“		
	II	Publication of Book on Health in Impact Assessments – opportunities not to be missed		34th IAIA Annual Conference: “Impact Assessment for Social and Economic Development”. Viña del Mar, Chile, 8–11 April 2014		
	III					
	IV		EUPHA European Public Health Conference: “Mind the gap: Reducing inequalities in health and health care”. Glasgow, Scotland, United Kingdom, 19–22 November 2014 – Planned –			

Contributors

Alan Bond

School of Environmental Sciences, University of East Anglia, United Kingdom

Alan Bond is Senior Lecturer in Environmental Management in the School of Environmental Sciences at the University of East Anglia (United Kingdom) and Extraordinary Professor in the School of Geo and Spatial Sciences, North West University (South Africa), with 23 years of experience in Impact Assessment. He runs a full-time MSc programme on Environmental Assessment and Management at the University of East Anglia. He is a member of the Editorial Board of Environmental Impact Assessment Review and is a Quality Mark review panel member for the Institute of Environmental Management and Assessment (IEMA) and sits on the Radioactive Waste Management Directorate's (part of the United Kingdom Nuclear Decommissioning Authority) Sustainability Assessment Group. He has previously conducted research for WHO, the EC, the Health Development Agency, the European Environment Agency, the Welsh Assembly Government, the Environment Agency (England & Wales), and has undertaken a variety of consultancy work.

Lea den Broeder

National Institute for Public Health and the Environment, Netherlands

Lea den Broeder is a social scientist and public health specialist. She works as a coordinating adviser on Health in All Policies at the National Institute for Public Health and the Environment in the Netherlands. Lea has worked extensively on HIA, in research, training and tool development. She is a long-standing member of the International Association for Impact Assessment and had several positions in this organization, including membership of the Board of Directors. Since September 2013 she is appointed part-time as a scientific adviser for Environment and Health at the School of Sports and Nutrition of the Amsterdam University of Applied Sciences.

Charlotta Faith-Ell

Estonian Environmental Institute (EKKI), Estonia

Charlotta Faith-Ell holds a PhD in Land and Water Resources Engineering from the Royal Institute of Technology and a MSc in Earth Sciences from Stockholm University. She has more than fifteen years of experience of working with project management and environmental management. Dr Faith-Ell is a recognized expert in the field of Impact Assessment. As Project Manager she has headed up a large number of Infrastructure planning projects, EIA and SEA in infrastructure and land-use planning. Parallel to working with EIA and SEA she has since 2007 led one of the leading research groups on Gender Impact Assessment in Sweden. Charlotta is a board member of the Estonian Environmental Institute (EKKI).

Rainer Fehr*University of Bielefeld, Germany*

Rainer Fehr is a physician (MD, Hamburg University) and epidemiologist (PhD, University of California, Berkeley). He worked in various academic and administrative environments incl. the University of Hamburg; the Hamburg State Ministry of Health; and the NRW Institute of Health and Work (LIGA.NRW), where he was also director of the WHO Collaborating Center for Regional Health Policy and Public Health. At the NRW Center for Health (LZG.NRW) he was a member of the directorate, retiring in December 2012. His profile includes academic teaching; participation in multiple (international) projects; reviewing and consulting, for example, for WHO and the EC. Being an adjunct professor at the University of Bielefeld, he is a member of the Department of Public Health and continues to do research on the human ecology of health, especially urban and regional health; on health monitoring & surveillance; and on HIA and other governance-supporting health analyses.

Thomas B Fischer*Department of Geography and Planning, School of Environmental Sciences, University of Liverpool, United Kingdom*

Professor Dr Thomas B Fischer, Dipl.-Geogr. (FU Berlin) PhD (University of Manchester), FIEMA, is Head of the Department of Geography and Planning, School of Environmental Sciences, University of Liverpool, United Kingdom. His specialist areas revolve around ex-ante impact assessment tools in spatial, transport, energy, waste and other sectoral policy, plan, programme and project making, in particular SEA and EIA. He has worked in consultancy, public administration and academia internationally for over 23 years and is one of the most widely published authors on SEA and EIA globally. Thomas was a Professional Member of the 'NHS National Institute for Health and Clinical Excellence Public Health Programme Development Group for the NICE guidance on Spatial Planning' in 2009/2010 and is editor of the international 'Journal of Environmental Assessment Policy and Management' and editorial board member of the journals 'EIA review' and 'Impact Assessment and Project Appraisal'.

Gabriel Guliš*Unit for Health Promotion Research, University of Southern Denmark, Esbjerg, Denmark*

Gabriel Guliš is a lecturer and researcher at the Unit for Health Promotion Research of the University of Southern Denmark, Esbjerg, Denmark. He started his public health career in Slovakia as a practitioner working at regional public health authority, and moved via international fellowships (United States, and WHO courses), national level management post (director of former National Center for Health Promotion in Slovakia) to academia. First he worked at Trnava University, in Slovakia, where he started his research on health impact assessment. After moving to Denmark in 2012 he continued research on same area and added working with Danish municipalities on introduction of HIA in Denmark. Recently his research interest is on Health in All Policies, HIA and global health issues.

Heikki Kalle*Hendrikson & Ko Ltd, Estonia*

Heikki Kalle (MSc) is a member of board of Hendrikson & Ko Ltd, Estonian based spatial planning and environmental consultancy with international operations. Also he is active in managing of scientific projects in Estonian Environmental Institute. Heikke has been involved in development of Estonian spatial planning and impact assessment legislature and methodology last 15 years. Currently he is active in development of national planning guidance. Also, Heikke has been active lecturer of SEA/EIA in Tartu University, Estonian University of Life Sciences and in several special courses. He is founder and first chairman of Estonian Society of Spatial Planners. His current scientific interests are related to the role of impact assessment in decision-making with special reference to the mobility planning and management.

Martin Lund-Iversen

Department of Landscape Architecture and Spatial Planning, Norwegian University of Life Sciences, Norway

Martin Lund-Iversen has almost 20 years of experiences in impact assessment and land-use planning, from the Royal Norwegian Ministry of the Environment, the Norwegian Institute for Urban and Regional Research (NIBR) and the Norwegian University of Life Sciences (NMBU). This has involved work on the development of the Norwegian impact assessment regulations, including the transposition of the two EU directives in the field. He has researched many impact assessment practices in Norway, including screening, monitoring, quality control, and the adaptation of the impact assessment to the project and planning levels. He has also been doing consultancy work in SIA for mining developments, and for plans for the protection of marine areas. Topics like universal design, coastal zone management and planning, and the central government's concern with municipal planning, have been a main focus of his work in land-use planning.

Marco Martuzzi

WHO European Centre for Environment and Health, Germany

Marco Martuzzi is the Manager of the Environment and Health Intelligence and Forecasting Programme of the WHO Regional Office for Europe. He is an epidemiologist with experience in environmental and occupational studies. He worked at the Italian Institute of Health, the London School of Hygiene and Tropical Medicine, the Imperial College School of Medicine, the WHO International Agency for Research on Cancer (Lyon, France), and over the last fifteen years at the WHO European Centre for Environment and Health, currently based in Bonn, Germany. He has experience in noncommunicable disease epidemiology, which was the subject of his PhD obtained from the University of London in 1996. His current work is concerned with the health impact of several environmental risk factors and health determinants. He has a special interest in approaches for developing policies in environmental health and other sectors, suitable for supporting WHO Member States in decision-making on health-related matters.

Julia Nowacki

WHO European Centre for Environment and Health, Germany

Julia Nowacki, M.Ed. MPH, studied adult education and political science at the University of Cologne and Public Health at the University of Bielefeld. Before joining WHO in 2008

she was the knowledge manager of the public sector audit and consulting department of KPMG Public Sector, Cologne. She joined the WHO European Centre for Environment and Health in 2008 as Technical Officer on HIA. Her work focuses mainly on HIA, the integration of health into EIA and SEA, environmental justice, and the development and implementation of training for Member States of the WHO European Region.

Monica O'Mullane

Department of Public Health, Trnava University, Slovakia

Monica O'Mullane is a lecturer in the Department of Public Health, Trnava University, Slovakia. Monica started working in Trnava after completing a study investigating the public health legislation for HIA in 2010, which was funded by the Slovak Ministry of Education. Previous to that, Monica worked at the University College Cork, Ireland, as a postdoc researcher, where she also received her PhD, which examined the use of HIA knowledge in policy-making processes. HIA is her main research interest. Monica's other research interests include surveillance systems for infectious diseases, intersectoral collaboration for health inequalities and gender equality in academia.

Jennifer Pope

Integral Sustainability, Australia

Dr Jenny Pope is Director of the Western Australian consultancy firm Integral Sustainability, which provides consultancy services to Government and industry on the integration of sustainability concepts into decision-making processes, with a focus on delivering positive sustainability outcomes from major projects, particularly in the extractives sector. In 2007 she was awarded her PhD from Murdoch University for her research into the evolution of processes for the sustainability assessment of complex and strategic projects, and she is now recognized internationally as a leader in the field of sustainability assessment. Jenny continues to combine her consultancy practice with academic research and teaching roles. She is a Fellow of the Cambridge Programme for Sustainability Leadership at the University of Cambridge, United Kingdom; Extraordinary Senior Lecturer in Environmental Management at North-West University in South Africa; and Adjunct Research Fellow at the Curtin University Sustainability Policy Institute in Western Australia.

Frank Vanclay

Faculty of Spatial Sciences, University of Groningen, Netherlands

Frank Vanclay is professor of cultural geography in the Faculty of Spatial Sciences at the University of Groningen, Netherlands. Originally an Australian, he is a specialist in SIA, receiving the 2014 Individual Award from the International Association for Impact Assessment for his contribution to the theory and/or practice of the discipline of SIA. He is author of many of the key papers and editor of several key texts in the field of SIA. He has had a long-standing interest in health issues and in the overlap between SIA and HIA.

Francesca Viliani

Public Health Consulting Services and Community Health Programs, International SOS, Denmark

Francesca Viliani is a specialist in public health and social development. She has worked in contexts as varied as western Europe, Balkans, central America, Middle East, south east Asia, and Africa. Francesca has advised the WHO on public health and extractive industries and is currently a Conjoint Senior Lecturer at the Centre for Primary Health Care and Equity (CHETRE). She was the co-chair of the IAIA Health Section from 2009–2012 and has had articles published in journals such as *The Lancet* and *Impact Assessment and Project Appraisal*. Francesca is currently the Head of Public Health Consulting Services and Community Health Programs for International SOS, the world’s largest medical services company. In this role she oversees the scoping, design, delivery and management of health impact assessments and its related components on a global basis. Francesca also assists with the development and ongoing monitoring of public health programs and initiatives targeting workforces and communities around the world.

Contact

Julia Nowacki

WHO European Centre for Environment and Health

Platz der Vereinten Nationen 1

53113 Bonn

Germany

E-mail: [nowackij \(at\) ecehbonn.euro.who.int](mailto:nowackij@ecehbonn.euro.who.int)

<http://www.euro.who.int/envhealth>

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav
Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

Prospective impact assessment is a consolidated approach for pursuing foresight in policy and decision-making, systematically deployed worldwide. There is consensus that, even in well developed impact assessments, human health is not always covered adequately. Partly as a response, health impact assessment (HIA) has emerged and has been applied in several countries in Europe and beyond. Opinions about the merits of HIA separate from other forms of impact assessment differ. This publication aims to provide a detailed and balanced view on "health in impact assessments". Five key types of impact assessment, namely environmental impact assessment, strategic environmental assessment, social impact assessment, sustainability assessment, and HIA are presented, and four key questions are discussed: How can the various assessments contribute to promoting and protecting human health? How can further integration of health support the various forms of impact assessments? What forms of integration seem advisable? What priorities for further development? This analysis suggests that the potential of impact assessments to protect and promote health is underutilized, and represents a missed opportunity. Ways need to be found to exploit the potential to a fuller extent.

**World Health Organization
Regional Office for Europe**

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01 Email: contact@euro.who.int
Website: www.euro.who.int