WORLD HEALTH ORGANIZATION
EUROPE

Health and strategic environmental assessment

WHO consultation meeting
Rome, Italy, 8-9 June 2009

Background information and report

WORLD HEALTH ORGANIZATION
EUROPE

Health and strategic environmental assessment

WHO consultation meeting
Rome, Italy, 8-9 June 2009

Background information and report

Edited by: Julia Nowacki, Marco Martuzzi, Thomas B. Fischer

ABSTRACT

The application of impact assessment is increasingly important for development of sustainable projects and policies. Substantial progress has been made on how to meaningfully include health in strategic environmental assessment (SEA) and other forms of impact assessment. However, in the light of the evolving policy context in Europe further promotion of the consideration of health effects and support with all sectors of civil society, including the health sector is required. In line with this, the Budapest Declaration on Environment and Health, 2004, calls for taking "significant health effects into account in the assessment of strategic proposals". Hence WHO is working to assist its Member States with their respective ministries of health to engage into the SEA process. This report summarizes the general discussion and conclusions of an international consultation meeting on "Health and strategic environmental assessment". The overall aim of the consultation meeting was to seek further advice from SEA and health experts and discuss challenges and opportunities for the further involvement of the health sector in SEA and strategic planning processes.

Keywords

ENVIRONMENTAL HEALTH
ENVIRONMENTAL MONITORING
HEALTH STATUS INDICATORS
RISK ASSESSMENT
STRATEGIC PLANNING

Address requests about publications of the WHO Regional Office for Europe to:
Publications
WHO Regional Office for Europe
Scherfigsvej 8
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 web site (http://www.euro.who.int/pubrequest).

This document has been produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.

CONTENTS

List of Boxes, Figures and Tables

List of Abbreviations

CFD	Critical Factors for Decision-making
CIDA	Canadian International Development Agency
DAC	Development Assistance Committee (of the OECD)
DAH	Development Assistance for Health
DCLG	Department for Communities and Local Government
DoH	Department of Health
EC	European Commission
EIA	environmental impact assessment
EIB	European Investment Bank
EU	European Union
FDI	Foreign Direct Investment
GAL	Greater London Authority
GHG	Greenhouse gas emissions
GIS	Geographic Information System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HEAT	Health Economic Assessment Tool
HIA	health impact assessment
IAIA	International Association for Impact Assessment
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFIs	International Financial Institutions
LIGA.NRW	Landesinstitut für Gesundheit und Arbeit NRW (Institute of Health and Work NRW)
MDGs	Millennium Development Goals
NCEA	Netherlands Commission for Environmental Assessment
NEPA	National Environmental Policy Act
NRW	Nordrhein-Westfalen (North Rhine-Westphalia)
ODA	Official Development Assistance
ODPM	Office of the Deputy Prime Minister
OECD	Organisation for Economic Co-operation and Development
PCT	Primary Care Trusts
PM10	Particulate matter with an aerodynamic diameter smaller then 10 microns
RC	Regional Committee
SA	Sustainability Appraisal
SEA	strategic environmental assessment
SIDA	Swedish International Development Cooperation Agency
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
USA	United States of America
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

Contribution and Editors

This report was produced as a result of the discussions held during the consultation meeting and reflects the contribution of all participants. Individual presentations are included in Annex 1 to Annex 12.

The report was edited by Marco Martuzzi, Julia Nowacki (World Health Organization Regional Office for Europe) and Thomas B Fischer (University of Liverpool).

Acknowledgements

The editors would like to thank all the participants in the workshop for their invaluable contribution to the discussion and their support in preparing the report.

A special acknowledgement is due to Alan Bond (University of East Anglia) for coordinating the discussion as chairman of the meeting.

The editors are also grateful to the following staff of the World Health Organization Regional Office for Europe: Manuela Zingales who was responsible for logistics and administration and Vitali Shkaruba who provided assistance with the Video Conferencing facilities and layout and cover of the report.

This document is a result of the EU funded Project: “Implementing the Budapest Declaration on Environment and Health: supporting country national policy development to address the health impacts of environment on children and future generations in Europe” (Grant Agreement No. 2005156). The workshop and the publication were financially supported in part through this Grant Agreement.

Executive Summary

This report summarizes the discussions and conclusions of an international consultation meeting on “Health and strategic environmental assessment (SEA)”, organized by the World Health Organization (WHO) in Rome, 8-9 June 2009. The overall aim of the meeting was to obtain advice from SEA, environment and health experts on addressing health considerations in SEA. The meeting revolved around expert presentations and was conducted within the context of a project co-funded by the European Commission, one work package of which (n°5) focuses on SEA and the consideration of health impacts.

Following the Budapest Declaration of the Fourth Ministerial Conference on Environment and Health in June 2004 – which brought together health and environment ministers, intergovernmental and civil society organizations – the WHO Regional Office for Europe (representing 53 countries with over 880 million people) has been working to assist its Member States on addressing health within SEA. The declaration calls for the signatory countries to “take significant health effects into account in the assessment of strategic proposals” (WHO 2004).

SEA in the European Region is supported by two legal key frameworks, including firstly the EU SEA Directive (2001/42/EC), based on which certain plans and programmes prepared in the 27 Member States of the European Union (EU) require an assessment of the likely significant effects on the environment, including human health, since July 2004. Secondly, the United Nations Economic Commission for Europe (UNECE) Protocol on SEA, which was signed in 2003 by 35 European countries in Kiev requires the application of SEA in those countries, and prescribes full consideration of human health aspects.

SEA builds on environmental impact assessment (EIA) and broadens its scope by addressing, in a more pro-active fashion, as many implications as possible of proposed projects, plans and policies. SEA aims to enter decision-making at an early stage, when strategic alternatives are considered and assessed, with a more holistic approach, and considering not only effects on the biophysical environment but also social and health effects, including cumulative effects. Whilst the SEA Directive is mainly concerned with plans and programmes, the SEA Protocol also aims at policies and legislation.

While many health determinants are directly affected by activities of other sectors (including those in which SEA is applied), the health sector is not often involved in decision-making processes of other sectors, especially at the strategic level. The legal provisions for SEA present the health sector with an opportunity to influence developments in other sectors and provide a key platform for cross sectoral dialogue on a range of issues in order to improve people’s health and well-being.

Health inclusive SEA can help identify opportunities and adopt action to prevent disease and to avert unnecessary health costs. Recognizing that a substantial share of the global burden of disease could be prevented through interventions that address the environmental root causes of disease, the return on investments made in primary prevention in the environmental domain can be considerable.

Most SEA applications in the countries of the meeting participants are at programme and plan level, following the requirements of the EU SEA Directive (2001/42/EC). The majority of the SEA practices presented and discussed at the meeting were examples of spatial and transport plan and programme making. The experience of the participants shows that only some of those

issues that should be considered in SEA (following Annex I of the EU SEA Directive) are actually consistently covered. This was confirmed by a review of eight European SEAs, which showed that biophysical aspects like soils, climate, air, water, flora and fauna are typically and consistently considered in SEA (Fischer Annex I). Health aspects, on the other hand, are only occasionally considered. Also a Danish review on 100 SEA reinforced these conclusions (Kørnøv 2009).

SEA is not only applied in EU Member States and in the SEA Protocol signatory countries. Legal provisions also exist for international financial institutions (IFIs). These have a mandate to promote sustainable development and may include health issues further in their work towards the achievement of the Millennium Development Goals (MDGs). IFIs strive to ensure that their investment decisions provide maximum benefit for environmental, health and economic development objectives.

Facilitating factors for good quality, effective health inclusive SEA can be identified from reviewing recent experience and current practices. These include:

- **Institutional factors:**
  - institutional links between plan, programme or policy proponents and health authorities;
  - institutional support by a dedicated body or commission;
  - the involvement of health professionals at an early stage of the assessment process; and
  - meaningful involvement of stakeholders.
- **Methodological factors:**
  - a clear distinction between those aspects that are significant for health and should always be considered in SEA, those that are more sector specific, and those that give additional useful information e.g. on equity issues;
  - the availability and integration of data from the relevant departments, authorities and/or sectors involved for detailed analysis, e.g. local health data, local data on socioeconomic status; and
  - the definition of meaningful indicators and existence of integrated monitoring systems.
- **Procedural factors:**
  - the use of SEA as an instrument for integration, aiming to achieve consistency of aims, objectives and proposed action of different decision tiers and sectors;
  - the coordination with other assessment tools if those are used;
  - the application of assessment when no decision on preferred aspects has been made (pro-active approach); and
  - the consideration of social and behavioural factors as well as physical and environmental factors at an early stage to define the critical factors to be considered for the specific SEA;
  - the consideration of data from different departments, authorities and/or sectors for an integrated assessment and reporting; and
  - the availability of dedicated resources, such as specific guidance.

In order to encourage the broader recognition of health aspects and participation of health experts in SEA, it is desirable to raise more awareness in both health sector and environment sector. There is a need to enable the systematic participation of the health sector in general and health authorities in particular in the strategic stage of decision-making in all sectors; to this end, the current consideration of health mainly through biophysical factors seems to be limited in

scope. The health sector stands to benefit from the opportunities for prevention created by accessing the planning processes in other sectors. It still needs to recognize the full potential to promote health, and the value of instruments such as SEA. Health experts need to be equipped with the information, tools and arguments to make the health in SEA case to others. Therefore, building relevant and sustainable capacities is of great importance, as is the provision of legal bases for health inclusive SEA.

Another challenge for effective health inclusive SEA is related to the data required for the assessment. These may not be readily available, complete, reliable, or have the right level of resolution (local, regional, national level aggregates). However, even in a data-rich environment, the consideration of all possible health effects (direct, secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive or negative) is likely to be elusive if not impossible given the underlying complexity, for example, as many health effects will only show after longer periods or are influenced by other factors.

It is thus essential to put in place meaningful consultation with stakeholders, paying attention to how to communicate effectively and credibly about health issues, and dealing with community perceptions of risk. Since the environmental report of any SEA has to provide information on all likely significant effects on the environment, including human health, it is desirable that health issues are considered in dedicated sections or documents.

Adequate monitoring, finally, is important for effective health inclusive SEA in order to ensure that proposed health friendly measures are actually implemented. This includes monitoring of environment and health indicators, as well as monitoring and evaluation of the SEA process.

1 Introduction

Following the Fourth Ministerial Conference on Environment and Health in Budapest in June 2004, and the commitments made by WHO Member States in the WHO European Region to reduce children's exposure to environmental hazards, the project "Implementing the Budapest Declaration on Environment and Health: supporting country national policy development to address the health impacts of the environment on children and future generations in Europe" (Grant Agreement 2005156 Environment), funded by the European Union, has been developed by WHO Regional Office for Europe. The general objective of this project was to facilitate the implementation of the commitments taken at the Budapest Ministerial Conference, thus preventing health impacts of a polluted environment on children and future generations.

The Budapest Declaration calls for the Member States to "take significant health effects into account in the assessment of strategic proposals" (WHO 2004) and WHO Regional Office for Europe has been working to assist its Member States on addressing health within strategic environmental assessment (SEA). Therefore, within the framework of EC funded project, Workpackage 5 focuses on SEA, notably on the consideration of health impacts. It mainly aims at facilitating discussions about the health implications of proposed actions at the strategic level, including the negative and positive impacts and their distribution among European citizens. Distributive issues are of special relevance in light of the process of enlargement of the EU.

The application of SEA, including the consideration of health, is an important development in the field of impact assessment for the European Region. SEA is supported by two key legal frameworks. First is the EU SEA Directive (2001/42/EC) which prescribes that plans prepared from July 2004 undergo an assessment of the likely significant effects on the environment, including human health. Second is the United Nations Economic Commission for Europe (UNECE) Protocol on SEA which was signed in 2003 by 35 European countries in Kiev. Although the Protocol has not yet entered into force as more countries are needed to ratify, it further 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, including references to the definition of environment as well as in the procedural steps of SEA. Both the SEA Directive and the Protocol provide an important opportunity for collaborative action between environment and health authorities to systematically address health considerations.

This report summarizes the general discussion and conclusions of an international consultation meeting on "Health and strategic environmental assessment", organized in Rome on 8-9 June 2009. The overall aim of the consultation meeting was to seek further advice from SEA and health experts and further develop the WHO Policy Brief on addressing health considerations in SEA. The workshop was organized with presentations on the current consideration of health within SEA, given by experts in the fields of HIA and SEA, followed by questions and discussion.

The report specially targets health authorities and health practitioners with limited experience in SEA. It aims at giving some background information on SEA, an overview of the current situation of health considerations within SEA and to highlight the opportunities and challenges of extended inclusion of health experts in SEA. The document is structured in five main sections:

- The first section gives an overview on SEA and the opportunities for the health sector that is provided by integrating health further into SEA.

- The second section recaps the contribution of the workshop participants: health experts and SEA experts from different countries within the European Union (Denmark, Germany, Italy, Lithuania, Portugal, The Netherlands, and United Kingdom) and from International Organizations (WHO and UNECE) working in the fields of health, environment, spatial planning, transport, oil and energy sector, and/or development investment.
- The third section summarizes the challenges and opportunities of a wider consideration of health effects within SEA.
- In section four a summary of the key conclusions and suggestions for a way forward on further inclusion of health into SEA is presented.
- Finally in the fifth section the presentations given during the workshop are summarized in extended abstracts (see Annex 1–Annex 13), prepared by the presenting authors.

2 The opportunity for health provided by strategic environmental assessment

2.1 What is strategic environmental assessment?

The development of SEA has to be seen in relation to the development of environmental impact assessments (EIA): The first legislation requiring the consideration of environmental impacts of proposed actions was the US National Environmental Policy Act of 1969. In the European context, EIA became legally established with the European Directive of 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC) (Fischer, 2007; Dalal-Clayton and Sadler 2005, European Commission, 1985).

As EIAs developed further and got adopted in more and more countries it became obvious that they mainly focused on project proposals and often entered into the decision-making process when the major decisions at the planning or policy level had normally already been taken and therefore the influence of the project EIA was often found to be limited. In this regard SEA aims to enter into the decision-making process at an early stage to be able to influence the process before strategic decisions are taken. In this context importantly, different alternatives are assessed and a more holistic approach is used, considering not only direct environmental effects but also indirect, social and health effects. Cumulative effects also need to be taken into account (João, 2005).

Within the European Region of WHO, the legal provisions of the European Union and the UNECE have a major impact on the practice of SEA throughout the region: 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 (EU SEA Directive) took effect in 2004 in all European Union Member States after almost 20 years from the initial commitment to prepare a Directive in 1987 and the first draft in 1997 (Dalal-Clayton and Sadler, 2005). The Directive is based on the older EIA Directive (85/337/EEC)[1] which provides a framework for the assessment of the environmental effects of certain public and private projects which are likely to have significant effects on the environment. The objective of the SEA Directive is “to provide

[1] Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC), last amendment Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003

for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development" (Article 1 of the SEA Directive, European Commission, 2001). To ensure this, an environmental assessment has to be carried out of certain plans and programmes which are likely to have significant effects on the environment. In this regard it refers to plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II of the EIA Directive (85/337/EEC), or which have been determined to require an assessment pursuant to Article 6 or 7 of the Habitat Directive (92/43/EEC) (European Commission, 2001).

The Protocol on Strategic Environmental Assessment to the UNECE Convention on EIA in a Transboundary Context (UNECE SEA Protocol) was adopted and signed by 35 countries in Kiev, Ukraine on 23 May 2003. As of the end of July 2009[2] it has not yet come into legal force. It follows closely the provisions of the EU SEA Directive to ensure a high level of protection of the environment including health. The UNECE SEA Protocol defines that SEA shall be carried out for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry including mining, transport, regional development, waste management, water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent for projects listed in Annex I and II. In addition the parties to the Protocol shall ensure that "environmental, including health, concerns are considered and integrated to the extent appropriate in the preparation of its proposals for policies and legislation that are likely to have significant effects on the environment, including health" (UNECE, 2003, p. 7).

2.2 Key entry points for health in the SEA process

A commonly referred to definition of health (WHO 1946) recognizes the broad scope of health, specifically that health goes beyond states of ill health:

Box 1: Definition of Health, WHO Constitution 1946

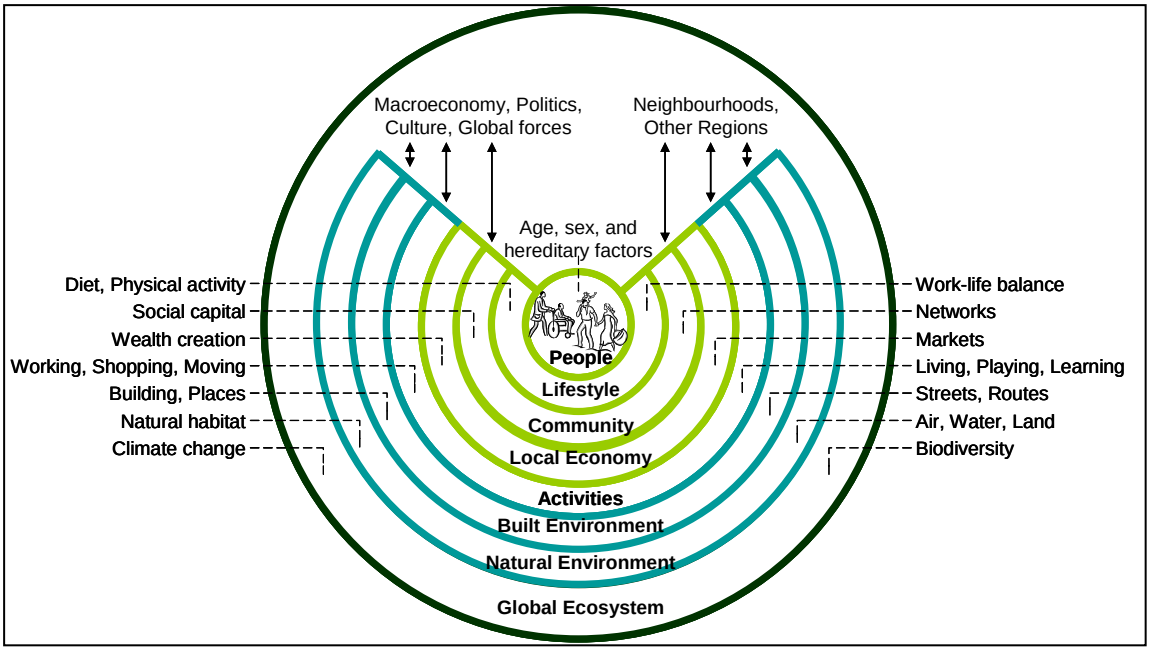
> Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

In SEA, responses and actions with respect to human health, must include, but go beyond, specific aspects and immediate needs such as providing health care to reduce the effects of ill health. Effort must be placed on actions that protect and improve health. For examples, 19th century engineering programmes in major European cities improved sanitation and lead to dramatic decreases in communicable disease. To date, environmental management continues to protect human health. Environmental health now encompasses a range of aspects of human health and disease, including quality of life, that are determined by physical, chemical, biological, social, and psychological factors in the environment (WHO Europe, 1989). It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health as shown in the model of health determinates by Whitehead and

[2] By the end of 2009 14 parties had officially entered the ratification, acceptance, approval or accession process of the UNECE SEA Protocol. To enter into force 16 parties are needed.

Dahlgren (1991) and further developed by Barton and Grant (2006) including the natural and built environment as well as the global ecosystem into a 'health map' for the local human habitat:

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



Source: Adapted from Barton and Grant, 2006, p. 252

With the adoption of a broader public health approach, increasing attention is also being paid to health inequalities, and to their crucial role in the policy discourse. Such higher profile, resulting also from influential work carried out among others by the Commission on Social Determinants and Health (CSDH) (WHO, 2008c) has resulted in increasing awareness of the extent of health inequalities between and within countries, in Europe and beyond. While SEA practice has not a strong tradition in explicitly addressing health inequalities, this awareness is likely to ensure that, if health is substantially considered in SEA, the inequality dimension is addressed too.

It is well known that factors affecting health include policies, plans and programmes implemented in all sectors, not just relating to health or health care. This gives considerable scope for action outside the health sector to prevent ill health and promote good health. Indeed, the need and value of intersectoral action between health and the environment is increasingly recognized in Europe and throughout the world. This desire is expressed in a number of international commitments that advocate closer links between environmental protection and health promotion. Processes relating directly to Europe, such as the legal provisions of the European Community and the Ministerial Conferences on Environment and Health (see Chapter 2.3), provide the health sector with an opportunity to take on an active role in decision- and policy-making process to further address health impacts and distributional aspects.
Within the context of the European Community Article 152 of the Treaty of Amsterdam calls for "a high level of human health protection (…) in the definition and implementation of all community policies and activities" (European Commission, 1997). In this regard also the second programme of Community action in the field of health (2008-13) of the European Parliament and Council calls "to support the mainstreaming of health objectives in all Community policies and activities" (European Commission, 2007, p. 4).

While many health determinants are directly affected by activities in other sectors, health sector actors are not often involved in these other sector decision-making processes. Therefore, the legal provision for SEA, following the EU SEA Directive (2001/42/EC) and the UNECE SEA Protocol (UNECE, 2003) present the health sector with an opportunity to influence developments in other sectors and provide a key platform for cross sectoral dialogue on a range of issues to improve people's health and well-being. Accordingly, it is envisaged that health authorities engage more and more in the SEA and decision-making process in order to draw on the potential for health protection and promotion in environment and public health decisions. As SEA is supposed to happen at the policy and planning stages, it also allows for consideration of potential regional, cumulative or sectoral level implications of a given proposal on health and in some cases on health systems.

Following the EU SEA Directive and the UNECE SEA Protocol, the key health entry points of the SEA process – based largely on EIA and similarly to other forms of Impact Assessments – can be divided in six main stages. Following is a brief description of the process as described in the legal provisions of SEA, showing the typical things to do in SEA, and linking these to some key health considerations to be made in the process.[3]

Table 1: SEA stages and key health entry points

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

[3] Like different definition, different stages of SEA have also been described. Nevertheless it is important to note that the depiction of SEA into well defined stages should not lead to the misconception of SEA as a rigid, simplistic, linear procedure that could stand alone in parallel to the actual planning process.

SEA stage	Key health entry points
predefined environmental indicators and effects but also of the SEA process itself.	performance of the SEA. For example, many environmental issues will result in health problems, many of which have clear attributable risks, e.g. poor air quality/respiratory disorder. Health indicators could provide an opportunity to link SEAs performance to wider development objectives, e.g. Millennium Development Goals (MDG) related environmental and health indicators (those clearly attributed to environmental risk factors, e.g. water and sanitation).

Considering the different stages and the main objectives, SEA as an upstream process can allow for the identification of opportunities to prevent disease and avert unnecessary health costs (primary prevention). Recognizing that more than ¼ of the global burden of disease could be prevented through interventions that address the environmental root causes of disease, the return on investments made in primary prevention of disease can be considerable (WHO, 2008).

Furthermore stakeholder engagement is a core component of SEA. In many instances, perceptions of health risk are a key driver of community concerns. The explicit integration of health into the SEA process, particularly in cases where health concerns are a major source of social tension, can help to ensure that health concerns are given adequate recognition and are handled appropriately by 'credible' health leaders/authorities.

2.3 WHO Commitments to strategic environmental assessment

One of WHO strategic objectives calls to promote a healthier environment, intensify primary prevention and influence public policies in all sectors so as to address the root causes of environmental threats to health, e.g. by building the capacity of the health sector. Within this general framework, the WHO Regional Office for Europe leads the European environment and health process, initiated in 1989 by its Member States. This process brings together the two sectors to work on cross-cutting issues. The European environment and health agenda is discussed and set for the future at Ministerial conferences held every five to six years. The work on SEA is based on the commitments made in the declarations of the Third and Fourth Ministerial Conferences on Environment and Health held respectively in 1999 (London) and 2004 (Budapest):

With the London Declaration, the ministries of the European Member States of WHO responsible for health and the environment declared their determination to strengthen and expand the coordination and partnership, while working towards improved environment and health within sustainable development. The focus of the Declaration of the Third Ministerial Conference on Environment and Health (1999) is a commitment to action in partnership and paragraph 7 calls especially for cross-cutting action and the inclusion of health impacts in environmental impact assessments as well as strategic assessments of proposed policies, plans, programmes and general rules.

The Declaration of the Fourth Ministerial Conference on Environment and Health held in Budapest in 2004 ('the Budapest Declaration') refers especially to children's health and the environment, and to the goals of sustainable development as described in Millennium Development Goals and the Plan of Implementation of the World Summit on Sustainable Development. Through the declaration Ministers commit themselves once more "to taking

significant health effects into account in the assessment of strategic proposals under the Protocol" (WHO 2004).

Box 2: Health as integral part of SEA, Budapest Declaration, 2004, Paragraph 13

> We recall the UNECE Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context adopted and signed at the Fifth Ministerial Conference "Environment for Europe" held in Kiev from 21 to 23 May 2003, 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 strategic environmental assessment. We commit ourselves to taking significant health effects into account in the assessment of strategic proposals under the Protocol.

These Declarations together with the Resolution RC54/R3 of the WHO Regional Committee (RC) for Europe of the year 2004 provide the basis for the WHO Regional Office for Europe work on health and SEA: in paragraph 8, RC54/R3, the Regional Committee requests to pay special attention to vulnerable population groups such as children in the following area amongst others:

- continuing to address the links between health and the environment and to assess health impacts;
- supporting capacity-building at technical and policy levels to facilitate Member States' actions in establishing practical and institutional mechanisms for effective implementation that meets the legislative requirements for health impact assessments in the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary context; and
- advocating the inclusion of environment and health considerations in the policies and actions of other sectors.

3 National and sectoral experiences on health inclusive SEA by the participants

At the workshop health experts and SEA experts from different countries within the European Union (Denmark, Germany, Italy, Lithuania, Portugal, The Netherlands, and United Kingdom) and from International Organizations (WHO and UNECE) presented their experience on health within SEA in their respective countries and/or of specific sectors, like spatial planning, transport, oil and energy sector, and development investment.

3.1 National experiences with a special focus on spatial planning

Despite the policy level aspiration of SEA, in general most SEA applications in the countries of the participants seem to be at programmes and plan level. This can be attributed to the EU SEA Directive (2001/42/EC) which is effective in all of the European Union Member States since 2004. The majority of the SEA practices presented by the meeting participants were examples of spatial planning[4] and transport sector.

[4] Spatial planning includes all levels of land use planning including urban planning, regional planning, environmental planning, national spatial plans, and in the European Union international levels.

The experience of the participants shows that only some of the “mandatory” issues as defined in Annex I of the EU SEA Directive (2001/42/EC) are consistently included into SEAs in these sectors i.e. the likely effects on soil, water, air. This could be confirmed by a review of eight European SEAs (see Annex 1) which showed that biophysical aspects like soils, weather/climate/flooding, air, water, flora and fauna/biodiversity are typically considered in SEA. There is considerable ambiguity, however, on what is considered as a relevant health outcome: if, for example, PM emissions are included in the assessment, does that already qualify for health, or do such emissions need to be translated into, say mortality and morbidity figures? If these figures are produced should they be aggregated, and should they be weighed against health benefits?

Another important finding of the review of eight European SEAs was that health determinants other than the biophysical ones, like social and economic aspects or behavioural aspects were only rarely taken into account. In these cases often only baseline data were presented in the reports, but the role they played further in the final assessment was normally unclear (see Annex 1 and Annex 11).

These results are confirmed by a review of 100 Danish SEAs of spatial plans (see Annex 3 and Kørnøv, 2009) covering municipal plans and local planning themes, with a majority of housing, industrial areas, centre/leisure and infrastructure plans. Both municipal and local SEAs most often assessed health aspects of noise, drinking-water, air pollution, recreation/outdoor life and traffic safety; with transport being the most influential health determinant referred to in municipal plan and local housing SEAs, followed by urbanization and industrial activity. Distributional aspects, the issue of health inequalities, and cumulative effects lacked in the environmental reports, although addressing some of these aspects is required by the EU SEA Directive (see Chapter 2.1).

In Portugal, environmental assessments tend to focus on key strategic options. The Portuguese government promotes in particular use of SEA focussed on few Critical Factors for Decision-making (CFD) that address the inter-relationship of multiple sectoral issues. Areas of application should be key priorities identified by major stakeholders and confirmed by a rapid analysis of main problems and opportunities. In this sense, if potential health threats are a major issue of concern within the SEA, they should be immediately considered within the first screening exercise and the definition of the CFDs. To what extent this is the case in Portuguese practice can not be clearly assessed yet, as no review has been published to date (see Annex 6 and Partidário, 2007). It can however be observed that a prerequisite for this to happen is that health professionals should be involved in the screening phase.

In the Netherlands currently relatively little experience exists with the integration of health issues in SEA; most experience is with EIA. But even at project level no generally accepted assessment approach exists. In most EIAs, the current focus of health impact assessment is on compliance to noise and air pollution standards. However, a number of recent national government plans and initiatives emphasize the need to strengthen the integration of health in local policy. Particularly relevant for EIA and SEA is the expressed need to give more attention to health issues in physical planning, including the creation or protection of green and recreational areas, and the need to improve information on the link between health and environment.

Reacting to the government’s new policy, the Netherlands Commission for Environmental Assessment started to pay more attention to health issues in its advising. In short, current advice

is to be selective in paying more attention to health issues in impact assessment, to focus on a limited number of issues (pollution, radiation, modal split and green areas) and to use existing methodology for health assessment within EIA and SEA, such as health impact screening and health impact assessment.

Currently the first EIAs and SEAs under this approach become available, including assessments of infrastructure, airports, high voltage, industry (cement factory), housing and intensive farming. These assessments are reviewed on their quality right now, with conclusions hopefully to become available before the end of 2009 (see Annex 7).

It is estimated that over 400 SEAs per year are conducted in England alone but with only limited health input (see Annex 9). In England and Wales Sustainability Appraisals (SAs) are required for regional and local development documents. These are carried out together with SEA and provide a strong case for health input: Sustainability Appraisals are required by the Planning and Compulsory Purchase Act (2004) and have a wider remit than SEA. In 2007 the Department of Health issued a draft guidance document for addressing health in SEA which applies to SEAs that cover England, or England plus any other part of the United Kingdom, so it will be relevant to plans at a United Kingdom level (Department of Health, 2007 and see Annex 9).

Addressing health in SEA is one way in which health can be considered in other policies. A survey of land planning professionals in District councils in the East of England on the considerations of human health effects within the plan-making process (see Annex 8) revealed a "general consensus within the planning profession of the inter-relationship between planning and health" (Burns and Bond, 2008, p. 188). From the planners' perspective, the topic areas particularly considered to influence health were open space, sport and recreation, economy, housing and transport. Further topics identified were waste, telecommunication, integrity of the countryside, energy, minerals, retail, policy interaction, community facilities, pollution, tourism, and climate change. The potentially greatest health determinants were considered to be housing; open space, sport and recreation; and transport. These as well as countryside and economy were also regarded as the topics which the planning profession at district level has the greatest potential to influence.

A recent report by the Health Select Committee of the House of Commons, United Kingdom, concludes that "the spatial planning system is a key area of influence that could be better exploited" (House of Commons, 2009, p. 108) by the National Health Service. The Health Select Committee of the House of Commons recommend that "health should be factored into every planning decision, and opportunities are being missed at every turn (House of Commons, 2009, p. 108). The report concludes with specific recommendations, as shown in Box 3.

Box 3: Health as primary consideration in every planning decision

342. In our view, health must be a primary consideration in every planning decision that is taken, and to ensure that this happens, we recommend that

- in collaboration with the Department of Health, DCLG[5] should publish a Planning Policy Statement on health; this Statement should require the planning system to create a built environment that encourages a healthy lifestyle, including giving local authorities the powers to control the numbers of fast food outlets.

- PCTs[6]should be made statutory consultees for local planning decisions; PCTs, for their part, need to ensure they have the knowledge of cost effectiveness of alternative policies and resources to make an informed contribution to such decisions"

(House of Commons, 2009, p. 111)

3.2 National and international experience of health and SEA in other sectors

SEAs carried out in the spatial planning and transport sectors do consider important health determinants. However, many applications focus on biophysical factors and only rarely is the wider concept of health determinants recognized. For example, social and economic aspects or distributional issues are not always included in the impact assessment – as mentioned above. Only a few examples were presented on the use of health data in conjunction with socioeconomic data, e.g. through the application of geographic information systems (GIS) to analyse and visualize to planners and decision-makers which areas would be affected by a proposed plan and its alternatives, against the *status quo* (see Annex 1). In any case these applications require accessibility to high quality data, preferably at high resolution (see Annex 12).

Besides the problem of data availability, reasons for mainly addressing biophysical issues into SEA can be found in a lack of knowledge within the planning profession of the wider concept of health determinants, matched by a lack of planning knowledge within the health professionals. The need to consider such 'cultural' barriers is confirmed by the experience of the health experts present at the meeting: for example, the main expertise used in German local health authorities consists of 'health engineers' usually qualified as classic engineers with a university degree, accomplished by special training curricula on environmental public health. These 'health engineers' work together with general practitioners, or in some cases with medical doctors specialized in environmental medicine and hygiene. At the regional level e.g. the public health authority of the German state of North Rhine-Westphalia (NRW), the Institute of Health and Work NRW – LIGA.NRW, was involved in the development of a regional land utilization plan of six cities of the inner Ruhr area. In this process the health experts of the LIGA.NRW recommended to further consider existing health statistics and health reports into the planning process for status quo analysis and health target development as well as the identification of areas with excess burden of disease, and of improvement strategies. In this regard besides the 'normal' biophysical data, also mortality, life expectancy and hospitalization data were considered. Further-on it was recommended to include the topics physical activity as well as gender issues and distributional aspects (see Annex 5).

[5] DCLG = Department for Communities and Local Government, created in 2006 and successor department to the Office of the Deputy Prime Minister (ODPM)

[6] PCT = Primary Care Trusts

The WHO guidance and Health Economic Assessment Tool (HEAT) for Cycling (Rutter et al., 2007) is an example of use of health data in transport planning process. It aims to integrate specific health effects (e.g. health effects associated with changes in levels of cycling) into transport assessments. It provides examples and guidelines of the economic valuation of transport-related health effects (costs) and a quantification of the health benefits. Within the HEAT project for cycling an online tool was developed that allows planers with no or limited health background to calculate the annual economic savings resulting from reduced mortality, where only limited data input is needed (number of trips per day and mean trip length in kilometres). Further default parameters, like mean number of days cycled per year, are based on best available evidence, and can be adjusted if local data are available. The tool is based on robust, methodology and its development was supported by expert groups across relevant disciplines. Since its launch in 2007 (and the update in 2008) HEAT for cycling has been applied in practice and used within and outside the European Region (Austria, Sweden, United Kingdom, and New Zealand). Reason for the application and usage of the tool can be found in the following: It is a practical tool and its specific guidance is simple to use, it is reliable and demonstrates the health and the economic implications of strategic planning decisions. The practical approach to economic valuation can give further rationale for planners, policy-makers and other stakeholder to take health issues further into the decision-making process (see Annex 11).

While in most countries the assessment of potential health effects is mainly considered in EIA and SEA legislation, in Lithuania the ‘Law on Public Health Care’ of 2002, amended in 2007, prescribes that health impact assessments (HIA) of proposed economic activities has to be conducted, typically by designated experts or agencies (public health authorities are responsible for screening and reviewing reports). The HIA must be carried out within the procedure specified in the Law on EIA, 2003 amended 2004. In case an EIA is not conducted, an HIA can be conducted as a separate procedure. SEA legislation was introduced to Lithuania in 2004-2006 by introduction of the EU SEA Directive. The Ministry of Health, the State Public Health Service or the respective regional public health centres have to review screening and scoping documents and SEA reports and provide suggestions, comments, and approvals. Due to this there is a high participation of health sector in SEA and EIA, as shown in Table 7. Usually, the public health authority provide comments, ask for additional information on the EIA/SEA; if they do not agree with the conclusions of the reports they can also reject them but up to know this was only rarely the case. Even though the health sector is actively involved, there is still a need of capacity building within the sector due to, e.g., a lack of familiarity with the concept of the wider determinants of health, or the need to combine quantitative and qualitative health data (see Annex 4).

Table 2: Participation of public health authorities in SEA and EIA 2007 and 2008 in Lithuania

Participation of public health authorities in SEA/EIA	2007	2008
Review of SEA screening documents	88	153
Review of SEA scoping documents	47	21
Review of SEA reports	34	41
Received screening decisions on EIA	201	233
Asked for re-considering EIA screening decision	13	9
Review of EIA scoping document	159	74
Review of EIA reports	127	61 (5 rejected)

Source: State Public Health Service under the Ministry of Health of Lithuania, 2008, Annual report (see Annex 4)

While health issues are considered in the SEAs, they are often described within the different environmental themes and comprehensive dedicated health chapters are rarely found which makes it difficult to obtain an overview of the health impacts. A Danish review, for example, found that in "only 7% of the reports health is treated under its own independent heading, and in 22% treated under both an independent health theme and as part of another theme. In 19% health was part of one other theme only and in 52% health impacts were presented as part of several other themes" (Kørnøv 2009, p. 64). Also, the LIGA.NRW recommends that in SEAs, a separate technical paper is prepared that gives better details on exposures and related health effects, as well as on health-related information on recreation and green spaces (see Annex 5).

The EU SEA Directive requires the assessment to identify and to evaluate within climatic factors (Annex If of the SEA Directive, European Commission, 2001). Changes in climate will have many effects on human health and on health inequalities (Costello et al, 2009). As climate change is a cumulative impact there is the need to consider multiple actions and both mitigation as well as adaptation measures "to prevent, reduce and as fully as possible offset any significant adverse effects on the environment [including climatic factors] of implementing the plan or programme" (Annex Ig of the SEA Directive, European Commission, 2001). Nevertheless health, climate change and their interactions do not appear to be systematically embedded in SEA at present.

Consideration of global climate change objectives in SEA could increase co-benefits of proposed plans or policies, for example reducing energy and motorized travel demand through the construction of pedestrian and cycle path; improving energy efficiency when developing new housing or industrial area; increasing the percentage of renewable energy; reducing "vulnerability to the impacts of climate change for example by providing adequate health services and infrastructure; ensuring that drainage systems can cope with changing rainfall patterns/intensity" (Therivel, 2007, p. 6). While there is a good opportunity with SEA to consider these factors this is not always done, despite the significant impacts on the environment and the economy as well as on human health; for example a reduction of greenhouse gas emissions (GHG) by 50% at 2005 level could reduce the premature death from air pollution by 20% to 40% (Bollen et al., 2009; see also Annex 10).

In addition to the legal provisions for SEA and the government agencies at national, regional and local level, other major players in the field of impact assessments include international organizations, development agencies, development banks or international financial institutions (IFIs), like the World Bank[7], European Investment Bank (EIB) and others. The latter offer another opportunity to include health issues further in their work towards the Millennium Development Goals (MDGs) as IFIs share a mandate to promote sustainable development, and have a common interest in seeing that investment decisions provide maximum benefit for environment, health and economic development objectives. To achieve these objectives IFIs apply lending conditions to ensure that environmental and social issues are addressed. These so called performance standards or safeguards shall ensure that projects do not harm the environment, workers, and the health of surrounding communities. They therefore build a major opportunity for public health to

- mainstream health into a range of sector development policies and practices;
- expand primary prevention of disease and address many environmental and social determinants of health influenced by sector activities; and

[7] Referring mainly to IBRD (International Bank for Reconstruction and Development) and IDA (International Development Association)

- influence the health performance of private sector financed projects that use the safeguards and performance requirement model.

However they are applied only when national environmental management capacities are weak and primarily at project level (see Annex 13).

4 Challenges and opportunities for a wider consideration of health aspects within SEA

The workshop discussion covered challenges and benefits for a wider consideration of health aspects within SEA. The identification of promoting factors and barriers is an important preliminary step. Major facilitation factors for effective health inclusive SEA were identified and are summarized in Box 4.

Box 4: Facilitating factors for effective health inclusive SEA

Overall, facilitating factors for effective health consideration in SEA include:

- Institutional factors
  - institutional links between plan, programme or policy proponents and health authorities;
  - institutional support by a dedicated body or commission;
  - the involvement of health professionals at an early stage of the assessment process;
  - meaningful involvement of stakeholders;
- Methodological factors
  - a clear distinction between those aspects that are significant for health and should always be considered in SEA, those that are more sector specific, and those that give additional useful information e.g. on equity issues;
  - the availability and integration of data from the relevant departments, authorities and/or sectors involved for detailed analysis, e.g. local health data, local data on socioeconomic status;
  - the definition of meaningful indicators and existence of integrated monitoring systems;
- Procedural factors
  - the use of SEA as an instrument for integration, aiming to achieve consistency of aims, objectives and proposed action of different decision tiers and sectors;
  - the coordination with other assessment tools if those are used;
  - the application of assessment anticipating any decision on preferred aspects (pro-active approach);
  - the consideration of social and behavioural factors as well as physical and ecological factors at an early stage to define the critical decision factors to be considered for the specific SEA;
  - the consideration of data from different departments, authorities and/or sectors for an integrated assessment and reporting;
  - the availability of dedicated resources, such as specific guidance.

Source: Annex 1 – adapted and amended –

Other issues related to the integration of health in SEA that were raised during the meeting are summarized below.

4.1 Awareness raising and capacity building in the health and environment sectors

In order to encourage the broader recognition and meaningful consideration of health aspects in SEA it is desirable to raise more awareness in both the health and the environment sectors with representatives at different levels, experts and advocates. While the national and sectoral

experiences at the meeting showed (see Chapter 3.1) that health is an issue to be considered within SEA, the problem is that by addressing environmental/biophysical risk factors (e.g. air, water, soil quality) health is only covered in a very narrow scope. Therefore, there is a need to bring the health sector in general and health authorities in particular to the table to argue that that this is too limited a scope. For this to happen, the health sector has to realize the opportunities created by planning processes for prevention and recognize the health value of this approach. They then need to be equipped with the information, tools and arguments to make the health case to others.

In this regard, capacity building for public health workforces of the national, regional and local health authorities, for the environment sector, as well as for other sectors involved in the process is needed. The health sector at local and regional levels requires a better understanding of the planning process, its terminology and how health experts can contribute. The environment and other sectors should broaden their understanding of health with respect to the wider determinants of health, and the impacts of proposal on health beyond biophysical changes and compliance with standards. Ideally, an understanding of basic epidemiological concepts and terminology, of cause-effect relations and health-endpoints could enhance a meaningful consideration of health within SEA. Further prerequisites for successful involvement of health sector include: adequate guidance, improved technical skills, examples of good practice, and sufficient manpower (see Annex 5).

4.2 Institutional provision

The EU SEA Directive sets out the legal provision for all EU Member States and Accession Candidates, but its influence is reaching beyond the EU. When entering into force, the UNECE SEA Protocol will require consideration of health not only to its signatory countries but also on other countries, as it will then be obligatory to include health authorities into the SEA process. Up to now this is only rarely the case (see Annex 1) and health authorities do not always seem to be well prepared to contribute substantially to planning processes (see above Chapter 4.1).

The overall context in which SEA is applied is important (see Annex 4):

"discretionary planning appears to support – at least potentially – the consideration of various aspects that may go beyond those traditionally considered. Whilst legalistic planning traditions appear to lead to a limitation of the factors for assessment to those legally required, they often appear to be used subsequently more consistently" (Annex 1).

Capacity building on environment and health issues might help to adopt a broader, health inclusive approach, rather than being limited to ticking-off threshold values related to risk factors that are legally required for assessment, enabling a more proactive, and preventive approach. Specific legislation for the involvement of health experts depends on the legal context of the country too, e.g. licensing of impact assessment experts, as provided in law in Lithuania (see Annex 4) or in Slovakia.

Not only time, personnel, institutional tradition, knowledge and financial resources have an influence on the SEA performance and quality of the environmental report, but also different organizational models: Kørnøv distinguishes here between SEAs conducted by the municipality alone, the municipality in cooperation with consultants, municipality in cooperation with process

consultant[8], and consultant only (see Annex 3 and Kørnøv 2009). Clear responsibilities are then needed but often it seems to be unclear who is responsible for the assessment of health impacts, and whom to contact within the Health Authorities.

Another challenge recognized from the health and SEA experts is the need to balance the 'benefits for health' (health promotion and prevention) and what is reasonable, feasible and appropriate in the planning process when different technical departments are involved (see Annex 5). From a public health point of view the focus might be more on prevention, another responsible department might focus more on economic aspects etc. For example, in Germany local health authorities can be asked to produce a statement on the planned project, programme or policy in order to introduce public health demands into the planning process. This statement then needs to be balanced with the statement of the other administrative bodies and departments involved. While this often creates a competitive situation it would be preferable to have integrated planning teams across the different departments or authorities involved. The institutional fragmentation between different departments and different responsible authorities poses therefore another barrier to health inclusive SEA.

4.3 Timing, methods and tools

According to the SEA and health experts present at the workshop, it is crucial to consider health issues already at the screening and scoping stages of SEAs. Therefore, it is of major importance for health experts to understand how screening and scoping is done within in SEA in order to ensure that important health aspects are considered in the SEA. At the same time, other sector actors need to be able to recognize when further health investigation is needed and appropriate. It is unclear whether the development of a checklist would help or only lead to creating additional 'tick-off boxes', without a deeper understanding of the issues. Another possibility for the screening exercise could be the use of conceptual frameworks on environment and health, like the simplified Dutch example (see Annex 7), where the scientifically most harmful issues plus the issues of which the people are most concerned about have to be included into the SEA, or the Portuguese framework with the definition of critical factors for decision-making – CFD (see Annex 6).

In addition, a sector specific guidance on health impacts, which includes e.g. examples of exposure/dose-response relationships, information about cumulative effects, where to find evidence and which data can be used was considered to be essential for future integration of health into SEA. This guidance should enable the SEA practitioner to decide whether an additional in-depth health impact assessment is needed that looks into the wider determinants of health or whether only environmental threats to health should be considered by taking a purely biophysical approach and control the limit values of risk factors.

As referred to above, another challenge is related to data, which may not be readily available, complete, reliable, or have the right level of specificity (local, regional, national level aggregates) etc. The consideration of all possible health effects (direct, secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive or negative) is elusive if not impossible given the underlying complexity, for example, as many health effects will only show after longer periods, or when influenced by other factors etc. This needs to be explained in the assessment as well as the underlying uncertainty, in many causal-relations,

[8] "A process consultant provides expertise on Strategic Environment Assessment. He/she is a facilitator helping the authorities deal with SEA and can be used at any time during the SEA process." (Kørnøv 2009, p. 62)

needs to be assumed. Closely related to this aspect is the definition and selection of health endpoints to be used in the assessment. When burden of disease metrics are used, or when health economic costs and benefits are calculated, there is a tendency to focus on health endpoints for which robust data on concentration-response functions is available, thereby discarding other potentially relevant impacts (see Annex 11). The adoption of such methodology and the underlying assumptions are not always fully acknowledged in the assessments.

Further, existing health statistics and local/regional health reports should be integrated into the planning process and used for the SEA. Local health reports, if they exist, can be used for *ex-ante* analyses and health target development as well as the identification of areas with excess burden of disease and therefore help to improve health strategies and the planning process (see Annex 12). Besides local (environment and) health reports, useful plans and documents can be found within other departments, e.g. the Social Structure Atlas of Berlin (see Annex 1). This illustrates again the need for integrated, cross-sectoral planning and decision-making (see Chapter 4.2).

The examples given during the workshop revealed the need for simple but reliable tools that can be used to identify and measure potential health impacts, such as tools for economic evaluation (e.g. HEAT), and Geographic Information Systems (GIS). However, it is necessary to identify which tools are suitable in the different contexts and give best practical examples.

Following are some examples of organizations that have developed guidance, technical reviews, and best practice examples for SEA:

- IAIA – International Association for Impact Assessment
- OECD DAC Task Team on SEA
- UNECE
- Multilateral Development Banks, e.g. Word Bank
- International development agencies (e.g. CIDA, GTZ, NCEA, SIDA).

Participation and involvement in the development of international guidelines and evaluation of best practice examples build good opportunities for public health, but there is still a lack of involvement of health experts in the development of these guidance documents.

4.4 Stakeholder engagement and public participation

To contribute to transparent decision-making and ensure comprehensive and reliable information are used for the assessment both the EU SEA Directive and the UNECE SEA Protocol requires “that authorities with relevant environmental responsibilities and the public are to be consulted during the assessment of plans and programmes, and that appropriate time frames are set, allowing sufficient time for consultations, including the expression of opinion” (European Commission, 2001, p. 5). The UNECE SEA Protocol furthermore confirms “the importance of providing for public participation in strategic environmental assessment” (UNECE, 2003, p. 3). However, in practice public participation appears to be limited, or at a late stage, and health stakeholders do not seem to fully engage in SEA or the planning process (see Annex 1).

One of the main challenges when dealing with health issues within stakeholder engagement activities is how to communicate effectively and credibly/believably about potential health issues, and dealing with community perceptions of risk (whether founded or unfounded). In many cases, community concerns about proposals are driven out of concerns for health risks. It is

therefore of great importance that health issues are appropriately dealt with in the context of stakeholder engagement activities.

In addition to helping avert potentially unnecessary concern, communities can also provide valuable insights about what the likely health issues might be as well as what might work to help address those issues. Stakeholder participation, an integral feature of HIA, is an area where SEA could build on the experience gathered within HIA.

4.5 Reporting

Since the environmental report, as required by the European Directive, has to provide information on all likely significant effects on the environment including human health, it could be expected that these issues are made explicit in separate chapters. But, as discussed above, only few reports have special chapters on health. To obtain the full picture of health impacts a separate chapter on health or as recommended by LIGA.NRW, a separate technical paper on health impacts would need to be considered in the environmental report (see Annex 5). The aspiration of providing detailed information on health, however conflicts with the need to produce synthetic reports, suitable for rapid communication in the decision-making arena. Therefore a short report or policy brief summarizing the main results together with a detailed technical report should be considered.

4.6 Monitoring and evaluation

Monitoring and evaluation refers both to the monitoring of environment and health indicators and the follow-up of the SEA assumptions as well as to the monitoring and evaluation of the SEA process itself.

Monitoring of environment and health indicators

Monitoring of environment and health is done in many countries of the European Region, but they are normally carried out under the responsibilities of different authorities or technical units. Therefore the two monitoring systems are only rarely integrated. Additionally, the standard monitoring system may not always collect basic data for the indicators needed to do the monitoring of a given proposal/plan on a regular basis. To fill this gap there seems to be a need of devising concrete and better monitoring strategies in SEA recommendations for the follow-up of the decision taken and to evaluate the effectiveness of SEA in averting negative impacts/promoting positive impacts. Also, consideration could be given to advance the development of integrated performance measurement frameworks, which tie into wider development objectives, such as the Millennium Development Goals (MDG) as well as the use of comparable information from international databases like the European Environment and Health Information System (ENHIS) (WHO Europe, 2008).

Integration of environmental and health monitoring systems would also help to either establish or better monitor health outcomes from certain risk factors. The data obtained and trends analysed could then feed into future SEAs. While establishing links between certain risk factors and health outcomes is not done easily, it can offer strong arguments for preferable alternatives and recommendations, as long as the underlying assumptions and uncertainties are described and explained properly.

Monitoring and evaluation of the SEA process

Besides the follow-up of the assumptions and recommendations of the SEA, an evaluation of the SEA process and the lessons learned during this process would be very valuable for future SEAs. In this context it would also be interesting to analyse if and to which extend the SEA has been able to influence the decision-making process and the final decision taken. For the process evaluation the code of conduct for impact assessment professionals of the International Association for Impact Assessment (IAIA) could provide first quality parameters. Further-on establishing a specialized authority that brings together the different responsibilities, checks when and where SEAs need to be done and monitors the process as well as the progress, like the Netherlands Commission for Environmental Assessment (NCEA), might be useful (see Annex 7). Nevertheless development of indicators to distinguish the SEA quality (process and effectiveness) is still needed. In this context the certification of impact assessment professionals would need to be discussed in the national and international context (see Annex 4).

5 Key conclusions and recommendations to enhance the inclusion of health in SEA

Even though considerable progress has been made on including health in SEA and other forms of impact assessment, health still does not get the attention it deserves in nowadays SEA. Further work is required in the light of the changing policy context in Europe and beyond, and given the growing realization of the potential of intersectoral action involving the health sector. There is a need to further strengthen the case for health in SEA, through more advocacy and outreach aimed at health and other sector policy-makers.

To make the case for health in SEA, the opportunities provided to health and other sectors of using health inclusive SEA have to be described and outlined clearly, e.g. by giving best practices examples. This also involves raising awareness and stimulating demand for capacity building on health inclusive SEA. Lack of capacity and awareness within the health sector is one of the factors impeding the integration of health in SEA. To fulfil its stewardship role, the health sector should be made more systematically aware of the value that SEA can provide for health protection and health promotion; otherwise it will be difficult to engage meaningfully in the SEA process.

Guidance and support material is already available, from various sources and different settings (e.g. UNECE Manual, United Kingdom Department of Health), that provides a strong basis for the considerations of health within SEA. For example, existing guidance materials on SEA, drawing on practical experiences in dealing with health, were developed by the WHO European Healthy Cities Network, especially by the Sub-Network on HIA (WHO Europe, 2005). Further guidance will need to be demand-driven and respond to what is needed within the health and other sectors.

The WHO Regional Office for Europe is committed to producing such further guidance on health in SEA with special reference to the WHO European Region. Main target group are the Member States of the WHO with their respective Ministries of Health and their subordinate health authorities. One challenge is to address the diverse group of Member States ranging from low income to high income countries, with different social structures. Within countries, different levels – national, regional and local – need to be considered, too. In this regard also different

development stages, different requirements and concepts or experiences with public health have to be considered. There is no one size fits all approach that will work; therefore whatever guidance is developed should be sufficiently broad/general so as to speak to these different needs. For example, clarity is needed about principles of good practice rather than providing details related to implementation, which will be influenced by local specificities. Short guidance which both makes a clear case for integrating health in SEA and provides a sense of what implementation might look like, including some sector examples, would be the most valuable. It will then be up to countries to decide how best to take this further, e.g. develop more detailed guidance suited to their particular national and governance context. The aim is to achieve a strong basis for the next phase, where tools and more detailed manual for the health sector, and specific training material for capacity building will be developed.

It is envisaged that the following themes should be developed:

- Advocacy and report back on what has happened since the last Ministerial Conference on Environment and Health, Budapest 2004, (4 pages).
- 1-2 case studies – best practice examples if available.
- Practical Considerations for Health in the Stages of SEA under the EU SEA Directive and the UNECE SEA Protocol discussing e.g. the following key questions:
  - What does SEA offer to the health sector?
  - What can the health sectors influence be?
  - How can the health sector's engage in process and at what stages?
  - What are the main entry points for health?
  - What could and should other sector professionals expect from the health sector?
  - How to foster public participation into the SEA process.
- Sector examples (1 page, 4 main health priorities), e.g. Transport and Spatial Planning.

In view of the imminent developments around SEA and given the interest and the commitments taken in previous Ministerial Conferences on Health and Environment, it seems appropriate that an update of this work should be presented or launched at the upcoming 5th Ministerial Conference, scheduled for 2010 in Parma, Italy.

Annex 1
THE CONSIDERATION OF HEALTH IN SEA – A REPORT FOR THE WORLD HEALTH ORGANIZATION

Thomas B Fischer
Department of Civic Design, University of Liverpool, United Kingdom

Introduction

This report has been prepared for the World Health Organization, funded by the European Commission under the Grant Agreement No. 2005156. It presents results of a review of strategic environmental assessment (SEA) practice in EU Member States, focusing on the consideration of health impacts. According to the European SEA Directive (42/EC/2001), human health is one of the substantive aspects to be considered in SEA, next to biodiversity, fauna, flora, soil, water, air, climatic factors, material heritage (including architecture and archaeology), landscape, and the population. The interrelationship between the above factors is also to be considered. Similarly, the Kiev protocol to the Espoo Convention on trans-boundary SEA also asks for the consideration of health. Once ratified, this will extent formal SEA requirements to non-EU countries[9] (on the state of implementation of the protocol, see Annex 2).

This report presents the results of an analysis of 8 SEA case studies from different EU Member States and sectors that have considered health impacts. In this context, the report also talks about health inclusive SEA. In the analysis, the added value of the consideration of health, as well as shortcomings and problems are elaborated on. Furthermore, in a discussion following the analysis of the eight case studies, facilitating factors and obstacles/barriers are outlined.

In order to identify suitable cases for inclusion in this report, a screening process was conducted at the beginning of April 2009, consisting of three main elements, as follows:

(1) E-mails were sent around professional SEA related list-servers (International Association of Impact Assessment – IAIA, German speaking Environmental Assessment Association – UVP Gesellschaft, and the Ireland –United Kingdom branch of IAIA[10]), asking participants for examples of good practice;
(2) A world wide web search was carried out, using the key words SEA, health, HIA, policies, plans, programmes[11];
(3) A web-based search of SEA systems the author was familiar with was conducted, including the United Kingdom systems (England, Scotland, Wales and Northern Ireland), Ireland, Germany, Austria, the Netherlands, Belgium, Switzerland and Denmark.

Only one case was identified based on element 1 (case 8, Table 3). Seven of the 10 listserver subscribers that did reply said that they didn't know of any SEAs which considered health aspects well. The following quote by one of the respondents summarizes this well:
"My own experience is that SEA has only a limited impact on plan making. It is, however, taken into account when there are legal provisions or when there is the threat of litigation. Regarding

[9] Currently, SEA is a legal requirement in at least 35 countries globally, including all 27 EU members states along with the US, Canada, Australia, New Zealand, Norway, China, South Korea, the Ukraine and Nepal. Up to 10s of 1000s of SEAs are now conducted annually around the globe (Fischer, 2007).
[10] About 500 listserver members were thus reached, of which 10 sent a reply
[11] This resulted in a total of 3,860 hits

health impacts, when we look at the example of noise, an effective consideration is happening when certain legal thresholds are at risk of being crossed. If that is not the case, a verbal, qualitative assessment of noise impacts will often lead to the impact being traded-off"

Two cases were identified based on element 2 (cases 5 and 6 in forthcoming Table 3) and five based on element 3. The eight SEAs finally selected for in-depth analysis represent practice in six jurisdictions, including those of Austria, the Czech Republic, England, Germany, the Netherlands and Wales. Cases represent SEA application in different sectors, including spatial planning, transport planning, waste management planning, and economic development planning. Table 3 shows the various types of SEA studies, along with the review numbers, which are subsequently used in this paper.

Table 3: SEA case studies

	Spatial planning	Transport planning	Waste management planning	Economic development planning
Austria			7 (local)	
Czech Republic				8 (national)
England	1 (local)	2 (local regional/ county)		
Germany	3, 4 (local & regional)			
The Netherlands	5 (local)			
Wales	6(local)			

Due to the comprehensive and integrative nature of spatial planning, five of the reviewed SEAs are from this field. In theory, these should integrate health with other aspects, e.g. transport, economic development, environmental management particularly well. The eight SEAs include:

1 Sustainability appraisal (SA) for the Peterborough City Council Development Plan Documents (DPDs) scoping report of December 2006 and core strategy preferred options report of May 2008.
2 SEA of the Peterborough Local Transport Plan (LTP) 2[12] of January 2006; and the associated Health Impact Review (HIR).
3 SEA for the Regional Plan of Western Saxony of 2008
4 SEA for the local statutory land use plan (*Flächennutzungsplan – FNP*) of Leipzig of 2005
5 SEA (*plan EIA*) for the structure vision (*structuurvisie*) of the town of Emmen of December 2007
6 Sustainability appraisal (SA) of the scoping report and the key issues and strategy options of the Wrexham Local Development Plan of December 2006; and the associated 'rapid HIA' of March 2008
7 SEA of the Vienna Waste Management Plan of July 2001
8 SEA of the Czech Operational Programme Enterprise and Innovation of June 2006[13].

Documentation for 1, 2, 6 and 8 was available in English; for 3, 4 and 7 documentation was available in German and for 5 in Dutch. The rationale for choosing two cases in each, England

[12] Local Transport Plan 1 was prepared five years earlier in 2001

[13] The cases selected can be seen to reflect current areas and levels/tiers of application well. Most current SEA practice is happening in spatial/land use planning and transport planning at local and to a lesser extent at regional levels; in the UK alone, over 1,000 post Directive SEA exercises are likely to have been conducted (Fischer, 2009) in spatial and transport planning at the local level with another 12 regional plan SEAs (representing the nine English regions, as well as Wales, Scotland and Northern Ireland. Since the introduction of formal SEA requirements, national plan/programme level SEA examples known to this author include mostly stem from EU operational programmes, similar to the reviewed case number 8.

and Germany was to be able to look at the connections made between different tiers/levels and sectors, and to establish potential consistencies/inconsistencies. Cases 1 to 7 represent routinely prepared statutory spatial, transport and waste management plans that are prepared in the respective planning systems many times over (up to several hundreds of times). Case 8, on the other hand, was prepared outside the established spatial and sectoral planning system in order to secure EU funding. Case 1 had been previously identified as an SEA that considered health aspects well (Fischer, 2008; 2009). Case 6 was identified on the web site of the Welsh Health Impact Assessment Support Unit (http://www.wales.nhs.uk/sites3/home.cfm?OrgID=522) as an example of good practice. Furthermore, case 7 had been introduced in the international literature as a good practice SEA, applying a communicative assessment ('round table') approach. Case 8, finally was recommended by an IAIA listserver subscriber. Cases 2, 3, 4 and 5 were randomly chosen and can be said to represent 'standard' practice in the respective planning systems.

Review methodology

Subsequently, firstly the eight case studies are introduced, focusing on the overall context within which they were prepared, describing the specific plan/programme SEA is applied to. Secondly, results of an analysis of SEA documentation is presented, based on a set of questions, shown in Box 5. Whereas questions 1 to 9 address specific WHO concerns, those listed under 10 were derived from an earlier paper of the author, presented at the 9th International HIA conference on 9 October 2008 in Liverpool. Thirdly, the eight case studies are described individually regarding the consideration of health aspects. In this context, added value, as well as shortcomings and problems are elaborated on. Fourthly, facilitating factors and obstacles/barriers are outlined. Finally, conclusions are drawn. Empirical information was obtained mainly through desk-based document research. Key contacts for the case studies were also identified and are listed in the references to this report.

Box 5: Questions for analysing SEAs regarding the inclusion of health/HIA

1. Who provides the health expertise?
2. What definition of health is used? How broad is the health concept used (natural, physical, social, behavioural[14])?
3. Is HIA mentioned or used?
4. What health data are used? Are they readily available/routinely or newly collected?
5. Is there a mix of quantitative and qualitative methods?
6. Are health impacts quantified? If so, how?
7. Are health stakeholders participating in the SEA?
8. Did the health impact analysis influence the decision-making process?
9. Is there any system set up for monitoring health impacts after the decision has been taken?
10. Which of the following issues/aspects are considered:
    - Access to health activities/services/social care
    - Health inequalities (e.g. in different neighbourhoods)
    - Open and green space (recreation)
    - Biophysical aspects
        - soils
        - weather/climate/flooding
        - air

[14] Natural = connection of health with e.g. flora, fauna biodiversity, soils, air, water
Physical = connection of health with e.g. the built environment, noise, emissions
Social = connection of health with e.g. education, unemployment, social exclusion, crime
Behavioural = connection of health with e.g. lifestyles (smoking, alcohol, sport), healthy forms of transport

  - water
  - flora and fauna/biodiversity
- Social/economic aspects
  - education
  - satisfying employment/work from home
  - unemployment
  - affordable housing
  - poverty
  - inequality
  - social exclusion
  - crime rates
- Noise and light pollution, vibrations, smell...
- Human behaviour
  - healthy lifestyles (cycling)
  - leisure activities (open areas, sport)
  - food
- Waste
- Houses and buildings: healthier environments
- Health of minorities (e.g. travelling people)
- Health and safety

Context of the eight reviewed SEAs

In this section, the context of the eight SEA case studies is explained in order to develop an understanding of the underlying planning system and the specific plan//programme SEA is applied to. This is of vital importance in order to be able to discuss/interpret results. Furthermore, main objectives/priorities of the underlying plan are listed. This is done because the focus of the underlying plan and programme to a large extent also determines the focus of the SEA, i.e. if the plan and programme is linked to health issues to start with, SEA can be expected to focus more closely on health.

Case study 1 Sustainability appraisal (SA) for the Peterborough City Council Development Plan Documents (DPD)

This is an SEA for a statutory local spatial plan for the city of Peterborough (over 160,000 inhabitants on about 350 km2). In England, spatial plans are prepared according to the Planning and Compulsory Purchase Act (PCPA) of 2004 at three administrative levels, two of which require SEA to be conducted within the context of sustainability appraisal (SA), as follows:

(1) National level: Government policy (as formulated through planning policy statements – PPSs) and development targets (as formulated through different policy documents, for example, on housing; no SEA is conducted).

(2) Regional level: Regional Spatial Strategies (RSS-statutory development plans); SEA is conducted within the overall context of sustainability appraisal (SA), following government guidance on ‘Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents’ (ODPM, 2005)

(3) Local level: Local Development Frameworks (LDFs-statutory development plans – DPDs Development Plan Documents; SEA is conducted within the overall context of sustainability appraisal (SA), following government guidance (ODPM, 2005), consisting of:

a. Local development documents (LDDs); including core strategy and site specific allocations of land
b. Supplementary planning documents: SPDs on issues such as design, waste and transport policy
c. Area action plans: AAPs, for areas, where specific action is thought to be required

The reviewed SA falls into category (3)a. LDFs are to be prepared in regular intervals by all 354 (since April 2009, 319) English local authorities. Several hundreds of SEA Directive based SA exercises have been conducted in English spatial planning since 2004 (Fischer, 2009). SEA documentation is normally prepared at the following stages of the plan preparation process:

- a scoping stage; at which the scope of the SEA is decided upon, context and objectives are portrayed, and the baseline is established;
- an issues and options or preferred options stage; at which options are developed and refined and effects assessed;
- a preliminary/interim final stage; after consultations and general participation, and;
- a final stage; at which the approved core strategy document is presented.

Main objectives of core strategies are to formulate long term spatial visions. Furthermore, objectives for the delivery of the LDF are set. Health is one of the spatial aspects considered in the core strategy. However, it is not mentioned in the PCPA (2004).

Practice follows government (ODPM) guidance from 2005 'Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents' closely. This mentions health at various points, particularly in the context of where health data can be obtained. However, no exhaustive suggestions are made for how health should be dealt with. This is done in a more recent government (Department of Health) draft guidance on 'Health in SEA' (2008). However, to date it is too early to evaluate the impact of this. Generally speaking, planning in the United Kingdom has been said to be of a discretionary nature. There is therefore e.g. no zoning approach to planning and local authorities preparing LDFs have quite some freedom to develop their own ideas and approaches and are able to make discretionary decisions (within the context of the legal framework).

The review conducted focuses on the DPDs scoping report of December 2006 and core strategy preferred options report of May 2008. The main aim of the core strategy is to formulate statements of development intent ('policies'). These tend to be vague and provide more a framework of evaluating specific schemes later than establishing concrete developments. Somewhat surprisingly, the core strategy itself does not mention health, but almost entirely focuses on the question as to how to deliver economic growth. However, the SEA itself works with various health objectives and aspects. This is further explained in section 4 of this report.

Case study 2 SEA of the Peterborough Local Transport Plan 2 of January 2006

This is a statutory local transport plan (LTP). An LTP lays out a transport vision for an area covered by a local transport authority, in line with the Transport Act 2000, last amended in 2008 (whilst this does not mention health itself, it makes reference to the 'Local government and Public Involvement in Health Act'). Furthermore, travel problems and opportunities are analysed, and objectives and targets are set. An LTP includes a five-year programme of integrated transport and maintenance capital schemes. It provides the basis for gaining government approval for major schemes costing over £5 M (about 5.6 M Euro in April 2009).

LTPs must be submitted to Government every five years. The first round of LTPs 1 covered the five-year period from 2001/02 to 2005/06. Most local transport authorities, which may cover several local planning authority areas, now have second generations LTPs in place, referred to as LTP2. Priorities of these LTP2s include:

- tackling congestion
- delivering improved accessibility
- improving road safety
- producing better air quality

These priorities are closely linked with health aspects, particularly those of a natural and physical nature. LTP2s are prepared, taking Government Guidance on 'LTPs: Second Edition' (2004) into account. SEA is prepared, based on the Department for Transport (DfT) guidance 'Strategic Environmental Assessment for Transport Plans and Programmes – TAG Unit 2.11' (2004). Several hundreds of SEAs for LTPs have been prepared since 2004.

Regarding the Peterborough LTP2, a scoping report was released in 2004. An environmental report was prepared in 2005 and subsequently subject to consultation at the end of the same year. It includes the presentation of baseline conditions and objectives, as well as an assessment of preferred schemes. Two alternatives were considered; 'do-nothing' and 'preferred schemes'. This was followed up by the publication of a final SEA statement in 2006. The LTP itself makes various references to health, including in particular the need to improve community health by increasing walking and cycling and by reducing transport related pollution and accidents. Furthermore, explicit reference is made to the 'shared priorities' formulated by the Local Government Association (LGA). These include 'healthier communities' and the 'narrowing of health inequalities'.

Case study 3 SEA for the Regional Plan of Western Saxony of 2008

In Germany, statutory spatial planning is regulated through the Federal Building Code (Construction and Spatial Planning Act/*Baugesetzbuch*) from 1960, last amended in 2006. Spatial planning is the responsibility of the 16 German states, with spatial planning frameworks differing substantially between states. Spatial plans and programmes are prepared at different administrative tiers, and normally include state, regional/county, municipal and neighbourhood tiers. Furthermore, landscape development plans and programmes (*Landschaftspläne und -programme*) are prepared at the different tiers. These serve as state of the environment/landscape reports, and provide for the environmental/landscape baseline for spatial plans and their related SEAs. Furthermore, they set overall landscape/environmental development aims and objectives and formulate landscape/environmental development measures for the areas they cover. Regional plans formulate regional spatial priorities and link state development plans with local statutory land use plans. Table 4 shows the spatial planning framework of Germany and the role of SEA.

Table 4: Spatial planning framework in Germany and the role of SEA

Planning level	Statutory land-use Planning (subject to SEA); year of plan approval	Other planning related instruments (not subject to SEA)	Landscape/environmental planning	Scale of maps
State (Land) [16 states]	State Spatial Development Plan/Programme		Landscape Programme (*Landschaftsprogramm*)	e.g. 1:500,000
Region [112 regions]	Regional Spatial Plan	e.g. free spaces development concept; Regional and Local Agenda 21		e.g. 1: 50,000
Unitary cities and counties, the latter consisting of…	Local land-use plans (*Flächennutzungspläne -FNPs*)	City structure concepts; City Green Concepts	8 Landscape framework plans (LFP; *Landschafts-rahmenpläne*)	e.g. 1:20,000 – 1:50,000
…municipalities [over 5,000]	local land-use plans (FNPs)		Landscape plans (LP); (*e.g. Königslutter LP from 2005)*	e.g. 1:10,000–1:50,000
Part of the Community (project level)	master plans (*B-Pläne*)		Open Space Master Plan (*Grünordnungsplan*)	1:3,000 to 1:1,000

The region of Western Saxony is one of four regions in the state of Saxony and is home to some 1M inhabitants on nearly 4,000 km2. Spatial planning in Saxony is regulated through the State Planning Act of 2001 (last amended 2007; does not explicitly mention health). This requires regional plans (*Regionalpläne*) to establish:

- a vision for the development of the planning region
- objectives for the settlement structure of the region (centres and functions)
- objectives for open spaces and resource use
- objectives for the development of transport infrastructure, energy and defence.

This means that the regional plan has a physical focus. Regarding these four objectives, a regional plan establishes some concrete and binding spatial allocations for later development. There are a number of links with human health, particularly regarding natural and physical aspects. Whilst there is a total of 112 regional planning authorities, to date only several 10s of regional plan SEAs have been conducted, as there are no statutory requirements to prepare spatial plans at regular intervals. The regional plan of Western Saxony mentions human health mainly in the context of the development of a 'health economy' (e.g. health tourism) and the provision of health services.

The SEA for the Regional Plan was published in 2008. There is no regional SEA guidance, neither in the state of Saxony nor at the Federal level. Requirements are normally directly derived from the European SEA Directive. Generally speaking, spatial planning in Germany is of a legalistic nature. Therefore, meeting existing legal requirements on e.g. infrastructure provision, noise and emission limits is a key objective here. Annex 0 indicates how this is often translated into assessment, showing a noise maps for day and night levels for a new residential development in a master plan SEA. If these indicate that thresholds are crossed, then either the plan will have to change or mitigation measures need to be put into place.

Case study 4 SEA for the draft local statutory land use plan of Leipzig of 2005

This is an SEA for a local statutory land use plan (*Flächennutzungsplan – FNP*), as introduced in Table 4. There are over 5,000 municipalities in Germany that need to prepare these kinds of plans. The city of Leipzig has 500,000 inhabitants on about 300 km2 and lies in the state of Saxony (within the Western Saxony Region). The main aim of a local statutory land use plan is to pre-determine the type of spatial use in a local authority area for a period of about 10-15 years, following requirements laid out in the Federal Building Code of 1997. This includes current use and future residential, infrastructure, services and industry, communal use, green areas, forestry, and agriculture development, as well as measures for developing nature and landscape. Its main objectives include:

- adapting to overall state and spatial planning;
- creating a sustainable urban development;
- ensuring a socially responsible and just use of space;
- creating a positive human environment;
- protecting and developing natural resources.

Whilst four objectives are related to human health, the land use plan itself covers health and social aspects only to a limited extent, due to the existence of other documents, e.g. various 'city development concepts'. In the city of Leipzig, this includes a '*social concept*', covering aspects such as unemployment, education, wealth and inclusion. Also, it includes data on minorities, disabled persons, drug addicts and others. There is a spatial approach to this 'social concept', with the main focus being on particular problem areas of the city.

Case study 5 SEA (plan-EIA) for the structure vision of the town of Emmen of December 2007

This is a development vision for the Town of Emmen (109,000 inhabitants on about 350 km2) in the North-East of the Netherlands in the Province of Drenthe, one of 12 Dutch provinces. Spatial plans in the Netherlands are regulated by the national Spatial Planning Act of 1965 (in 2008 a new spatial planning act came into force) and are prepared at three main levels of decision-making; national, regional and local. A national spatial plan integrates not only issues, such as housing and industrial sites, but also the spatial aspects of national mobility policy and agriculture. At the regional level, statutory regional plans (*streekplannen*) have been prepared since the 1960s. Increasingly, the 12 Dutch provinces choose to integrate their regional spatial plans with policies on the environment, water and transport in so-called provincial 'surrounding plans' (*provincial omgevingsplannen*). At the local level, statutory land use plans are prepared (*bestemmingsplannen*) in the 489 Dutch municipalities, regulating local land use. In addition, more recently, municipalities have also been preparing structure visions (*structuurvisies*), either for the whole municipality or for parts of it. These outline possible future development options.

The structure vision for Emmen was published in draft format in September 2008. It is dealing with Emmen's ambitions to grow to over 120,000 inhabitants, to create more job opportunities, to become the main centre for an international region of 300,000 inhabitants (which include German municipalities) and to improve accessibility. Several principles for the spatial development are formulated, as follows:

- to take account of water and soil protection policy
- to improve the balance of inner city and outer area development
- to respect the elements of cultural history
- to develop in accordance with new North South road infrastructure

- to consider impacts of climate change

The vision therefore has a physical and natural focus. Health is addressed in the structure vision only occasionally, mainly regarding the strengthening of health services around the existing hospital, as well as in terms of making provisions for health care. However, Dutch municipalities also have provisions for preparing a range of other health related documents. These include provincial risk maps (see http://www.risicokaart.nl/), showing locations with a potential health risk. Furthermore, the national Act of Collective Preventive Public Health asks for Health reports to be prepared. Finally, municipalities publish annual monitoring reports on the state of the economy, crime, social exclusion and other socioeconomic aspects. Similarly to Germany, in a Netherlands a legalistic approach to spatial planning is applied.

Case study 6 Sustainability appraisal (SA) of the scoping report and the key issues and strategy options of the Wrexham Local Development Plan of December 2006; and an associated 'rapid HIA' of March 2008

As in England, spatial planning in Wales follows the United Kingdom Planning and Compulsory Purchase Act of 2004. However, due to the devolution process which started in the United Kingdom in the 1990s, similarly to Scotland and Northern Ireland, Wales spatial planning has certain distinct elements. The Wales Spatial Plan identifies spatial priorities for Wales as such (note: there is no England Spatial Plan). At the local level, each of the 22 unitary authorities in Wales are required to prepare a local development plan (LDP) for their area.

Authorities in Wales must have regard to Welsh Assembly Government planning policy documents, including the Wales Spatial Plan, in preparing LDPs. Unlike the LDF arrangement in England, the LDP is a single document, setting out strategy as well as site-specific and development control policies. The Assembly Government's national land use planning policies are set out in Planning Policy Wales supplemented by Technical Advice Notes and Circulars and by Ministerial Interim Planning Policy Statements. Procedural stages for the preparation of an LDP are in line with those followed by English LDFs.

The Wales Spatial Plan integrates the spatial aspects of national strategies, including social inclusion and economic development, health, transport and environment policy. There is Local Development Plan Wales Guidance (Welsh Assembly Government, 2005) as well as a Local Development Plan Manual (Welsh Assembly Government, 2006) which also formulates SEA requirements. This repeatedly mentions the possibility for conducting HIA, together with Welsh language assessment.

The Wrexham Local Development Plan Preferred Strategy Draft was published in October 2007. Principles formulated for the plan include:

- sustainable development
- better quality environment
- prosperous economy
- community cohesion and equality of opportunity

The plan explicitly mentions health numerous times, particularly in the context of health services provisions. Furthermore, relevant health background documents are listed, including the local community strategy from 2004 and the Health, Social Case and Well-being strategy 2005-2008 from 2007. Furthermore, it states that based on the outcomes of the sustainability appraisal, a separate 'rapid HIA' is to be prepared.

Case study 7 SEA of the Vienna Waste Management Plan of July 2001

In Austria, a Federal Republic consisting of nine states, the competence for waste management is split between federal and state governments. Legislation and execution concerning hazardous waste is a federal task. For other waste types, it's normally state governments that are responsible. Legal provisions in Austria are formulated in the Act on Waste Management, as well as the state waste management acts.

Responsibility for the collection and management of municipal waste is normally passed from the states to the municipalities. These either can or have to form inter-municipality waste associations. Furthermore, national and state waste management plans have to be prepared every five years. The Vienna waste management plan reviewed here is one of them.

Vienna is the national capital with about 1.7 M inhabitants, living on 415 km2. It has state status and therefore an obligation to prepare a Waste Management Act (1994; waste management acts explicitly mention health). According to this Act, a waste management plan has the following aims:

- Describing current waste practices in the city, including quantity and type of waste.
- Prognoses for future waste.
- Description of current waste management, including type of management (e.g. incineration, landfill), and expected future needs.
- Identification of necessary persons for waste management (education, skills).

There are legal requirements for waste management plans to firstly identify the scope for waste avoidance/minimization. Secondly, whenever possible, waste should be seen as a resource and recycling and incineration should be used, whenever possible. Thirdly, only after biological and chemical ways to deal with waste should landfill be considered. In this context, any risks should be minimised. Similarly to Germany and the Netherlands, in Austria, a legalistic approach to planning is followed.

There is a concrete link of the waste management plan with health, particularly to the physical aspects of health, based on the necessity to reduce risks. The SEA of the Vienna Waste Management Plan has been frequently referred to in the literature, applying an innovative and interactive round table approach to SEA (see e.g. Fischer 2007, Arbter 2005).

Case study 8 SEA of the Czech Operational Programme Enterprise and Innovation of June 2006.

The Operational Programme Enterprise and Innovation was prepared by the Czech Ministry of Industry and Trade in 2006. It concerns the use of EU financial sources, aiming at strengthening the competitiveness of the Czech economy. It is the main programming document for the realization of the policy for economic and social cohesion in the industry sector and an important tool for the realization of the strategy for the development of small and medium-sized enterprises for the period 2007-2013 in the Czech Republic. In this context, a total of 15 aid programmes are introduced.

It is possible for applicants to use financial resources from an operational programme for co-financing business projects in the manufacturing industry and related services. Funding is derived in parts from EU structural funds (85%) and in part from the state budget (15%). From the Operational Programme Enterprise and Innovation, funding will be paid out in the form of

non-returnable subsidies, preferential loans and guarantees. Eligible projects are those implemented on the territory of the Czech Republic outside the capital city of Prague.

The total budget of the programme is around EUR 3.6 billion and the Community investment amounts to EUR 3.04 billion. This is about 12% of the total EU money invested in the Czech Republic under Cohesion policy 2007-2013. The programme is expected to create around 40 000 new jobs. Gross domestic expenditures on Research and Development (R&D) in the business sector is expected to increase to 1.5% of the GDP.

The global objective of the operational programme is to increase the competitiveness of the Czech economy and bring the innovation performance of the industry and services sectors closer to the level of leading industrial EU Member States. In the implementation of the operational programme, attention should be paid to ensure that the support provided goes primarily to small and medium-sized enterprises (SMEs) in line with the Community Strategic Guidelines. There are seven priorities, including:

- Establishment of firms
- Development of firms
- Effective energy use
- Innovation
- Improved environment for enterprise and innovation
- Business development services
- Technical assistance

The SEA was prepared based on European Commissions SEA Handbook for Cohesion Policy from 2006 (http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/sea_handbook_final_foreword.pdf) this mentions both, health and HIA). The SEA was prepared next to an overall 'ex-ante evaluation'.

Results of analysis

In this section, results of the analysis are presented, answering the questions formulated in Box 1. Replies are provided for each of the questions for each SEA in Table format. Furthermore, a summary is then provided of the overall performance.

1. Who provides the health expertise?

SEA 1 – Peterborough DPD	**SEA 2 – Peterborough LTP**	**SEA 3 – Western Saxony**	**SEA 4 – Leipzig**	**SEA 5 – Emmen**	**SEA 6 – Wrexham**	**SEA 7 – Vienna**	**SEA 8 – Czech Republic**
Consultant (Land use consultants)	Consultant (Atkins); Health Impact Review by Primary Care Trust and Peters-borough Council	Regional Planning authority	Consultant (agl) and City Planning authority	Consultant (Arcadis)	Wrexham County Borough Council (Health Promotion Team); Local Health Body; HIA by HIA Support Unit & Wrexham Council	City Council and supporting consortium of scientific experts, including an expert of toxicology/cancer studies of TU Vienna	Consultant (REC) and member of national health institute

Documentation of five SEAs was prepared by consultants, including the Peterborough DPDs/core strategy and transport plan SEAs, the Leipzig and Emmen local land spatial

plan/vision SEAs, as well as the Czech Operational Programme SEA. The Western Saxony Regional Plan SEA, The Wrexham LDP SEA and the Vienna Waste Management Plan SEA documentation was prepared by the responsible authority. Mostly, the bodies responsible for SEA preparation provided for the health expertise. In the case of the Wrexham LDP, a Council Health Promotion Team and a Local Health Body were involved. The Vienna Waste Management Plan support consortium of scientific experts also included a toxicology/cancer expert from the Technical University there. The Czech National Health Institute had an input to the Czech Operational Programme. The Health Impact Review of the Peterborough LTP2 was prepared by the Primary Care Trust of the National Health Service (NHS) and Peterborough City Council. The Wrexham DPD HIA was prepared by the Welsh HIA support Unit and Wrexham Borough Council.

2. What definition of health is used? How broad is the health concept used (natural, physical, social, behavioural)?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Physical, natural, social, behavioural	Physical, natural, social, behavioural	Physical, natural	Physical, natural	Physical, natural	Physical, natural, social, behavioural	Physical, natural	Physical, natural, social (behavioural mentioned)

All SEA considered aspects of a physical and natural impacts on health, focusing on aspects such as noise, emissions, pollution and similar. However, four SEAs went beyond these, namely the three United Kingdom SEAs, as well as the Czech Operational Programme SEA. Whilst the former three considered social and behavioural aspects, the latter considered social aspects, mentioning also behavioural aspects (for a more detailed picture on what aspects were considered, see question 10).

3. Is HIA mentioned or used?[15]

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
HIA fully integrated into the SEA (but term not used)	Not in SEA; but Health Impact Review (HIR) conducted	No	No	No	Yes, a rapid HIA before final consultation on preferred strategy	No	Yes, HIA fully integrated into the SEA (but term not used)

Whilst two SEAs were integrated with HIA (however, without explicitly using the term HIA), namely the Peterborough DPDs SEA (but not the core strategy) and the Czech Operational Programme SEA, two had separate health assessments conducted, namely the Wrexham LDP 'rapid HIA' and the Peterborough Local Transport Health Impact Review (HIR). The former referred to the preferred strategy only and was the first of its kind to be prepared in Wales. The latter was said to be the testing ground for a full HIA to be conducted to a 3rd LTP in a few years' time.

[15] All procedural elements of HIA are reflected in every Directive based SEA process (i.e. screening, scoping, assessment, consultation and participation, decision- making and follow-up; see e.g. WHO, 2001 and Fischer, 2007); here, HIA therefore means a section in the SEA report, which is dealing explicitly with health, preferably not just physical and natural, but also social and possibly behavioural terms.

4. What health data are used? Are they readily available/routinely or newly collected?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Comprehensive health data as baseline in DPDs scoping SEA[16]	emissions, accessibility, safety, crime and healthy transport modes	noise; recreational potential, free spaces in residential areas	recreational areas, free spaces in residential areas; noise and emissions	spatial use (recreation); noise, air quality, safety	Based on comprehensive list of 80 performance indicators	A range of emissions; SO2, NOx, HCL, Hg, Cd, PAK, Pb, Diox-ine, VOC, CO, dust, solid waste	National data on life expectancy and trends

Three SEAs listed comprehensive baseline data under the heading 'health', namely those that used HIA type assessments in SEA (SEAs 1,6 and 8; all of these were based on existing health monitoring data, either at county or local level)[17]All other SEAs listed numerous health related data, however without explicitly mentioning 'health'. These include aspects, such as noise, emissions, recreational potential, 'free' spaces and others (see question 10). Annex 1 shows the 'criteria for assessing the effects of Peterborough City Council's Development Plan Documents on health' from the DPDs SEA. Furthermore, Annex 2 shows a list from the Wrexham 'rapid HIA'. Annex 3 shows parts of the table used in the Peterborough LTP SEA HIR.

5. Is there a mix of quantitative and qualitative methods?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Qualitative; however, no options assessed	Qualitative	Qualitative (written); quantitative (maps; 1:300,000)	Qualitative (written); quantitative (maps of various scales; mostly 1:60,000)	Qualitative (written and evaluation); quantitative (maps of various scales)	Qualitative	Quantitative computer modelling	Qualitative

Whilst quantitative and qualitative baseline data are presented in all SEAs, in assessment, a mix of quantitative and qualitative techniques was used in four cases, namely the two German and the Dutch spatial plan SEAs and the Vienna Waste Management Plan SEA. The former three used maps to show concrete spatial impacts of proposed action. In the case of the Vienna Waste Management Plan SEA, quantitative modelling of impacts in terms of e.g. waste quantities were used. However, in addition, a round-table was conducted, which partly provided the parameters for the computer model. All others SEAs used qualitative methods, mainly describing potential impacts in written format, based on expert opinions.

[16] Population profile and health (life expectancy, levels of mortality, mental health, healthy lifestyles); access to health services; health inequalities (levels of deprivation, road safety); health impacts of climate change

[17] For 1 data come from e.g. 'The Annual Report to the Director of Public Health for Greater Peterborough Primary Care Partnership 2005-2006' and 'Health Strategy 2005-2010. Norfolk, Suffolk and Cambridgeshire Strategic Health Authority, October 2005'; for 6 from e.g. the Health, Social Care and Well Being Strategy for Wrexham; and for 8 from e.g. the Ministry of Environment 2004 'Report on the State of the Environment in the Czech Republic

6. Are health impacts quantified? If so, how?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
No	No, but scoring system applied	Yes, using multicriteria analysis for concrete anticipated developments	Yes, using multicriteria analysis for concrete anticipated developments	No, but scoring system applied (+/-)	No	MCA of different waste management options	No

Health impacts were quantified in three cases regarding physical and natural aspects only, including the two German spatial plan SEAs and the Vienna Waste Management Plan SEA. Quantification in the former two took place, based on multicriteria analysis, giving overall impact scores to anticipated development. In the latter, a mathematical model was used. Annex 4 shows the 'human health' impact map from the SEA of the Western Saxony Regional Plan. Furthermore, Annex 5 shows sensitive areas as a combination of soil, biodiversity, water, air and human health data and anticipated future developments from the Leipzig Local Land Use Plan. In none of the cases were health impacts assessed in a monetary way.

7. Are health stakeholders[18] participating in the SEA?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Health bodies should be participating in consultation	Health bodies should be participating in consultation; however, not mentioned in consultation list	Health authorities should be participating (but in reality usually don't)	Health authorities should be participating (but in reality are usually rather passive)	Health bodies should be participating in consultation	Yes, a range of health stakeholders; including various representatives of Wrexham Borough and the health Board	Toxicologists	Not specified

In all cases, health stakeholders should in principle be participating in the SEA process. However, frequently, health stakeholders do not appear to fully engage with SEA and health comments mostly come from non-health bodies. In the case of the Peterborough DPDs SEAs, for example, health related comments (on health and flood risk, biodiversity, accessibility, high quality living environments, healthy lifestyles) came from the Countryside Agency, Environment Agency, English Heritage and 'Opportunity Peterborough' (an urban regeneration company). The Regional Plan Western Saxony SEA mentions 33 SEA related and 16 Habitats assessment (conducted under the EC Flora-Fauna Habitat Directive) related comments (not distinguishing between the regional plan and the SEA). It is not clear whether a health stakeholder was amongst those. Comments were provided on raw material extraction, forestation, infrastructure, wind energy, water resources and flooding. These were said to have had only a minor impact on certain formulations. The Emmen Structure Vision SEA mentions 71 inputs. A summary of these comments is also provided. Health is not directly mentioned here, but there are links with the aspect 'air quality'. A number of health authorities were involved in the 'rapid HIA' consultation for the Wrexham LDP SEA, including health related council workers, the Local Health Board, as well as public health practitioners. The Leipzig land use plan and Wrexham LDP consultation processes are still under way. In the case of the Vienna Waste Management Plan SEA, comments from three main bodies were mentioned, including the Health and Environment Department of

[18] This does not include the general public, which participates in any SEA, following the requirements of the SEA Directive

Vienna, the Federal Environment Agency, as well as the 'qualified public' (NGOs and other environmental bodies). Comments here revolved in particular around the non-transparency of the computer model used for assessment. Finally, in the case of the Czech Operational Programme SEA, a range of comments were received from regional authorities, national park and protected area authorities. Regarding health impacts, a comment was received by the National Ministry of Health Care, which stressed that in order to reduce noise pollution, effective application of existing legislation was crucial.

8. Did the health impact analysis influence the decision-making process?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Yes, proactive assessment approach	Yes, proactive assessment approach	Yes, health similarly to other aspects	Yes, health similarly to other aspects	Yes, health similarly to other aspects	Yes, proactive assessment approach	Yes, health similarly to other aspects	Yes, health similarly to other aspects

According to the requirements of the SEA Directive, plan and programme makers have to explicitly show how SEA influenced decision-making. This needs to be clearly outlined in the final plan or programme. Therefore, in all cases did the consideration of health in SEA have an impact on final decision-making (i.e. have an added value), similarly to other aspects, such as biodiversity or climate change. However, and considering other research results on the impact of SEA on PPP making (see Fischer et al 2009; Fischer, 2009; Fischer et al, 2009), this impact is mostly of a minor scale only[19]. In situations where the link to implementation is only vague, the nature of that impact is normally mainly one regarding changes to formulations of statements/policies of development intend (e.g. in the cases of the Peterborough and Wrexham spatial plan SEAs). In plans that outline concrete future developments, the impact may be more measurable. For German spatial plans, for example, Fischer et al (2009) found that between 5-10% of land allocations may change based on SEA. This refers to the examples of the Western Saxony Regional Plan and the Leipzig local land use plan SEAs. The Emmen Structure Vision SEA appears to have been effective in influencing the final preferred development strategy. In the case of the Vienna Waste Management Plan SEA, computer model and SEA round table results supported the preferred option finally chosen, and therefore can be seen as having been effective in decision-making. For the Czech Operational Programme SEA, Smutny (2008) found that the SEA had influenced the plan throughout. A shortcoming here is that the SEA was conducted independently of the socioeconomic SWOT (strengths, weaknesses, opportunities and threats) analysis. An aspect of good practice is that in this SEA, an explanation was provided on the way the operational programme considered SEA (see Annex 6).

[19] There are currently only hypotheses why SEA's impact is only small. Possible reasons are summarised by Fischer (2009b) and can be said to include:

- The political nature of many decision making situations coupled with unsuitable acting strategies of plan and programme makers, as well as assessors
- No clear distinction between issues that are likely to be significantly affected and those that are not
- The lack of clear substantial requirements (e.g. thresholds)
- Insufficient funding and support

9. Is there any system set up for monitoring health impacts after the decision has been taken?

SEA 1 – Peterborough DPD	SEA 2 – Peterborough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrexham	SEA 7 – Vienna	SEA 8 – Czech Republic
Indications of monitoring requirements will follow	Yes, monitoring indicators; e.g. local air quality, effect on crime and community safety; effect on travel choice that improves overall levels of health, as well as effects on noise, road safety and accessibility	Yes, monitoring indicators; revolving around the various natural and physical aspects assessed.	Yes, monitoring indicators; revolving around the various natural and physical aspects assessed.	Yes, monitoring indicators; revolving around the various natural and physical aspects assessed.	Yes, based on performance indicators	Yes, monitoring indicators; revolving around the various natural and physical aspects assessed.	Environmental criteria are defined for project evaluation; these include natural and physical aspects of health

In all SEA cases were indicators for later monitoring defined. However, it is probably fair to say that more could have been done in terms of devising concrete monitoring programmes. Most SEAs refer to subsequent (implementation) stages that should make monitoring provisions clearer. In the United Kingdom (England and Wales) cases, SEA monitoring is integrated with wider spatial monitoring. In Germany, environmental monitoring is done on a continuous basis. For the state of Saxony, an environmental monitoring report was prepared in 2007, connecting the state of the environment with environmental policy. Health monitoring is also happening, however, usually by a different department from the one responsible for planning. This can take different forms, e.g. communal health reports (see e.g. http://www.loegd.nrw.de/gesundheitberichterstattung/kommunale_gesundheitsberichterstattung/kommunale_gesundheitsberichte/berichte_thematisch_b.html) or comprehensive social development reports (see e.g. Annex 12). In the Netherlands, nationwide environmental monitoring is coordinated by the Institute for National Health and the Environment (RIVM). In the case of the Czech Operational Programme SEA, the main focus is on identifying environmental criteria for project evaluation. These are mainly of a natural and physical nature (e.g. emissions, severance, waste etc.)

10. Which of the following issues/aspects are considered?

	SEA 1 – Peter-borough DPD	SEA 2 – Peter-borough LTP	SEA 3 – Western Saxony	SEA 4 – Leipzig	SEA 5 – Emmen	SEA 6 – Wrex-ham	SEA 7 – Vienna	SEA 8 – Czech Republic
Access to health activities/services/social care	B (A)	(B)(A)	X**	X**	X**	B (A)	X?	X
Health inequalities (e.g. in different neighbourhoods)	B (A)	X	X	X**	X?	B (A)	X?	B(A)
Open and green space (recreation)	B (A)	B (A)	B A	B A	B A	B (A)	X?	B(A)
Biophysical aspects:								
▪ soils	B (A)	B A	B A	B A	B A	B(A)	BA	B(A)
▪ weather/climate/flooding	B (A)	B A	B A	B A	B A	B(A)	BA	B(A)
▪ air	(B)(A)	B A	B A	B A	B A	B(A)	BA	B(A)
▪ water	(B)(A)	B A	B A	B A	B A	B(A)	BA	B(A)
▪ flora & fauna/biodiversity	(B)(A)	B A	B A	B A	B A	B(A)	BA	B(A)
Social/economic aspects								
▪ education	B (A)	X	X	X	X	B (A)	X?	X
▪ satisfying employment (e.g. work from home)	(B)	X	X	X	X	B (A)	X?	X
	B (A)	X	X**	X**	X**	B (A)	X?	B(A)
▪ unemployment	B (A)	X	X	X**	X**	B (A)	X?	X
▪ affordable housing	B (A)	X	X	X***	X	B (A)	X?	B(A)
▪ poverty	B (A)	(B)(A)i	X	X***	X	B (A)	X?	B(A)
▪ inequality	B (A)	(B)(A)i	X**	X***	X**	B (A)	X?	X
▪ social exclusion	B (A)	X	X	X***	X	B(A)	X?	X
▪ crime rates								
Noise and light pollution, vibrations, smell...	B (A)	B A	B A	B A	B A	B(A)	BA	B(A)
Human behaviour:								
▪ healthy lifestyles (cycling)	B (A)	B A	X	X	X	B(A)	X?	(B)
▪ leisure activities (open areas, sport)	B (A)	X	B A	B A	X**	B(A)	X?	(B)
▪ food	(B)	X	X	X	X	(B)	X?	(B)
Waste	B (A)	X	X**	X**	B A	B(A)	BA	B(A)
Houses and buildings: healthier environments	(B)	X	X	X**	B A	B(A)	X?	(B)
Health of minorities (e.g. travelling people)	B (A)	X	X	X***	X?	B(A)	X?	X
Health and safety (e.g. accidents)	X	B A	X	X	B A	B(A)	A	B(A)

X = not mentioned, (B) = Baseline; mentioned, B = Baseline; detailed; (A) = Assessment; mentioned, A = Assessment; detailed, i=indirect (e.g. inequality through accessibility), ** = within scope of the underlying plan; ***= covered elsewhere; ? = relevance questionable

In the case of the Peterborough DPDs SEA, an excellent scoping report was prepared, providing for an extensive health baseline. In this context, the SEA has a section on human health next to sections on social welfare and communities, economic vitality, access and transport, environmental integrity as well as natural resource efficiency. Annex 7 shows two maps on income deprivation and living environment deprivation. Only one aspect from the above list isn't mentioned, namely health and safety. A crucial problem of this SEA, however, is that these baseline data do not appear to have been used to any large extent later in assessment, which was rather vague, frequently leaving implications on particular aspects open.[20] Furthermore, no evaluation of alternatives was done in the SEA. This was completed separately with the help of a computer-model based 'integrated growth study'. This only gave little consideration to health impacts. Furthermore, no clear distinction was made between significant and insignificant impacts.

The SEA of the Peterborough Local Transport Plan has its main focus on biophysical aspects. Impacts on SEA objectives (which are different from those put forward in the Peterborough Spatial Plan SEA) are assessed in terms of short, medium and long term effects. Annex 8 provides for an example from the assessment matrix, showing impacts of the proposed LTP measure 'parking' on the 13 SEA objectives. Presentation of the baseline data was done in a descriptive manner. No maps were provided.

[20] This appears to be connected in particular with the guidance used. This is rather prescriptive on baseline data, but more vague on other issues.

The SEA for the Western Saxony Regional Plan was focusing on biophysical aspects, anticipated emissions and open areas (including access). Whilst the Regional Plan also considers accessibility targets and current problems regarding unemployment and social exclusion, these issues are not addressed in the SEA. Baseline data (including those that are natural and physical health related) are quantitative and used in assessment. In this context, GIS based maps are provided on a range of aspects, including human health/climate/air, biodiversity, soils, water, landscape, cultural and other assets (see Annex 4). Furthermore, maps are provided regarding habitats assessment, severance, changes to groundwater flows as well as overall assessment results.

Whilst the SEA for the Leipzig Spatial Plan explicitly addresses the same issues as the Western Saxony Regional Plan SEA, the underlying plan also covers some of the socioeconomic issues, such as unemployment and affordable housing, waste and healthier environments. Furthermore, some other aspects that are not covered by the local land use plan are covered in the planning processes of e.g. city reconstruction (*Stadtumbau*) and the city development concept (*Stadtentwicklungskonzept*). These include in particular aspects of poverty, inequality, social exclusion, crime and health of minorities. Annex 9 shows a map from the city development concept as an example. This identifies neighbourhoods that have a high, medium or low necessity to act on income, education and inclusion. Furthermore, it shows existing problem areas of public intervention. What is problematic in this case is, in e.g. a ‘city development plan’.

The SEA of the Structure Vision of Emmen is dealing with similar aspects as the two German examples. Whilst it is not covering socioeconomic aspects, these are partly covered in the underlying vision. Furthermore, affordable housing is one of the key themes of a related planning document, namely the Inner-city Masterplan. Whilst the SEA does not include open spaces, it does consider waste, houses and buildings, as well as health and safety. Whether health and minorities as well as health inequalities of different neighbourhoods are a relevant issue in this medium size rural community is questionable. There was no information available in this context on the official web sites of the town. Health and Safety is an important aspect considered in every Dutch municipality, town or village, particularly though the so-called ‘risk maps’ (see http://www.drenthe.info/kaarten/web site/risicokaart_pub/risicokaart.html). Annex 10 shows a scoring table from the SEA regarding three leisure development options. Other development areas for which options were assessed in a similar manner include new housing, glass house agriculture and water based developments.

The SEA for the Wrexham LDP covers all aspects listed in the above table. However, similarly to the Peterborough Spatial Plan SEA, a lot of the baseline data provided on the different aspects subsequently do not appear to have been used later in assessment (see comment above on the Peterborough DPDs SEA) and the connection between baseline data and assessment is vague. Regarding a ‘satisfying employment’, this was the only SEA of all those reviewed that mentioned ‘quality of jobs’. The summary of the preferred strategy document shows the health determinants checklist and vulnerable and/or disadvantaged population groups that were partly used in assessment. It is taken from the HIA Support Unit ‘practical guide to HIA’ (2004). Both are presented in Annex 11.

The Vienna Waste Management Plan SEA has a biophysical, emission and waste focus only. Assessment was done based on two main approaches; (a) a computer model which used respective baseline data, as well as (b) a roundtable communicative approach, which allowed various stakeholders to voice their opinions and come up with a consensus solution. It is questionable whether the various socioeconomic aspects listed in the table above are in effect

significant for this waste management plan, e.g. healthy lifestyles and leisure activities. The same applies to access to health services, and aspects of human behaviour. Health and safety, on the other hand was an aspect of assessment.

Finally, the Czech Operation Programme SEA considers a wide range of aspects, including biophysical aspects, a well as a number of socioeconomic aspects. The latter are mainly covered in a section on the impacts on public health. Opposite to all other SEAs covered here, the main purpose is to provide for an indicators' checklist for later implementation projects. Therefore, the assessment itself is somewhat vague and uncertainties are high.

Discussion: health inclusive SEA – facilitating factors and obstacles/barriers

All eight reviewed SEAs considered health related to natural and physical factors. Generally speaking, whilst most EC Directive based SEAs currently consider natural and physical factors affecting health, social and behavioural aspects are only dealt with occasionally. The exception to this appears to be United Kingdom practice, where social and behavioural aspects are taken into account more frequently[21]. Four also considered social and behavioural health aspects, namely the Peterborough spatial plan and transport plan SEAs, the Wrexham LDP and the Czech Operational Programme SEA. However, whilst in this context, a range of useful baseline data were presented, it was mostly unclear what role these played in the actual assessment of the plan. Whilst the Peterborough DPDs SEA and the Czech Operational Programme SEA included a fully integrated HIA baseline part (without, however, explicitly mentioning the term), the Peterborough LTP and the Wrexham LDP included separate HIAs (the former called Health Impact Review and the latter called rapid HIA), however, only on their preferred strategies, after different options had already been assessed. This means HIA was not used in a pro-active manner in order to influence the choice of preferred options, but rather in an ex-post manner for mitigating effects of developments that were already decided upon. The same applies to the Peterborough core strategy, for which the SEA only assessed the preferred options, with the assessment of different options being left to a mathematical computer model. This is an obstacle for a fully effective health inclusive SEA. Furthermore, not using baseline data in further assessment clearly is a barrier to influencing plan making. In this context, a facilitating factor to effective health inclusive SEA would be to limit the generation of health aspects to those that are relevant for expected significant effects, but then to use these later in the assessment of options.

Overall, good baseline data are an important starting point for effective health inclusive SEA. All SEAs presented good natural and physical health related baseline data. In addition, the Peterborough DPDs scoping report SEA and the Wrexham LDP SEA provided baseline information on numerous socioeconomic and behavioural elements. Whilst some of these data were also available in the localities where SEA had not included them (i.e. in Germany and the Netherlands), the legalistic approach to planning had meant that the focus was only on those aspects that were legally required. If SEA was understood here more in terms of fulfilling an integrative function, effective health inclusive SEA could be facilitated. This integrative function also means that health inclusive SEA should be applied in a coordinated manner with other assessment instrument. In the Czech Operational Programme case, an economic SWOT analysis

[21] This was confirmed when going though an additional number of SEAs, including those for the 2005 Copenhagen Communal Plan (Denmark), the Mayo County Development Plan 2008-2014 (Ireland), the 2005 Structure Plan Zwolle (the Netherlands), five other Regional Plans in Germany and five regional plans in the UK.

was conducted in isolation. Coordination of SEA with the SWOT analysis could have led to greater consistency.

Quantitative assessment was done in the four SEAs that considered physical and natural health related factor only, namely the Western Saxony regional Plan SEA, the Leipzig Land Use Plan SEA, the Emmen Structure Vision SEA and the Vienna Waste Management Plan SEA. These include those that are routinely collected and therefore readily available. Some social and behavioural aspects were, however, either considered in the underlying plan or in other related documentation in all these cases. Whilst not all aspects are likely to be relevant in all cases, e.g. leisure activities in a waste management plan SEA, generally speaking all aspects that are raised in the underlying plan should be covered. In this context, extending the scope of SEA to explicitly address certain issues could be a facilitating factor for a more effective consideration of health aspects. Furthermore, if health related aspects are covered in other related documentation (as e.g. in the case of the Leipzig Land Use Plan in the City Development Concept), then SEA could act as an integration tool, aiming to ensure consistency between various related documents and plans.

A more consistent consideration of health aspects in SEA could be facilitated by SEA which acts as an integrative tool for consistency between plans of different sectors and levels of decision-making. In the case of the Peterborough DPDs scoping report and LTP SEAs, different assessment frameworks were used. If a health inclusive SEA framework was consistently used, more effective health inclusive plan making may be achieved. In the case of the Western Saxony Regional Plan and the Leipzig local land use plan SEA, similar factors were used in assessment, which were directly derived from the SEA Directive. The same applies to the Emmen Structure Vision SEA. An SEA framework that goes beyond physical and natural SEA Directive requirements to also include social and behavioural health aspects and that can be applied at different administrative levels could increase consistency of health inclusive policies, plans, programmes and outcomes.

Whilst computer models can be useful in the health inclusive assessment of different options, the SEA report should clearly explain how the models work. An assessment of options which is not transparent cannot be said to facilitate public trust in the exercise. However, health inclusive SEA documentation should be understood by experts as well as by lay persons. This was a point of criticism in the consultation exercises of the two SEAs that used computer models for the assessment of options, namely the Peterborough core strategy SEA and the Vienna Waste Management Plan SEA.
Confidence in the quality and outcomes of a health inclusive SEA can be enhanced by quantitative assessment. Assessment that is purely based on qualitative expert judgments can come across as being subjective, thus being a barrier for both public and stakeholder acceptance. Possibly the best results are achieved by a combination of quantitative and qualitative aspects where the former are used to inform the latter. Quantitative assessment requires limitation of assessment factors (indicators) to those that are meaningful and that can be said to be connected with potential significant effects. Maps can be seen as being particularly useful in this context. The Western Saxony Regional Plan SEA and the Leipzig Local Land Use Plan SEA used a range of baseline and impact maps, facilitating understanding of health and other impacts. Whilst the Peterborough DPDs scoping report SEA provided for a wide range of excellent health related baseline maps, the later core strategy preferred options document did not include similar maps, leaving it open what the impacts on the various health factors were. This clearly is a barrier to effective health inclusive SEA.

A more extensive contribution of health professionals to health inclusive SEA is clearly needed in many cases and can be seen as a crucial ingredient to an effective decision support instrument. Whilst in theory, health professionals should always be contributing to all SEA Directive based assessments, in practice they are often either not included or are rather passive. Two reasons are likely to be of particular importance in this context: (a) cultural differences between planners, SEA and health experts; resulting in different professional languages being spoken. This may lead to irritations and uneasiness to communicate with each other; and (b) resource constraints, with health experts feeling that they don't have the time to contribute to SEA. Whilst health expertise was provided in all eight SEAs by the body responsible for its preparation (mostly either a consultant or a public authority), only in the Wrexham rapid HIA was a number of health professionals mentioned that had contributed to its preparation.

When looking at the health baseline data provided in the SEAs, in some instances it was disappointing to see that so little was made available. However, in the cases of the Western Saxony Regional Plan and the Leipzig Local Land Use Plan, as well as the Emmen Structure Vision, it was found that a lot of health baseline data were actually available from public administration, however, separately from these plans. Public Health Departments in councils were particularly useful. These published health reports and had an input at various stages of development planning, in the case of Leipzig e.g. the City Development Concept. In this context, an example of particularly good practice was identified during the www search, namely the Social Structure Atlas of Berlin. On over 500 pages, this provides for a detailed account of various social and health indicators. A framework for spatial social infrastructure is introduced, shown in Annex 12. This also shows one of the maps presented on 'status and dynamics'. These data are particularly useful for conducting health inclusive SEA.

Guidance and institutional support play an important role in facilitating effective health inclusive SEA. More recently, specific guidance has started to be prepared, including the United Kingdom Department of Health 2008 draft Guidance on Health in strategic environmental assessment. In Wales, the Health Impact Assessment Support Unit appears to be playing a particularly vital role. In addition reports on how health can be effectively considered in SEA are of importance. This includes e.g. the Dutch RIVM 2005 report on health in EIA and SEA, the Austrian ANIDEA 2004 Report on health impact assessment, and the UNECE Resource Manual to Support Application of the Protocol on SEA – Annex/Chapter A7: Health. Converting this to more specific guidance could help facilitating more effective health inclusive SEA.

An effective monitoring system is crucial for effective implementation of the measures and recommendations brought forward in health inclusive SEA. Whilst all eight SEAs mention indicators to be used in monitoring, they are not devising full monitoring programmes. Opposite to the other seven SEAs, the Czech Operational Programme SEA defined criteria for evaluation of those projects later applying to be funded under the umbrella of the Operational Programme. The preparation of a health inclusive assessment framework for later projects could facilitate the more consistent consideration of health aspects.

Conclusions

In this report, eight EC Directive based SEAs from four sectors from five EU Member States were analysed. Four of these were local level plans and one each was prepared at the local regional (county) level, the regional level and the national level. Whilst all of them cover important physical and natural aspects that are related to health, only four also cover social and partly behavioural aspects to a meaningful extent. However, whilst these are included in the baseline data presented in SEA, their use in the actual assessment of options and impacts has remained limited. Four of the eight SEAs had been mentioned either in the professional literature or by experts as examples of good practice. These were found to indeed include elements of good practice. However, weaknesses were also identified. These include e.g. an insufficient consideration of good baseline data in impact assessment or a quasi ex-post use of HIA only. Furthermore, whilst the four cases that represent 'average' practice were found to have a range of weaknesses – in particular a lack of appropriately addressing social and behavioural aspects – they also had strengths. These include e.g. the actual use of the baseline data in later impact assessment and the quantification of impacts.

Strengths and weaknesses, however, cannot be seen in isolation, but may, it appears, be partly explained by the overall context within which SEA is applied. Thus, discretionary planning appears to support – at least potentially – the consideration of various aspects that may go beyond those traditionally considered. Whilst legalistic planning traditions appear to lead to a limitation of the factors for assessment to those legally required, they often appear to be used subsequently more consistently.

We suggest that the factors that enable significant impacts on human health to be effectively considered in SEA fall into three categories: institutional, methodological and process:

- **institutional**
  - institutional links between plan or policy authors and health authorities;
  - institutional support by a dedicated body or commission;
  - the involvement of health professionals and stakeholders in the assessment process;
- **methodological**
  - a clear distinction between those aspects that are significant for health and those that are not;
  - the consideration of social and behavioural factors as well as physical and environmental factors;
- **procedural**
  - the use of SEA as an instrument for integration, aiming to achieve consistency of aims, objectives and proposed action of different decision tiers and sectors;
  - the coordination with other assessment tools if those are used;
  - the application of assessment when no decision on preferred aspects has been made (pro-active approach); and
  - the release of specific guidance.

Barriers can be said to include the absence of the factors mentioned above. Furthermore, institutional fragmentation can be a barrier to health inclusive SEA. However, it is also important to stress that the problems outlined in the report, as well as the facilitating factors and barriers are not specific to health inclusive SEA. Similarly, these would apply to other factors and assessment instruments.

What is clear from the analysis provided in this report, is that health related factors are considered in EC Directive based SEA. However, work remains to ensure that planning systems can effectively deliver health inclusive policies, plans and programmes.

References of the analysed SEA cases

1 Sustainability appraisal (SA) for the Peterborough City Council Development Plan Documents (DPDs) scoping report of December 2006 and core strategy preferred options report of May 2008: *http://www.peterborough.gov.uk/pdf/env-pla-corestrat-sascopingreport-final-peterboroughscopingreportdecember2006.pdf*

2 SEA of the Peterborough Local Transport Plan (LTP) 2 of January 2006; and the associated Health Impact Review (HIR): *http://www.peterborough.gov.uk/page-4536 and http://www.peterborough.gov.uk/PDF/trans-plan-hirreview.pdf*

3 SEA for the Regional Plan of Western Saxony of 2008: *http://www.rpv-westsachsen.de/*

4 SEA for the local statutory land use plan (*Flächennutzungsplan – FNP*) of Leipzig of 2005: *http://www.leipzig.de/de/buerger/stadtentw/fnp/*

5 SEA (*plan EIA*) for the structure vision (*structuurvisie*) of the town of Emmen of December 2007: *http://www.emmen.nl/md/297/Planmer%20Structuurvisie%20Emmen%202020.pdf?sid=797d280605606d6639c3c3b9452accb3*

6 Sustainability appraisal (SA) of the scoping report and the key issues and strategy options of the Wrexham Local Development Plan of December 2006; and the associated 'rapid HIA' of March 2008: *http://www.wrexham.gov.uk/english/planning_portal/plan_policy/local_development_plan.htm* and *http://www.wales.nhs.uk/sites3/Documents/522/LDP%20Wxm%20HIA%20finaldraftmarch2008.pdf*

7 SEA of the Vienna Waste Management Plan of July 2001: *http://www.wien.gv.at/ma48/sup/index.htm*

8 SEA of the Czech Operational Programme Enterprise and Innovation of June 2006: *http://www.mpo.cz/en/business-support/opei/*

Annex 2
HEALTH AND THE UNECE PROTOCOL ON STRATEGIC ENVIRONMENTAL ASSESSMENT

Nicholas Bonvoisin
United Nations Economic Commission for Europe, Geneva
The opinions, interpretations and conclusions expressed in this paper are those of the author and do not necessarily represent the views of the United Nations or of its Member States.

Background

The United Nations Economic Commission for Europe (UNECE) supported the negotiation of, and provides the secretariat for, the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991). The Convention came into force in 1997 and at the time of writing (1 June 2009) has 42 Parties, including the European Community.

In 2003, the Convention was supplemented by a protocol on strategic environmental assessment (SEA). The Protocol has been signed by 37 member States of UNECE across Europe and the Caucasus, as well as by the European Community. Nine of those States, plus the European Community, have ratified the Protocol. However, 16 States need to ratify the Protocol for it to enter into force; this is expected to occur in 2010.

Differences from European Union Directive

There are several important differences between the Protocol and the European Union (EU) Directive on SEA[22].

Firstly, though many States in the EU, in the European Economic Area, and beyond, apply the Directive, the Protocol is open to all UNECE member States and, once in force, will be open to all United Nations Member States[23]. It is a potentially global treaty on SEA.

Secondly, the Protocol's provision on transboundary consultations (article 10) will allow for such consultations between EU Member States and other States Party to the Protocol.

Thirdly, the Protocol includes a provision (article 13) requiring that Parties endeavour to consider and integrate environmental, including health, concerns in the preparation of policies and legislation. In addition, each Party must report[24] on its application of this provision. This is a mandatory requirement of the Protocol.

In addition, there are provisions for optional public participation in the screening of plans and programmes (significance determination) and when determining the relevant information to be included in the environmental report (scoping).
Finally, the Protocol places a special emphasis on health, notably as a result of the involvement of WHO and national health ministries in the negotiation of the Protocol.

[22] 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.
[23] Subject to approval by the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol (the governing body under the Protocol).
[24] Report to the Meeting of the Parties to the Convention serving as the Meeting of the Parties to the Protocol.

Health and the Protocol

The Protocol provides for the consideration of health as an integral part of SEA of plans and programmes. The text of the Protocol makes reference to the 'environment, including health' throughout and provides for the mandatory consultation of health authorities.

Relevant health issues or factors that need to be considered within an SEA are identified for each plan or programme, taking into account the results of consultation of relevant environmental and health authorities.

Resource Manual

The signatories to the Protocol, with the support of UNECE and the Regional Environment Center for central and eastern Europe, have developed a resource manual to support application of the Protocol on SEA. This development was helped by numerous contributors and overseen, and with important input from, a small editorial group. The group comprised representatives of Austria, the Netherlands, the United Kingdom, the European Commission and the United Nations Development Programme.

The draft final resource manual is available on the Internet, together with many additional resources. It is available in English and Russian, though the Russian version has not been maintained. The resource manual awaits a decision on its status by the governing body of the Protocol, once in force.

The resource manual has been supplemented by a section on health, though it has yet to be decided whether this is a chapter in or an annex to the resource manual. The health section is intended to be useful to:

- SEA practitioners wishing to understand potential effects on human health of plans and programmes
- Environmental and health authorities from whom information and advice may be sought or which wish to ensure health issues are fully addressed

The health section includes information on possible practical considerations in four stages in SEA under the Protocol:

- Determination of significant health effects
- Consultation of environmental and health authorities
- Assessment of expected impacts on health, including both qualitative and quantitative assessment of health effects
- Scoping and preparation of the environmental report

Notably the health section suggests that relevant authorities might find useful to consider the Barton & Grant (2006) framework of determinants of health.
The health section also discusses at some length various uncertainties and limitations in the consideration of health, in particular that:

- Pathways between factors in the physical environment and health outcomes can be complex and take place over long timescales
- There are significant issues in relation to the relevance to SEA of available data on health, which are collected for different purposes and are often at too high a level of generality

- Focus of SEA under the Protocol is on the physical environment but, as practice with applying Protocol develops, it is anticipated that more complex interactions between physical, social and behavioural environments might be assessed in some countries
- It is not realistic to expect authorities carrying out SEA to make precise or detailed predictions about potential effects, either beneficial or harmful, of their plans and programmes on health.

Questions raised by WHO

A number of questions were raised by WHO in advance of the workshop. Though these questions related primarily to practical experiences, most could also be answered with reference to the Protocol and its resource manual. These answers are presented below.

There is no further definition of health in Protocol. However, the resource manual focuses on the physical environment, while leaving the door open to social and behavioural aspects.

The Protocol as a legal framework provides the driver for the consideration of health aspects, obliging authorities and practitioners to develop practical approaches.

Nonetheless, there are numerous barriers to the consideration of health:

- Institutional – with generally very limited capacity at local level to address health aspects
- Data – having limited relevance at the local level
- Scientific – the need for proven links between development activities and health effects. Governments may be wary of basing decisions on effects that are not proven
- Legal – some Governments may also be wary of basing decisions on studies that go beyond legal requirements

In addition the term ‘HIA’ (health impact assessment) may lead to misunderstanding, even if HIA is fully integrated into SEA, as it may cause administrative confusion and meet resistance, as well as raising legal doubts.

To include health aspects further, good practice examples are need; these need to be readily available and easily accessible. Further, there may be a need for more guidance, particularly on simple tools for use with limited data and limited skills, including in situations where a non-health expert takes on the responsibility for the consideration of health in the absence of health professionals.

However, any WHO guidance on health and SEA should not be related specifically to the Protocol on SEA, so as to avoid any misunderstanding or even confusion among practitioners.

Annex 3
HEALTH IN SEA OF SPATIAL PLANNING: THE DANISH GUIDANCE AND PRACTICE

Lone Kørnøv, Associate Professor, Ph.D.
Aalborg University, Denmark

SEA in Denmark

The EU Directive 2001/42 was implemented in Denmark in 2004 in an independent Act for all plans and programmes covered by the directive Act No. 316 of 5th May 2004. Due to a letter of formal notice from the EU Commission, a new law (No. 250 of 31st March 2009) complying with the criticism has been implemented in 2009. The most significant change is that the scope of plans and programmes is extended and now includes plans and programmes which are being prepared as a basis for administration.

Since the implementation of the act, thousands of screenings have been undertaken and more than 150 environmental reports have been written. In 2006, national guidance was published, and a 'best practice guide' with good examples was published in 2007. In both documents the broad concept of the environment, including human health, is emphasized as new and important for planning. The predominant scope and experience up till now is SEA within spatial planning.

Human health and the Danish national SEA guidance

The broad environmental concept, hence also the parameter 'human health', is emphasized in the national SEA guidance. The guidance also underlines that the law is new in that respect compared to other environmental and planning legislation: "The environmental concept is one of the broadest within environmental and planning legislation. The legal requirements secures, that this broad concept of environment must be considered, if the plans or programme prepared are covered by the law on environmental assessment of plans and programmes. This applies despite the law controlling planning defining a narrower concept of the environment." (Ministry of Environment, 2006, own translation).

There is no specific definition of human health in the guidance. However, the guidance list examples of objectives related to e.g. human health. It is stated that the objectives are examples only and thereby can be used as a point of departure by the authorities in their work with SEA. The objectives linked to human health are: Prevent and hinder noise pollution, secure groundwater quality, secure bathing water quality, minimise air pollution in cities, secure healthy housing, support traffic safety, secure opportunities for recreation and outdoor life, and secure a safe radiation level. In connection to other parameters there are also objectives concerning human health, such as preventing leaching or accumulation of environmental injurious components in soil (soil), and preventing pesticide leaching into the groundwater (water).

Regarding organization of the environmental assessment work, the guide emphasizes that "An environmental assessment is characterized by touching upon a broad spectrum of environmental issues, and by moving into several departmental and administrational areas. Therefore it is necessary to organize the environmental assessment with a certain degree of interdisciplinarity." The guide does not recommend a certain organizational model. Instead the necessary competences of a person or a team are presented as a recommendation, hereunder the necessity

of a person or team “having an adequate professionalism and experience to assess environmental impacts based upon a broad environmental concept”.

Assessment of human health in SEA practice

Answering the question of how impacts on human health are assessed in SEA practice is based upon a documentary analysis of 100 environmental reports. All the reports cover environmental assessment of spatial plans at the two levels of spatial planning: municipal plans and local plans. The municipal plan is the comprehensive and coordinated plan for land use in towns and in the countryside, and the local plan is for smaller parts of the municipality legally binding for each individual and property owner.

Interpretation of human health in practice

The analysis shows that environmental assessment of municipal plans includes more health aspects than at the local level assessment, see Table 5.

Table 5: Average and variation of number of health aspects in reports for municipal and local plans.

	Average number	Minimum	Maximum
Municipal plans	3,7 health aspects	0 health aspects	8 health aspects
Local plans	2,6 health aspects	0 health aspect	9 health aspects

Fig. 2 and show the results from analysing included health aspects in the 25 environmental reports for municipal plans and 75 reports for local plans. The most common health aspects assessed are: Noise, drinking-water, air pollution, recreation/out-door life and traffic safety.

Fig. 2: Included health aspects in environmental reports of municipal plans

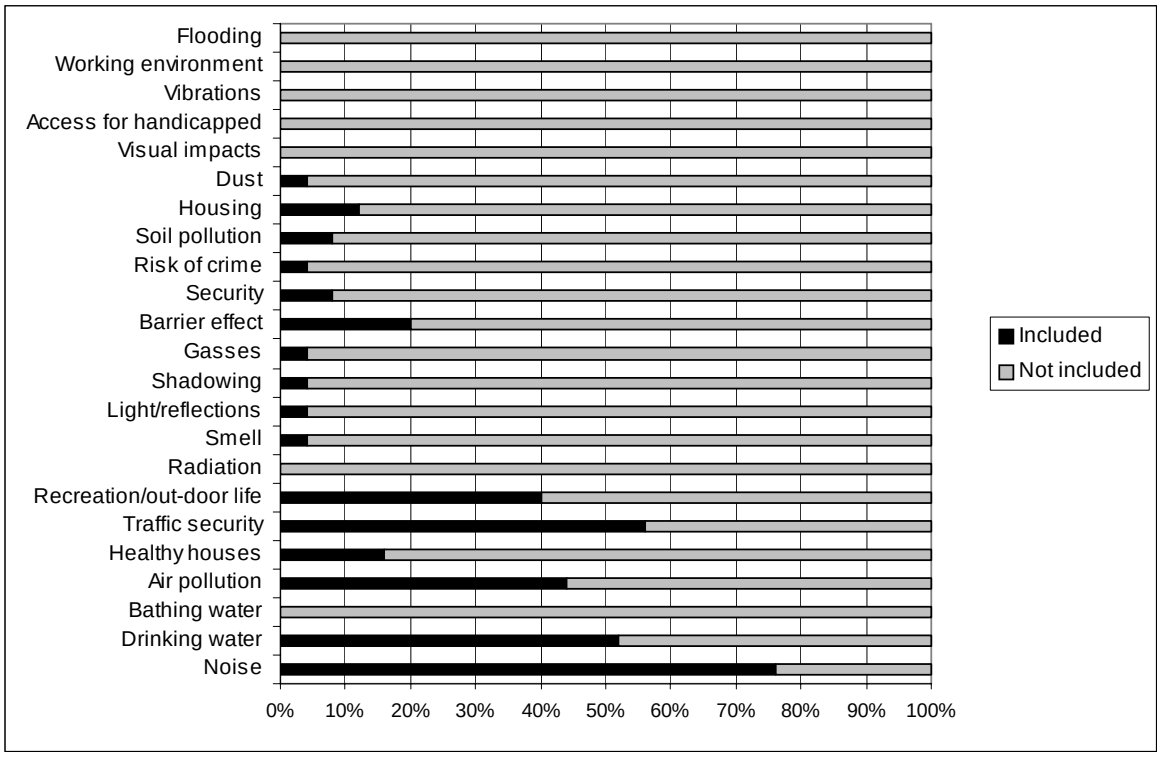
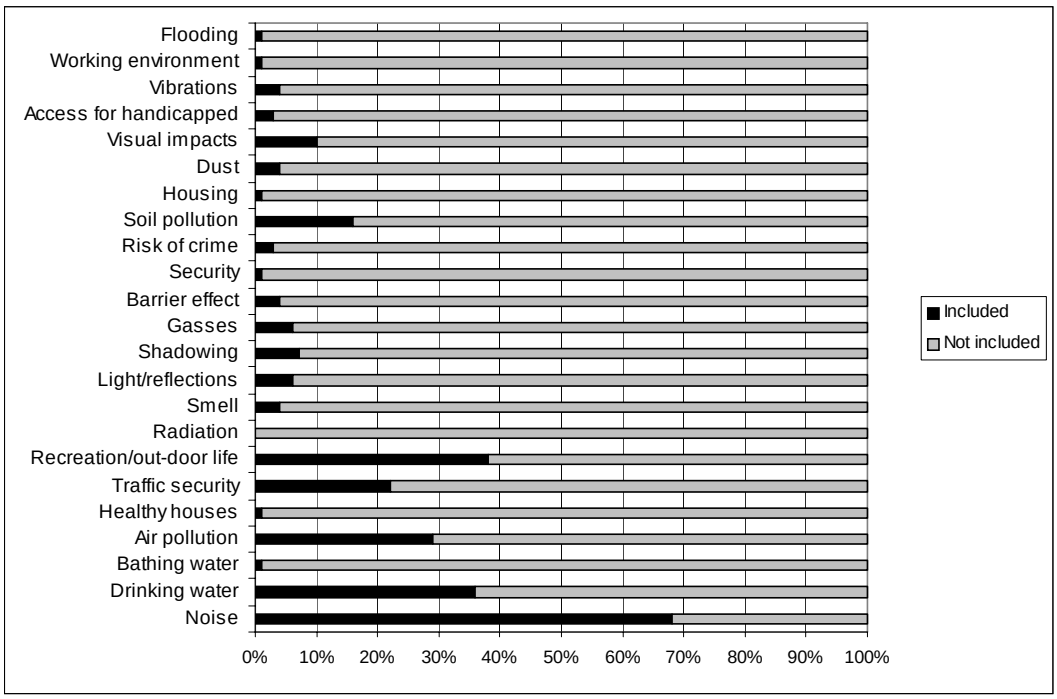
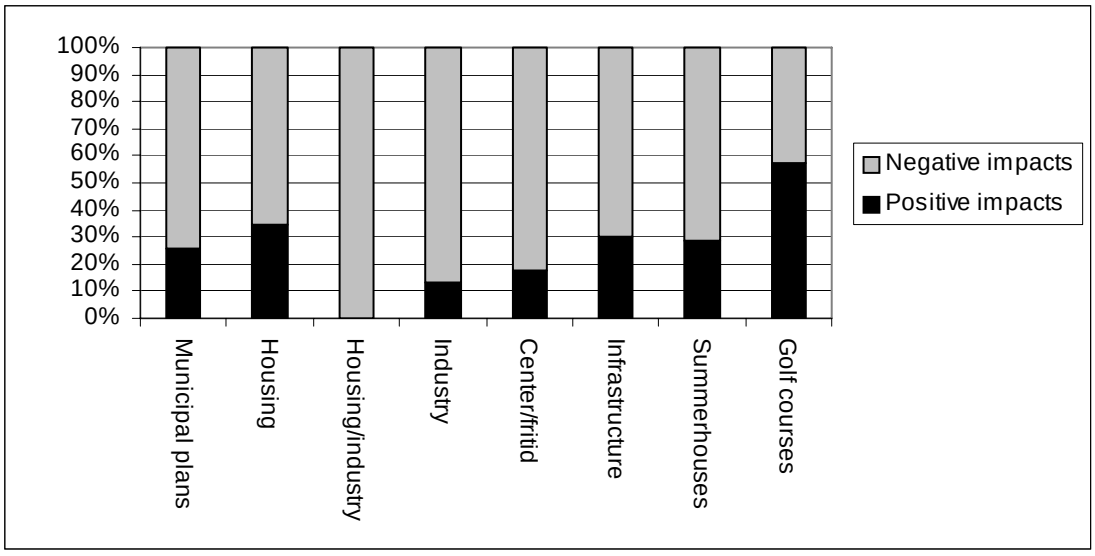


Fig. 3: Included health aspects in environmental reports of local plans.



The SEA reports include both the positive and negative impacts on human health. Depending upon the planning theme, the distribution between positive and negative impacts varies, see Fig. 4.

Fig. 4: Positive and negative health impacts. The first row concerns SEA of municipal plans and the seven other rows concerns SEA of local plans within the different planning themes.



Qualitative assessment dominates SEA practice

In more than 80% of the cases the assessment is qualitative. With regard to different planning themes the review shows a difference between themes, and especially local plans for infrastructure more often uses quantitative assessments in the reports than the other types of themes. The investigated reports covered a road construction, wind farms and harbour extension.

These types, roads, wind farms and harbour extension, have often been assessed at the project level (EIA) and the experience from here might be the reason for more quantitative assessment of health aspects (noise, shadowing, air pollution, traffic).

Distributional assessment lacks

Analysing the environmental reports, though, reveals no examples of a distributional consideration in any of the reports. None of the reports include an assessment of distribution such as: Which groups (age, gender, social and health status etc.) and geographical areas are likely to be affected? And how significant is the impact compared to the existing situation? Therefore the authorities miss the opportunity to assess distribution and thereby inform equity in decisions.

Human health is presented differently in the SEA reports

The presentation in the environmental reports can either support or hinder a focus on human health aspects. In the Act on environmental assessment the different environmental themes are listed as equally important to consider. It could therefore be expected that authorities treat each aspect under its own heading and not as part of other themes. However, in only 7% of the reports, health is treated under its own independent heading, and in 22% treated under both an independent health theme and as part of another theme. In 19% health was part of one other theme only and in 52% health impacts were presented as part of several other themes. Treating health under several themes makes it difficult to obtain an overview of the health impacts.

Transport is the most influential determinants for health impacts

For municipal plans the health impacts are primarily assessed as being a consequence of transport, see Table 6. This is due to more car traffic generating e.g. increased noise, air pollution in cities and barriers and decreased security. When it comes to positive impacts determined by transport, they are a consequence of planning which provides better access to bicycling, walking and public transport. The second most referred determinant at the municipal planning level is urbanization.

Table 6: Determinants for health impacts in municipal plans.

Determinants	Municipal plans
Transport	61%
Industry	7%
Housing	10%
Waste	2%
Recreation/Sport	7%
Urbanization	13%
Sum	100%

Looking into determinants for the potential health impacts assessed in the reports at the local planning level, a difference between the planning themes can be seen. Transport is the most influential determinant with both positive and negative impacts for all themes, and climate change is the most infrequent determinant referred to in the environmental reports.

Conclusion and discussion

The analysis of the Danish SEA guidance and the municipal SEA practice also shows that health is receiving more of a focus both in guidance and in practice. The guidance, regarding assessment of impacts on human health: underlines the importance of the broad concept of the environment, hereunder human health, defines human health though narrow compared to WHO definition, while it focuses on environmental variables only, provides examples of objectives related to human health, and recommends that the organization of the SEA work must be cross disciplinarily to secure assessment of parameters within the broad environmental concept.

The SEA practice shows that health as a parameter is included in planning and assessment practice. The analysis, however, also points to methodological and institutional elements that can and should be improved in future practice:

- The assessments done needs to be qualified by explaining the nature and significance of the assessed health impacts and by including the distributional aspects of human health impacts.
- The authorities need to treat human health as a separate element in the SEA and therefore present the assessment of impacts on health under its own heading in the environmental report. This will also ease the access for politicians and the public interested in health issues.
- A conscious organization of the SEA work, including representation from the health sector, is needed. The national guidance suggests a cross-disciplinary organization of the SEA work. However, only one authority explicitly refers to the health department in the report.

Some possible paths can be:

- More explicit guidance showing relations between human health and sectors (spatial planning, energy, water etc.) – e.g. formulation of sector specific health objectives to strive and look for in the SEA work
- Ease access by securing an independent focus in the environmental reports.
- Conscious organization of the SEA work, which can be made explicit and part of the guidance (who? when? why? and how?)

Annex 4
HIA AND SEA EXPERIENCE IN LITHUANIA

Ingrida Zurlyte
State Environmental Health Centre under the Ministry of Health, Vilnius, Lithuania

The experience with environmental impact assessment (EIA) is more than 10 years old in Lithuania. United Nations Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention, 1991) has been ratified in Lithuania in 1999[25]. Lithuania has joined the protocol on SEA in 2003 but has not ratified it yet. strategic environmental assessment (SEA) has been introduced in Lithuania in 2004 – 2006 through transposition of the EU SEA Directive 2001/42/EC on EIA of certain plans and programs into national legislation. Main objects for SEA are plans and programs on policy formulation (sectoral and cross-sectoral); plans and programs on certain types of economic activities; plans and programs on principals of territorial use (general and regional spatial planning documents).

Broader discussions on health aspects consideration in EIA and SEA as well as on HIA itself have started in Lithuania within participation in a number of international projects and important capacity building activities.

Table 7: International projects with participation of Lithuanian health experts

Year	Project title and main partners
2000-2001	WHO and DEPA Project "Implementing National Environmental Health Action Plans in the Czech Republic, Estonia, Lithuania, Poland and Slovakia", Work package on environmental health impact assessment (State Environmental Health Centre)
2002-2003	PHARE Twinning Project "Strengthening Public Health Management in compliance with EU requirements" (health impact assessment /risk assessment) components (partners – the Netherlands, Germany NRW, training courses with WHO Regional Office for Europe, Rome, State Environmental Health Centre)
2004	WHO/ECEH three days course on environmental health impact assessment (in Vilnius, WHO Regional Office for Europe, Rome, State Environmental Health Centre)
2005–2007	European Observatory on Health Systems and Policies, WHO Project „The effectiveness of health impact assessment" (Observatory; Kaunas Medical University)
2005–2008	EC Public Health Programme Project „health impact assessment in New Member States and Accession Countries" (HIA-NMAC) (University of Southern Denmark, State Environmental Health Centre)
2009–2012	EC Health Programme Project „Risk Assessment from Policy to Impact Dimension" (RAPID) (University of Southern Denmark, State Environmental Health Centre)

In 2002 Seimas (Parliament) has adopted the Law on Public Health Care, amended in 2007, in which concept of public health impact assessment was introduced and HIA defined as the process of determination, description and evaluation of possible impact of planned economic activity on public health. According to the Law, HIA of proposed economic activities shall be carried out within the procedure specified in the law on environmental impact assessment, meaning that HIA is intended to be an integrated part of EIA. Methodological regulations for the HIA shall be drafted by the Ministry of Health or institution authorised thereby. For cases which

[25] Law on ratification of the Convention of 1999 on Environmental Impact Assessment in a Transboundary Context, *Official Gazette*, 1999, No 92-2684

are not foreseen in the law on environmental impact assessment, procedures for HIA shall be set by the Government or an authorised institution, meaning that separate HIA procedure might be the case too. Though the Law on Public Health Care was passed in 2002, provisions for HIA have started to be implemented in 2004 when all necessary by-law acts have been adopted. These by law acts included the list of economic activities not included in the Law on EIA, procedure for HIA for cases not foreseen in the Law on EIA, HIA methodological instructions and requirements for natural and legal persons conducting HIA (licensing requirements).

Comprehensive evaluation of how legal provisions are actually implemented and what is the quality of HIAs or EIAs including health has not been carried out yet. Evaluation of EIA effectiveness in Lithuania (Kruopiene et al. 2008) revealed that the main shortcomings of EIA process in Lithuania are: subjectivity in forecasting environmental effects; insufficient consideration of alternatives, politicization of the process and low competence of authorities involved. It was recommended to have thorough knowledge of EIA procedures and legal requirements, but in case of forecasting the effects and evaluation of the results the recognized experts are to be involved. It was recommended to prepare the guidelines for participation of the authorities concerned in the process of EIA, to train their staff on EIA process etc. It was suggested to introduce a licensing system for EIA practitioners, to set a network of experts capable of contributing to EIA studies.

First evaluation of HIA effectiveness in Lithuania has been carried out in 2007 within the Effectiveness of HIA Project (Stricka et al. 2007). This evaluation outlined a well developed legal process for an HIA in Lithuania, admitted that it is widely used and effective tool for local projects; required more active participation from the local community; pointed out strong emphasis on environmental and that it invites discussion about the overlap between HIA and EIA; admitted that legal requirement for HIA puts health top on the agenda when new economic activities are planned; HIA legal basis is dedicated to analyse planned economic activities on single project level, in many cases alternatives are not considered any more in that stage; PH culture is in its infancy and all levels including public have to recognize their role in health improvement.

While health considerations started being integrated into EIAs, due to HIA definition in national legislation, narrowing the whole concept to the assessment of planned economic activities, broader integration of health aspects in SEAs still have to be considered. Involvement of health sector in SEA procedures is limited to reviewing SEA screening and scoping documents and reports. They can provide suggestions and comments. Assigned health institutions which are involved as SEA subjects are the Ministry of Health, State Public Health Service under the Ministry of Health (SPHS) and regional public health centres. According to the report on annual activities of the SPHS and its subordinated regional institutions (State Public Health Service) for 2008 (see Table 8), number of SEA screening documents and SEA reports reviewed by public health authorities has increased.

There is no systematic analysis of health considerations in SEAs in Lithuania. Quick review of randomly selected SEA reports available on the web, has shown that recent SEAs within Espoo Convention framework are on the Nordic stream offshore natural gas pipelines; hydroelectric power plant on Neman River in Grodno and radioactive wastes deposition site in Lithuania.

Table 8: Participation of public health authorities in SEA and EIA 2007 and 2008 in Lithuania

Participation of public health authorities in SEA/EIA	2007	2008
Review of SEA screening documents	88	153
Review of SEA scoping documents	47	21
Review of SEA reports	34	41
Received screening decisions on EIA	201	233
Asked for re-considering EIA screening decision	13	9
Review of EIA scoping document	159	74
Review of EIA reports	127	61 (5 rejected)
HIA screening procedures		606 (92 of them – HIA obligatory)
Review of HIA reports	145	119

Source: Annual report of the State Public Health Service under the Ministry of Health of Lithuania, 2008

Other selected examples were looked through such as Action programmes on the use of EU structural support in 2007-2013, Household waste incineration feasibility project documentation, National auto tourism routes special plan and few municipal and regional master plans. If health is considered at all, usually it is assessed either in very general descriptive manner, not comprehensive, and only positive impacts identified, or inhabitants are included as objects of impact and scoring is used (-2 – +2) for impact demonstration. Some SEAs try to use health statistics others propose quantitative health impact assessment in further stages of planning process. Such statements as “if environmental quality will improve, health will improve or limit values for health will not be exceeded” are very common in SEAs of territorial plans. Further citation from one of SEAs of municipal master plan demonstrates the attitude of those conducting SEAs to possibility to assess health consequences of certain plans: “As there is no reliable public health monitoring information, assessment of probable changes of health of inhabitants of municipality D related to conceptual solutions of the master plan would not be objective, so neither significant negative, neither significant positive consequences are foreseen”.

For better health integration into SEA there is a need for training and capacity building in quantitative and qualitative methods including how to deal with uncertainties and communicate this information; capacity building is needed for health and non-health sector experts on broader health determinants too. Local level plans and programs might be more appropriate to start demonstration projects for health integration into SEA as national level plans are usually broader and vaguer. Better scoping is needed with health considerations included. Support of international organizations such as WHO, EC would be helpful in promoting of SEA including health and participation in international/national networks, sharing good examples. Methodological guidelines specific for types of activities, if possible, for example for spatial planning documents, might health to include health in SEA. Though, probably the most important, is to reach common understanding of planners, assessors and health experts on environmental, sustainability and social aspects and their possible impacts on human health.

Annex 5

"RUHR" METROPOLITAN AREA IN GERMANY: RAPID HIA OF NOVEL SPATIAL PLANNING

Rainer Fehr, Odile Mekel, Rudolf Welteke
NRW Institute of Health and Work (LIGA.NRW), Bielefeld, Germany

Starting out with a Research & Development project in 2000, major Ruhr area cities contractually agreed to coordinate their spatial planning. One key strand of this cooperation refers to the "Joint regional land utilization plan Ruhr" (*Regionaler Flaechennutzungsplan Ruhr, RFNP*) as a novel approach of joint spatial planning. After two waves of public and stake-holder involvement, the City Councils of the 6 participating cities in 2010 gave final approval of the plan.

In this procedure, LIGA.NRW was asked to act as "Institution responsible for public concerns" (*Traeger oeffentlicher Belange, TOEB*) and to support the coverage of health aspects. We provided a rapid health impact assessment, related also to strategic environmental assessment (SEA). Subsequently, some of the results of this HIA were incorporated into the plan. This paper outlines the planning process, briefly describes our input into the planning process and the reactions received, and draws conclusions, especially on how to strengthen the position of the health sector.

The participating cities (Bochum, Essen, Gelsenkirchen, Herne, Muelheim/Ruhr, Oberhausen, pop .1.8 M) formerly were centers of heavy industry, now undergoing conversion. The comprehensive and ambitious RFNP planning process is reflected in a number of different web sites and notifications. The draft plan of 2008 included: Proposed resolution (*Beschlussvorlage*), map (*Plankarte*), rationale (*Begruendung*) with 10 additional maps (*Erlaeuterungskarten*), Environmental report (*Umweltbericht*) (required by strategic environmental assessment, SEA) with 12 thematic maps (*Themenkarten*), 7 summaries of characteristics (*Steckbriefe*), several further summaries, listings, overviews and synopses (45 items). This was the basis for the Rapid HIA. The final plan consists of 43 items.

Health issues discussed in the process include physical exposures (pollutants etc.), hazardous incidents, waste disposal, green spaces, etc. The LIGA.NRW contribution refers to a variety of substantive and procedural themes. Within the Rapid HIA, LIGA.NRW derived the following recommendations:

- existing local health reports should be utilized to describe the status quo, to derive health targets, to identify areas of particular concern, and to develop specific recommendations
- the planning document associated with the new land utilization plan should contain a section which is fully devoted to "human health"; the text should include physical exercise, gender issues, and diversity in more detail; existing text passages on environmental risks and resources (incl. noise, recreation and green spaces, etc.) need to be interpreted explicitly with respect to their health implications
- in analogy to other topics, human health should also be discussed in detail in a dedicated subreport or technical paper
- add to concise texts for planning (*Steckbriefe zu planerischen Einzelflaechen*): strengthening the weight of health concerns for fair balancing
- when balancing different targets and values, legal requirements need to be fully exploited, and health issues need to be given adequate weight.

From our involvement in the RFNP planning process, and related others, the following conclusions were drawn: Spatial planning offers a variety of opportunities to promote and protect human health. In Germany, these opportunities are chronically underused ("utilization gap"). Fortunately, there seems to be an emerging consensus among planners and health professionals that these opportunities should be used thoroughly and systematically (closing the utilization gap). Such planning involvement for the sake of health protection and promotion constitutes a key element of regional and local health policy development. Spatial planning could evolve into a major, and universally accepted, approach to health protection and promotion.

The following caveats, however, need to be borne in mind. "Spatial planning" processes – especially in densely populated areas – involve large numbers of institutions, comprehensive public involvement, and considerable numbers of statements and suggestions. For those testifying on health it is a challenge to adequately understand the ramifications of the planning process and to cover the health issues at stake, especially in the absence of standard procedures and tools. For those managing the planning process, it is likewise challenging to evaluate and integrate the multitude of suggestions received. From this perspective, the common "utilization gap" is not surprising, and the efforts required to overcome this may be larger than expected, e.g. development of dedicated local/regional "health plans". Curricula of urban planning and management as well as of public health in academia as well as continued education should be adjusted to include "spatial planning and health".

The public health sector, especially on local/regional level, needs improved technical skills, intensified capacity building, and overall strengthening. Options for improvement currently pursued at LIGA.NRW include:

- nurturing, on local and regional level, the "culture" of qualitative and quantitative, comprehensive health-related analyses as explored, e.g., in a variety of EC-funded HIA projects
- establishing closer connections of HIA with other governance instruments, e.g. health reporting, health conferences, health awards
- developing specific local/regional "health plans" (*Fachplan Gesundheit*), in analogy to other sectoral plans, e.g. housing plan, sports plan, educational plan
- better understanding of commonalities, differences, and interrelationships within the "family" of Impact Assessments.

Annex 6
HEALTH AND SEA – THE SITUATION IN PORTUGAL

Maria Rosário Partidário
IST – Instituto Superior Técnico, Lisbon, Portugal,

SEA in Portugal

Legislation for the environmental assessment of plans and programmes was passed in 2007 to implement the European directive 2001/42/EC. The terms and requirements set are basically in line with those of the directive. However emphasis is made, in the preamble of the decree-law 232/2007 of 15 June, on the need to focus the environmental assessment on key strategic options. This is to ensure that the environmental assessment of plans and programmes addresses, and facilitates, the development of the planning, or programming, concept, strategically anticipating potential effects. This way the environmental assessment is adopting a strategic role, contributing to set up a context for the identification and formulation of final proposals in plans and programmes, rather than addressing the effects of proposals once these are formulated. Subsequently guidance was issued by the Portuguese government, in 2007, to promote the use of strategic-based SEA in all environmental assessments of plans and programmes.

Strategic-based SEA adopts the role of a facilitator of sustainability processes in planning and programme decision-making. It aims at providing direction to planning and programme development focusing on the policy, or strategic, elements in plans and programmes. Strategic-based SEA favours a strong focus on key thematic clusters, develops a systemic analysis of relevant inter-related factors, and avoids descriptive baseline analysis. It places strong emphasis on early scoping, covering a broad range of cross-sectoral issues, yet aiming at a strong focus on few critical factors for decision-making (CFD). The CFD are a key feature of strategic-based SEA and set the essential framework for assessment in every SEA. The CFD express the inter-relationship of multiple sectoral issues that are relevant in each strategic decision-making and ensures assessment in a sustainability context. The CFD are integrated themes that reflect critical uncertainties in the assessment. In strategic-based SEA the CFD are key in ensuring that SEA is strategic, integrated, holistic and transversal.

The identification of CFD is one of the first steps in SEA. It results from the perception of key priorities identified by major stakeholders, confirmed by a rapid analysis of major problems and opportunities. For each CFD assessment criteria are identified which set the extension and scope of each CFD. Each criteria is then expressed through one or more indicators that are used as the quantitative or qualitative measuring tools in SEA. Using this framework, trend analysis and assessment are conducted for each thematic cluster identified as CFD. This provides an interpretation on the potential directions that strategies may follow, in plans and programmes, and what may be strategic opportunities and risks for the environment and sustainability. Based on this interpretation, preferably conducted with extensive stakeholder engagement, governance guidelines are issued for the planning and management of strategies, as well as for institutional framework and monitoring.

Health in the practice of SEA in Portugal

Human health is listed in the cited regulations as one of the key environmental issues to be considered, albeit depending on case-by-case relevance. No extensive review was undertaken so far on the several SEA examples conducted in Portugal that can support a robust analysis on how, and to what extent, health is being considered. However, from personal experience with over 15 cases already completed or currently being conducted, health is always part of the SEA analysis and assessment in a variable way, from a lateral issue that justifies human well-being (for example relating to spatial vulnerability to climate change), to a relevant issue that needs to be properly addressed because it is central in citizens and stakeholders concerns (for example relating to safety issues associated to high-voltage power transmission lines).

Health authorities are also legally identified, in decree-law 232/2007, as institutions with specific environmental responsibilities. At national level DG Health has been involved in institutional consultations. At regional, municipal and local levels regional health authorities are engaged through institutional consultations. Invariably their inputs relate to public health care and accessibility to services and infra-structures, life expectancy and traditional health and demographic indicators (mortality, birth rates, important health problems and relevant diseases, etc.), occasionally with concerns regarding the health conditions of different groups in the community.

Health is currently considered in SEA and also in plans, particularly in spatial plans at municipal and regional levels. Health consideration in plans facilitates considerably the inclusion of health in SEA. Data collected and analysis conducted in plans represents a key source of information for SEA. This is however not yet conducted in a systematic way, which means that often SEA needs to carry on specific health analysis based on standard available indicators. These include access to and capacity of health facilities and infrastructures, social care, differentiation of beneficiaries income, municipal budget and expenses with health, availability and investments in sports facilities. Natural and physical environment as determinants of health are however normally considered in plans and SEA: fresh water quality, groundwater quality, noise, waste, air quality, urban (and buildings) quality and rehabilitation (historical centres), open space, green areas, biophysical space are representative of forms of considering contextual conditions for human well-being. Assessment however is seldom carried out centred on health, unless health is a critical issue for strategic decision-making, in which case health could even become a CFD, as defined.

The behavioural dimension in health is still insufficiently considered, not deliberately but mostly due to insufficient available data. Behaviour can only be assessed through previously meaningfully robust studies or direct interviews with a significant community sample. Not many studies have been carried out in Portugal concerning people’s health behaviour, looking both at risk behaviour or lifestyle options regarding leisure and sports activities, mobility choices, food and beverage consumption and healthy diets, community and neighbourhood social relationships. Occasionally, when such specialized studies are carried out they can be of great benefit to SEA, but they need to be related to the geographical area and community relevant for SEA.

Legal requirements as well as the comprehensive scope of environmental issues in EIA and SEA facilitate the consideration of health related issues. Impact Assessment practice in Portugal, namely with EIA, always considered health through social impact assessment, in socioeconomic impacts and also through environmental quality issues (air, water, noise, waste, odour/smell) In addition legal requirements concerning potential risk activities, such as the Seveso II regulations

determine particular focus on health aspects, particularly concerning exposure and risks. Similarly health has been an issue of concern in urban planning, and has been addressed through the planning of residential zones and housing regulations (e.g. noise, smell, indoor air quality, water supply quality, green areas, residential area/person, disabled facilities, etc.).

Towards improved practice on health inclusive SEA

Health inclusive SEA can be largely improved in Portugal. Health is already in the picture, both in planning and impact assessment, but health impact assessment is yet insufficiently tangible. Existing knowledge on health dimensions and determinants relevant in impact assessment is still scarce, there are institutional and policy weaknesses, as well as insufficient data concerning non-standard indicators. These establish the most relevant barriers to improvement.

Knowledge

Health professionals, in general, are not trained on impact assessment. This limits their capacity to develop health impact assessment approaches and contribute to current EIA and SEA processes. Current concerns regarding health in Portugal are centred around health systems, primary public health care, demographic-based health indicators, access to health infra-structures, noise and air quality exposure. Likewise, impact assessment professionals that are involved in EIA and SEA preparation and evaluation, as well as planning professionals, also have limited technical competences on health. Biophysical analysis related to spatial planning, EIA or SEA are usually carried out in view of conservation of natural and cultural resources, with rather limited analysis and interpretation regarding human well-being. Only social oriented experts touch upon health issues, often in a rather limited way as they are dependent on data and information that need to be available within very strict timelines. Guidelines issued by the DG Health concerning the consideration of health determinants in the EA of spatial local plans are nevertheless attempting to improve the substantive approach to health for these types of municipal and urban spatial plans.

There is therefore an urgent need for capacity-building of health professionals on impact assessment, of planning and impact assessment professionals on health dimensions, and on bringing both groups of professionals to work together, improving dialogues, developing common jargons and joint projects.

Institutional and Policy

There is still a marked divorce between health and environmental institutions in Portugal, despite recent attempts to develop joint agendas. The National Health Plan 2004-2010, under the leadership of the health sector, refers generally to environment but does not mention impact assessment. The National Action Plan for Health and Environment, 2007, under the joint leadership of the environment and health sectors, refers to environment and impacts on health, but no reference is made to any form of impact assessment. Despite these policy initiatives, the health and environmental policy agendas are still distinct, their dialogues basically absent, particularly with reference to impact assessment.

Ownership and accountability regarding impact assessment in the health sector per se is still undefined. Despite legal requirements to consider health in the environmental assessment of plans and programmes, and the incipient involvement of regional health authorities and DG Health in institutional consultations as part of EIA and SEA procedures it is not clear who should be responsible, in the health sector, for establishing policy and ensuring good practice. Health

sector in Portugal is still far from assuming a cross-sectoral role and position required in good practice health impact assessment.

On the other hand there is a strong emphasis on EIA and SEA legal procedures, and institutions tend to limit their contributions to what is already known, and strictly legally required. This does not help efforts to improve consideration of health, which require research, development of joint policy agendas and baseline studies that can provide medium term references to health consideration in impact assessment.

Finally there is an urgent need to create awareness on the importance of integration of impact assessment instruments, particular on how health impact assessment can be shaped and mainstreamed in existing legally based instruments such as EIA and SEA. Adding a separate health impact assessment (HIA) instrument to the constellation of legally required impact assessment instruments is likely to discourage positive mainstreaming intentions, oppose integrative approaches that enable timely inclusion of health consideration in the development processes, and consequently create additional institutional and economic burdens.

Health impact assessment relevant data

Relevant health issues for health impact assessment are identified as policy priorities in macro-policy instruments, such as in the:

- National Policy Plan for Spatial Planning (2007) that refer to health care, national health system, minority groups, sports;
- National Sustainable Development Strategy (2005) that refer to the same above mentioned issues, as well as toxic substances, noise, air and water quality impact on health, the set of health & education & training & social security issues, health & food safety, lifestyles (health & personal care & recreation), tourism, health cluster/industry;
- National Action Plan for Health and Environment (2007), where priority is given to wastes contamination of air, water & groundwater, human exposure to risks, programmatic actions on air, water, soil & sediments, toxic substances, food, built environment, radiation, extreme events, climate change and depletion of the ozone layer regarding impacts on health;
- National Health Plan (2004), particularly the need for partnerships with environmental authorities, disabled-adapted buildings, healthy environments in schools, air quality monitoring, genetic modified organisms, urban and built environment;
- Guidelines issued in October 2009 by the DG Health concerning the consideration of health determinants in the environmental assessment of spatial municipal and urban plans.

However, when it comes to available data, the situation is more limited and most indicators are mainly available at the national and regional levels (seven regions).

Portugal health statistics (2001) provides basic regional level indicators regarding the environment only for water and municipal solid waste. Of course other data can be indirectly used after socioeconomic and demographic indicators, alcohol, tobacco and drugs consumption, main diseases and self-perception on health status, however also available only at national and regional level.

The Regional Development Index provides data on cohesion and environmental indicators, including life expectancy at birth, child mortality, family income, water supply, wastewater, nr doctor/1000hab, pharmacies&dispensers/1000hab, beneficiaries of social income and social

security, criminality, water and air quality, urban waste, wastewater, pollutants emissions with an impact on public health/km2, pop served by wastewater treatment plants.

Suggested priorities for further consideration of health in SEA

Based on the above experience in Portugal, the following are some of the actions that appear to be priorities for further consideration of health aspects in SEA:

1. Develop capacity-building initiatives on impact assessment for health professionals and on health for impact assessment and planning professionals.
2. Promote professional and institutional cooperation modes of working together between health and environmental sectors.
3. Improve dialogues and invest on common terminologies, which can be easily achieved with increased capacity-building.
4. Favour systemic approaches and think outside the box – create a culture of strategic thinking, linking what is relevant, irrespective of thematic ‘boxes’, which can also be achieved by reducing the legal and procedural emphasis.
5. Train professionals that can handle data and perform analysis for decision-making needs.
6. Investment on workable standard tools and processes (metrics, timings…) and avoid duplication that discourage governments and sectoral institutions from innovative practices.
7. Provide good and bad case-examples that illustrate improvement paths and what should be avoided.

Annex 7
HEALTH IN DUTCH EIA & SEA: THE NCEAS PERSPECTIVE

Rob Verheem
mer – Netherlands Commission for Environmental Assessment, Utrecht, The Netherlands

Current situation

In SEA currently relatively little experience exists with the integration of health issues in the assessment; most experience is with EIA. But even at project level as yet no generally accepted assessment approach exists. In most EIA cases, the current focus of health impact assessment is on compliance to noise and air pollution standards.

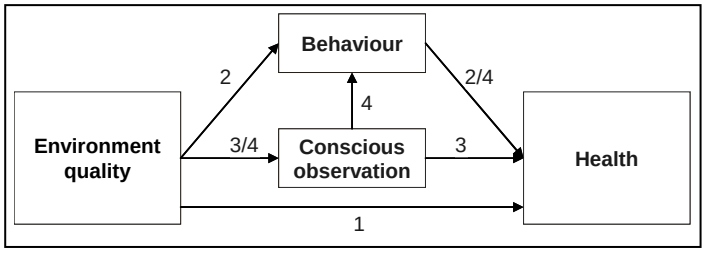
However, a number of recent national government plans and initiatives emphasize the need to strengthen the integration of health in local policy[26]. Particularly relevant for EIA and SEA is the expressed need to give more attention to health issues in physical planning, including the creation or protection of green and recreational areas, and the need to improve information on the link between health and environment.

Netherlands Commission for Environmental Assessment (NCEA) response

Reacting to the government's new policy, the NCEA recently started to pay more attention to health issues in its advising[27]. As a start a meeting was convened of an expert group of both environment and health experts, trying to reach consensus on how to better integrate health in EIA and SEA. The group took the below Fig. 5 (PM: ref) as a starting point for its advice, acknowledging that health may be linked to environmental quality through 4 main routes:

1. direct: e.g. pollution
2. indirect, through changed behaviour: e.g. locating work area close to housing area may stimulate cycling to work rather than use a car
3. indirect, through conscious observation: e.g. people living close to nuclear power stations may suffer health impacts because they are afraid
4. indirect, through a combination of observation and behaviour: e.g. if it smells bad outside, one may close the window, causing deterioration of in house air quality

Fig. 5: Main routes to link health and environmental quality



Source: Commers M, Gottlieb N, Kok G (2006)

[26] For example: see 'Actieprogramma gezondheid en milieu 2002 – 2006' and 'Nationale Aanpak Milieu en gezondheid 2008 – 2012'.

[27] Also, in cooperation with RIVM a guidance document was developed on better integration of health in environmental assessment. See: 'Meer aandacht voor gezondheid in milieueffectrapportage; Alphen T van; Broeder L den, Storm I; RIVM; 2008 – http://www.rivm.nl/bibliotheek/rapporten/270001002.html. On basis of this guidance a broader web based guidance was developed: 'Guide to health in spatial planning' – dhttp://www.gezondheidinmer.nl/isurveyuk/

After careful deliberation, the expert group advised the NCEA to apply the following priorities in its advising on EIA and SEA.

When to give special attention to health?

Special attention should be given in all EIA's and SEA's for projects or plans:

- for infrastructure, airports or industry (including intensive farming) close to where people live
- for sitting and design of housing concentrations
- where people are seriously concerned about their health (regardless of type of project or plan)

What are health priorities to assess?

Once it has decided that EIA and SEA should include health assessment, the focus of this assessment should be on:

- air and noise pollution, both above and below legal standards [28]
- anything that makes people afraid or seriously annoyed; of which (alleged) soil pollution and radiation (e.g. GSM masts and high voltage lines) appear to be the most significant in current Dutch practice
- alternatives to influence modal split; i.e. to get people out of cars and into walking or cycling
- ways to create (access to) green and recreational areas.

What methodology to apply?

For the assessment of health issues, there is no need to develop new methodology. The existing methodologies used in the health sector in The Netherlands are suitable for EIA and SEA too: Health Impact Screening for a quick scan (qualitatively), and health impact assessment for a more thorough analysis (including dose response relations and, in some cases, DALY's). In EIA and SEA the following sequence is recommended:

- always start with a health impact screening; in most cases this will be sufficient and no further assessment is needed
- only when needed[29], continue with a health impact assessment, in which dose response relations and disease burden identified and, when relevant and possible, DALY's.

Practice experience with the new approach

The NCEA started using the above described approach in its advising one year ago. At this very moment the first EIAs and SEAs under this approach become available, including EIA/SEA for infrastructure, airports, high voltage, industry (cement factory), housing and intensive farming. These assessments are reviewed on their quality right now, with conclusions hopefully to become available before the end of 2009.

[28] In line with recent WHO policy. See for example: http://www.euro.who.int/transport/policy/20090115_2

[29] E.g. because disputes can not be settled, or alternatives cannot be ranked, on the basis of the Health Impact Screening.

Annex 8
HEALTH AND LAND USE PLANNING IN ENGLAND AND WALES – IMPLICATIONS FOR INCLUDING HEALTH IN SEA

Alan Bond
School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom

SEA in England and Wales and the main areas where SEA is undertaken

The United Kingdom underwent partial devolution in the late 1990s, leading to a situation where the devolved administrations of England, Northern Ireland, Scotland and Wales are responsible for setting their own policies over some sectors, including land use planning and health. As a result, the strategic environmental assessment Directive (2001/42/EC) was implemented through separate regulations in each of these devolved administrations. This extended abstract focuses on the situation in England and Wales based on research undertaken by the author (in Wales) and by Ben Cave and the author (England).

Therivel and Walsh (2006) reported that in England by July 2005, SEAs were underway for:

- Development plan documents
- Regional Spatial Strategies
- Local Transport Plans
- Regional Economic Strategies
- National Park Management Plans
- Catchment Flood Management Plans
- Flood Defence Strategies
- Navigation Strategies
- Offshore wind farm licensing
- Nuclear Decommissioning Strategy

Whilst a broad range of sectors are subject to SEA, the majority are undertaken within the land use planning sector and for plans and programmes required through the Water Framework Directive (2000/60/EC).

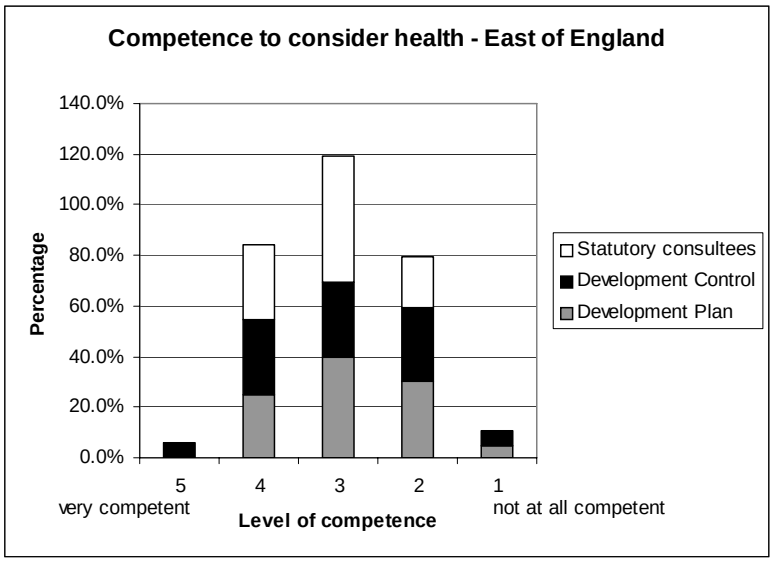
Experience with health in SEA in England and Wales

The research reported in this extended abstract focused on the land use planning sector and engagement with health professionals. The research included a survey in an administrative region of England (England is divided into nine regions), the East of England, where 113 telephone interviews were conducted, and in Wales where 63 e-mail responses were obtained. Those contacted included forward planners, development control officers, health professionals, external statutory consultees, and internal local government consultees. In addition, a stakeholder event was held in both the East of England (40 attendees) and Wales (38 attendees) to discuss and clarify the results. To further learn from practice, 4 case studies were investigated in the East of England to determine how health had been incorporated into planning, with 6 case studies being used in Wales.

One key finding illustrated in the two figures below is that, on the whole, neither the planners in charge of preparing plans which are subject to SEA (listed as ‘development plan’ in the figures), those in charge of making decisions on planning applications (‘development control’), or the

statutory consultees to the process felt they had a high degree of competence (a score of 5 in the figures, 1 represents no competence) to consider health.

Fig. 6: Competence to consider health – East of England



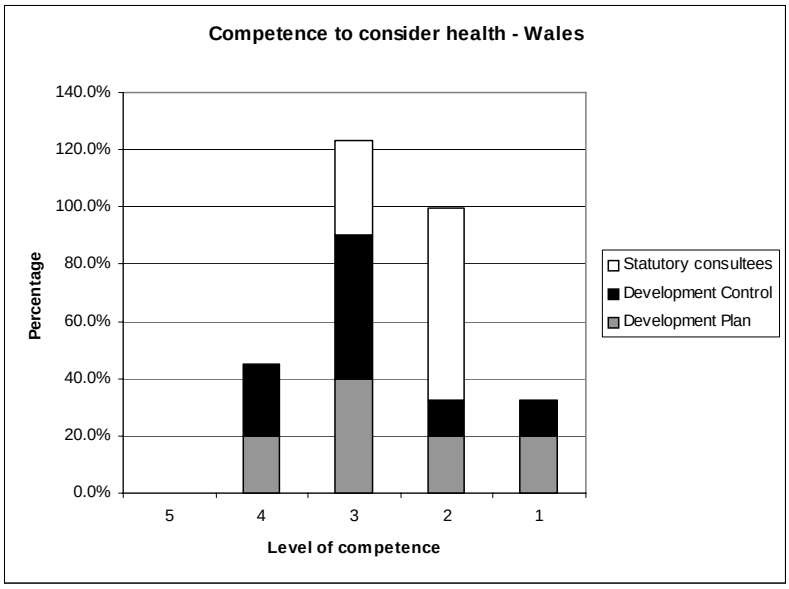


Fig. 7: Competence to consider health – Wales

Discussion at the stakeholder events indicated that there was confusion over the scope of health issues with which the planning system should be concerned; health practitioners were unfamiliar with the planning system and tended to restrict their interest to a consideration of the suitability of health infrastructure provision, rather than fully engaging with the links between the built environment and health outcomes.

There was much consideration of the potential role of health impact assessment (HIA), either as a discrete process or integrated within environmental impact assessment or strategic environmental assessment. Any HIA at present is non-statutory and planners were concerned

about their ability to cope with additional workload from another statutory process. The inclusion of health in SEA is a requirement under the Directive, but there are concerns about the competence of the planning system to do this (see the figures above), and many respondents to the survey felt that health and well-being were poorly considered.

One of the biggest areas of debate was over the means of most effectively engaging health practitioners in planning. In many cases, planners were not familiar with the health practitioners operating in the same geographical region as themselves (i.e., they did not know them and/or did not communicate with them on a regular basis), and the health practitioners had similar concerns to the planners over the potential for increasing workloads, should they adopt a greater role on planning and SEA, in an already overstretched workforce.

Opportunities and barriers for health inclusive SEA

A significant barrier to better engagement between health professionals and planners, including in SEA, is the capacity of the professionals in each sector to do so. Health professionals need to learn more about planning and the opportunities for influencing health outcomes; whilst planners need to learn more about health and the links between environmental and social determinants and health outcomes.

Another major barrier inherent in the SEA Directive itself is its application to plans and programmes only. Many planners felt that national policies with which they had to comply were inconsistent and had not been ‘health-proofed’. This significantly affects their ability to properly integrate health into their plans and programmes.

Monitoring was also seen as a current weakness in the system which was restricting the opportunities to learn more about the health outcomes which might result from planning interventions. The SEA Directive does require monitoring, but it is too soon to see any effect of this, given that SEA under the Directive was only underway in 2005 in most authorities, and any implications of plans subject to SEA are not yet known.

A conflict was apparent between the speed of decision processes and the value of community participation. It was felt that, in the context of health in particular, central Government needed to understand this. The feeling was that the public are an excellent source of advice on issues related to health and well-being outcomes, but that requirements for increasingly quick plan-making was restricting this a learning opportunity.

Some examples of good practice were identified through case studies. Where planners did engage with health professionals in their area, the consideration of health was seen to be far greater and the understanding of the planning system amongst the health practitioner engaging much higher. A potential role for Local Strategic Partnerships (LSP) was identified. These LSPs are coalitions of organizations and the public, normally including health professionals and planners, which are responsible for preparing a vision (known as a community strategy) for the areas which they represent. It is this strategy which the land-use plan then implements. As such, the LSPs were seen as a means of embedding health issues into the planning system from the outset, and therefore setting the framework for the SEA which would follow.

Conclusion – Suggestions for further consideration of health in SEA

In England and Wales, the ratification and subsequent implementations of the UNECE Protocol may overcome a major barrier which is the involvement of health professionals. At present, it is not compulsory to involve health professionals in SEA, and a move that forces some dialogue is likely to lead to mutual learning (between health professionals and planners) which can have far wider benefits. Planners were very clear on the fact that the best way of ensuring particular action on their part was through a statutory requirement. The requirement in the SEA Directive to monitor the effects of the implementation of the plans and programmes which have been assessed should, in the future, also lead to greater opportunities to learn about the linkages between planning activities and health outcomes.

The research demonstrated that the greatest barrier to the consideration of health in SEA is the lack of engagement between health professionals and those responsible for the plan being subjected to SEA. Land use planning and the health profession have become separated despite the origins of land use planning as a means of improving health outcomes. The greatest opportunity for improving the consideration of health in SEA lies in capacity building targeted two ways:

1) at health professionals to help them understand the planning system (for whatever sector is under consideration) and the roles of SEA, including opportunities to achieve beneficial health outcomes;
2) at planners to help them to understand the health and well-being implications of their plans and the importance of dialogue with health professionals.

Examples of good practice are needed which demonstrate the health and well-being benefits of the consideration of health in SEA. For health professionals, this should ideally demonstrate economic advantages so that a case can be made for this kind of engagement.

Annex 9
HEALTH, SEA AND A CASE STUDY FROM ENGLAND

Ben Cave
Ben Cave Associates Ltd

The strategic environmental assessment (SEA) Directive came into force on the 21st July 2004 (European Parliament and the Council of the European Union 2001). SEAs cover plans and programmes for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use. They are required for plans and programmes that set the framework for the future development consent of projects. These plans and programmes set the parameters for the built, the natural and the social environments for many generations.

SEAs are a legal requirement and they must identify the significant effects of plans and programmes on a range of factors including on human health and on population. The list of sectors to which the SEA Directive applies covers many of the determinants of health shown in Fig. 1 (page 4).

It is estimated that 400 – 500 SEAs are carried out each year in the United Kingdom (Institute of Environmental Management and Assessment 2007). This gives some indication of the number of plans and programmes that are in preparation. While these SEAs have been found to be compliant and thus are considered to address human health adequately it is not clear how much input has been provided by, or sought from, public health professionals.

This is a missed opportunity of great magnitude. SEA provides an opportunity, and a legal requirement, to incorporate health issues into assessment and appraisal processes at a strategic level (Cave, Bond 2006). Intersectoral work is less likely to succeed if there are no policy drivers requiring different sectors to work together.

Policies should seek to protect and to improve health and to reduce inequalities in health. Environmental assessment and planning are good at protecting human health. They are not so adept at improving health and at reducing health inequalities.

London provides an interesting example of the way in which the regional planning body and the regional health stakeholders have formed a close working relationship: the potential health effects of plans and strategies are routinely assessed, and importantly, assessment is now one among many ways in which sectors collaborate.

In 2000 the Greater London Authority (GLA) became the regional government for Greater London. The GLA Act stated that the GLA must take account of three cross-cutting themes (HM Government of Great Britain 1999):

- the health of Londoners;
- equality of opportunity; and
- London's contribution to sustainable development in the United Kingdom.

The Mayor set up commissions for health, equality and sustainability to advise this cross-cutting work: the London Health Commission (LHC) is an independent, strategic partnership that seeks

to improve the well-being of all Londoners and reduce inequalities in health (London Health Commission 2008). The Mayor also stated that strategic policies would be subject to health impact assessment in addition to statutory impact assessments.

As the regional planning body for London the GLA produces the spatial development strategy for London. This is known as the London Plan and it covers a timeframe of 15 to 20 years. The plan has been updated and refined since 2001 (Greater London Authority 2001; 2002; 2004; 2005; 2006; 2008b). Each revision is subject to SEA and to Sustainability Appraisal (SA): SA is required by planning law in England and Wales (HM Government of Great Britain 2004). It has a broader scope than SEA and the two assessments are usually carried out in conjunction with each other

The LHC conducted a stand-alone HIA on the early versions of the London Plan (Greater London Authority 2001; 2002). Since 2006 health and well-being and health inequalities have been addressed within the wider SEA. The assessment of the draft London Plan (2006) covered a wide range of issues (Forum for the Future & Ben Cave Associates Ltd. 2006). In 2006 the health findings were also provided in a separate report (Cave, Coutts 2006). The plan was found to be broadly supportive of human health. The assessment made a number of recommendations regarding determinants of health.

We focus here on the assessment of one policy regarding the location of a super casino as this provides a clear example of a policy statement being adjusted on the basis of potential effects on health and health inequalities. In 2006 Central Government policy required each region to identify suitable locations for a large casino (Great Britain Parliament Joint Committee on the Draft Gambling Bill (Regional Casinos) 2003). The health team noted a number of concerns with the casino policy in the London Plan:

- national and international evidence is equivocal about the scope casinos have to provide regeneration benefits (Reith G 2006);
- while there is no single definition for problem gambling in its most extreme form it has been viewed as an addiction, and hence it has been medicalised and included in the International Classification of Diseases (ICD9) coding;
- studies show a positive correlation between casinos in a community and an increase in the number of persons suffering from problem and pathological gambling (Hann R G & Nuffield J 2005); and
- disadvantaged groups were likely to be disproportionately affected by the creation of a super casino: the young are seen as the most likely to develop problems – 18-35 year olds at greatest risk.

Research indicates that people who live within ten miles of a casino have double the rate of problem and pathological gambling compared to those who live further than 10 miles from a casino (Welte JW 2004). The health team estimated that a regional casino would mean that more than 23,000 people within a 10-mile radius of the casino would exhibit problem and pathological gambling. This included some of the most deprived areas with London. This was calculated at 1.2% of the adult population i.e. twice the proportion of 0.60% according to the lower estimate of the (industry funded) British Gambling Survey. The SEA recommended that, with respect to the policy on casinos, the GLA should:

- prepare for adverse effects and increasing inequalities;
- enhance skills and training; and
- ensure ownership of social costs by operators.

In response to the SEA the GLA included the following supporting text:

- The Mayor is particularly concerned to address issues associated with ‘problem gambling’.
- He will require an action plan to mitigate its impacts, including contributions to meeting its additional health costs.
- He will also seek to maximize skills and training provision.

London has adopted a long-term approach to addressing health inequalities: the LHC work closely with the Mayor; the Mayor is now required to ensure that all policies reduce inequalities in health (HM Government of Great Britain 2007); and the GLA has issued guidance on planning and health (Greater London Authority 2007) and a draft strategy for health inequalities (Greater London Authority 2008a). GLA assessments are now integrated: they meet the requirements of SEA and SA and they include consideration of sustainability, equalities, health and community safety. Critically, the assessments are not the only occasions whereby policy authors discuss and receive advice on health issues: planning officers and health officers know each other; and planning officers are well accustomed to discussing health issues.

The case study shows how one SEA dealt with a single policy in a plan, showing how the policy would effect changes to the social determinants of health which in turn would lead to changes in health status: in this instance it was possible to identify a baseline, make an informed prediction about the possible effect and make recommendations. The case study also shows how policy authors are better able to incorporate advice about health issues if the assessment is part of wider intersectoral and strategic activity. The abstract makes the case for the importance of addressing health in public policy and for addressing health in SEA.

Annex 10

REFLECTIONS ON HEALTH, CLIMATE CHANGE AND PEAK OIL IN SEA

Extended abstract for WHO Rome consultation June 2009

Martin Birley
BirleyHIA Consultants in Health Impact Assessment, Kingston upon Thames, United Kingdom

Climate change and peak oil are major threats to human health and well-being that we might expect to see addressed in SEA.

Greenhouse gas concentrations are already above the 'intolerable risk' level. This level is 350 ppm according to some climate scientists. Summer Arctic sea ice melt is already worse than the worst case scenario predicted by IPCC. This suggests that the IPCC predictions are overly conservative. The implications include possible runaway climate change because of the albedo effect. Quotations from climate scientists are increasingly pessimistic.

Peak oil is less widely understood than climate change. However, it appears to pose an even larger threat to human well-being. There is abundant evidence that the production rate of conventional oil is at maximum while the demand is still rising in line with economic growth. This implies that in all subsequent years conventional oil will be more scarce than in the previous year. Both the quality and the quantity of available fossil fuel will change rapidly. As oil becomes scarce, the price will rise rapidly. This has and will induce wide fluctuations in our economic system accompanied by fluctuations in the oil price. Oil is the most energy dense form of energy storage that we currently possess. Without it, we are unable to power our transport system. Much of our daily life, including our food supply, currently depends on oil. Artificial fertiliser is produced from oil. The use of artificial fertiliser contributes significantly to greenhouse gas emissions in the form of nitrous oxides. Oil scarcity leads to the exploitation of unconventional forms of fossil fuel such as tar sands, gas to liquids and deep sea cold water fields. The energy return on energy invested from these unconventional sources is very poor – implying rapid rises in greenhouse gas emissions. There are moves to exploit conventional coalfields, but coal burning produces very high levels of greenhouse gases. There are proposals to capture and store the associated carbon dioxide. However, the energy cost of doing so is very high and the technology is unproven.

In the United Kingdom, government is committed to reducing greenhouse gas emissions by some 80% by the year 2050. This is probably the minimum requirement necessary to stabilise the climate. At the same time, government is committed to increase the supply of renewable energy from the current low level of a few percent to some 15% by the year 2020. The target is unlikely to be met. This means that there will be an energy gap. We do not have alternative sources of energy available to replace the energy that we lose through emission reduction. During the lifetime of every strategy and project started today there will be less energy available. This has implications for project design, development strategy, impact mitigation and human health.

Health, climate change/peak oil and their interaction, do not appear to be well embedded in SEA at present. The following examples are illustrative.

In the United Kingdom, the Department of Health issued a draft consultation on health in SEA. The main focus was spatial planning. The draft document refers to climate change but not peak oil. The document was advisory, not statutory. Health authorities are not required consultees of SEA, or spatial planning, although some authorities do consult them. There is an increasing appetite in the United Kingdom for including health in spatial planning.

A recent example of a tender for an oil production SEA in a developing country was analysed as follows:

- There were no health specialists on the team.
- There was little reference to climate change issues and no reference to peak oil.
- There was no requirement to assess the lifetime emission implications of the strategy.
- There were 2 social scientists that were responsible for the health component of the SEA. They had backgrounds in law and economics.

Fossil fuel projects and their associated SEAs have a special responsibility to reveal the associated greenhouse gas emissions (GHG). Current practice is mixed. Some companies reveal the GHGs associated with production while other companies also reveal the GHGs associated with the use of the final product. Clearly, society can only make an informed assessment of fossil fuel production strategies if production and use emissions are both reported. There is an Early Day Motion before the English Parliament at present that will require fossil fuel companies to reveal both. This requirement will set best practice for the SEA of fossil fuel projects.

Current SEA practice appears to be more concerned with the local cumulative effects of conventional air pollution, than in global cumulative effects of climate change and fuel scarcity. However, a recent report ties these together. The report suggests that a 50% reduction in greenhouse gas emissions would also lead to a 20-40% reduction in premature deaths associated with air pollution.

Climate change and peak oil have implications for the mitigation measures proposed during SEAs. In order to meet the requirement of an 80% reduction in emissions during the lifetime of the strategy, all mitigation measures should be energy sensitive. In order to achieve this requirement, SEA practitioners themselves should be energy sensitive. For example, the attendees at an international conference on impact assessment should be fully aware of the emissions associated with their air miles and should have plans to offset them.

Climate change, peak oil, health and their interaction are critical issues for SEA. Proper attention to these issues could limit inappropriate energy developments. Embedding these concepts in the practice of impact assessment requires changes to both personal and professional attitudes.

Annex 11

TRANSPORTATION: CURRENT WORK OF WHO REGIONAL OFFICE FOR EUROPE ON INTEGRATION OF HEALTH IN ECONOMIC ASSESSMENT OF TRANSPORT

Sonja Kahlmeier
WHO Regional Office for Europe, Rome, Italy

With acknowledgements to:
Nick Cavill, Cavill Associates, United Kingdom,
Harry Rutter, National Obesity Observatory England, United Kingdom,
Francesca Racioppi, WHO Regional Office for Europe, and others

Transport is an essential component of life, providing access to services, goods and activities. Different modes of transport are associated with specific effects on society, one being health effects. Fully appraising these effects is an important basis for evidence-based policy-making. Economic appraisal is an established practice in transport planning. However, the health effects of transport interventions are rarely taken into account in such analyses. Valuing health effects is a complex undertaking, and transport planners are often not well equipped to fully address the methodological complexities involved. With regard to including health effects from active transport modes such as walking and cycling, issues to be addressed include for example:

- which health endpoints to include?
- form of the relationship between exposure and effect?
- which costs to include?
- how to calculate these costs?
- which time lag periods to apply before benefits/costs occur?

To address these questions, close collaboration between transport and health sectors is necessary. However, such intersectoral exchange is often not yet well established and can pose considerable challenges. In addition, health effects of road transport involve a diverse range of outcomes and integrating them is a challenging task. Health effects can be expressed in monetary terms but this requires expressing loss of life, life-years or burden of disease in monetary units. However, using monetary units offers the advantage of comparing costs and benefits directly and assessing whether a proposed policy is worth its costs. Economic quantification of health effects also allows the results to be integrated into broader economic assessment (for example, of transport infrastructure) that does not use indicators such as DALYs or QALYs. Although economic arguments should not be the sole basis for decisions, monetary terms enhance understanding of the results of such assessments by decision-makers and can be a tool to foster intersectoral policy-making.

Pioneering work on this area has particularly been carried by the Nordic Council in Europe (including Denmark, Finland, Iceland, Norway and Sweden), have carried out work in trying to assess the overall costs and benefits of transport infrastructures taking health effects into account, and guidance for carrying out these assessments has been developed. However, important questions have remained regarding the type and extent of health benefits which might be attained through investments in policies and initiatives to promote cycling and walking, as well as regarding a number of methodological issues, including a frequent lack of transparency.

Therefore, WHO Regional Office for Europe carried out two international projects to develop guidance and tools for practitioners for quantifying the health impacts of cycling and walking, translating the best available research evidence and knowledge into practice. One project focused on calculating the costs of transport-related health effects, the second project on the quantification of health benefits from cycling and walking.

Both projects contributed to the implementation of the Transport, Health and Environment Pan-European Programme (THE PEP). THE PEP was initiated in 2002 and is jointly led by the WHO Regional Office for Europe and the United Nations Economic Commission for Europe (UNECE). Activities are coordinated and implemented by THE PEP Steering Committee, which is composed of representatives of UNECE and WHO European Member States from the transport, environment and health sectors, who work in close cooperation. Therefore, THE PEP is a unique policy framework that brings together representatives of all three sectors to promote policy integration. The work was also carried out in close collaboration with HEPA Europe, the European network for the promotion of health-enhancing physical activity.

The main objective of the first project was to develop a practical approach to the economic valuation of transport-related health effects, including a focus on children. The project drew on state-of-the-art understanding of the links between transport and health and on a review of how various economic studies have addressed the issue of valuating transport-related health effects. The topics discussed included road noise, transport-related air pollution, road safety and insufficient physical activity related to transport that hinders commuter cycling and walking.

In developing the proposed practical approach based on the best available evidence, attention was given to orient the reader to select the best approach taking into account the specific conditions and possible limitations (such as concerning the availability of some input data) in different countries or subnational study areas. The approach also highlights methodological limitations and uncertainty and acknowledges where gaps exist. The report also discusses how to bring different components together to estimate total health costs due to road transport considering several health effects. The main steps of the proposed approach consist of the following:

- Step 1. Definition of traffic characteristics
- Step 2. Assessment of emissions and population exposures
- Step 3. Estimation of transport-related health effects.
- Step 4. Economic valuation of health effects

Specific models and practical example were developed for traffic crashes, transport-related air pollution and noise. The report contains specific guidance on:

- Relative risks to use for suggested health endpoints
- Input data to use (“state of the art” and second-best approach)
- How to calculate costs
- How to deal with uncertainties
- Practical example applications of the framework for air pollution, noise, road crashes

Current evidence did not yet allow proposing a complete model for transport-related insufficient physical activity, but two main issues – the apportionment and the calculation of morbidity costs – and ideas for calculating the costs of all-cause mortality are addressed. Interactions between exposures, specifically cycling, walking, air pollution and traffic safety were also discussed.

The second project aimed to provide guidance for practitioners and to facilitating the harmonization of methodological approaches, focusing in particular on approaches to the economic valuation of positive health effects related to cycling and walking.

It built on a critical review of existing relevant studies and approaches to quantify the health gains associated to cycling and walking. It concluded that there is a wide variation in the approaches taken to including health effects of physical activity in economic analyses of transport projects. It also noted a frequent lack of transparency of methods and identified critical issues to address and approaches warranting further development towards a more unified methodology. Based on the results, draft guidance on the identified key methodological questions and a draft Health Economic Assessment Tool (HEAT) for cycling was developed by the project core group and selected members of the advisory group. This tool estimates the economic savings resulting from reduced mortality due to regular physical activity from cycling, i.e.: if x people cycle y distance on most days, what is the economic value of the improvements in their mortality rate? The calculations are based on the results of a prospective cohort study which allowed deriving a relative risk for reduced mortality from regular commuter cycling. Both products were discussed in depth at a consensus workshop attended by the members of the international advisory group. The results of the application of HEAT for cycling are primarily intended to be integrated into comprehensive economic analyses of transport interventions or infrastructure projects, but can also serve to assess the current situation or investments made in the past.

Since the first launch in fall 2007, the project web site has been visited over 5700 times; the products have been downloaded over 600 times. In several countries within and outside the European Region, the tool has already been taken up by practitioners or found its way into the political decision-making process through consideration or inclusion into the official toolbox for economic valuation of transport infrastructure. Different examples are summarized below; more practical applications are available at WHO:

- Czech Republic: HEAT for cycling used to calculate potential benefits from an increased level of cycling in the city of Pilsen:
  - if 2% of population took up regular cycling:
    ⇨ USD 1.2 million saved per year from reduced mortality due to regular physical activity
- Austria: used HEAT for cycling to calculate savings from current level of cycling in Austria (5%):
  ⇨ USD 570million per year
- The Swedish Government adopted HEAT for cycling as part of official toolbox for the economic assessment of cycling infrastructure.
- United Kingdom/England: The Department of Transport adopted HEAT for cycling as part of official toolbox for the economic assessment of cycling infrastructure and it has already been applied in several communities.
- United Kingdom/Scotland: HEAT was used to estimate benefit from reaching cycling targets:
  ⇨ USD 1.5-3 billion per year if modal share goal of 13% reached
- New Zealand: The University of Auckland used HEAT to value adding cycling and pedestrian facilities to the Auckland Harbour Bridge

Conclusions

Including health effects into transport assessments is paramount for evidence-based policy-making. Initial methodologies for transport have been developed.
What are the lessons learned with regard to the most promising approaches?

- Applied process with the aim of being applied in practice and policy rather than research project
- Supported by comprehensive expert groups including all relevant disciplines
- Close link to practitioners and policy-makers
- Based on robust, credible methodology
- Practical and specific guidance, “how to”
- Very easy to apply:
- No health background needed
- As little room for major mistakes of application as possible
- Best-evidence default values provided
- Easily adaptable to local context, if wished

Challenges include:

- Selection of health-endpoints, relative risks, costing approaches ⇨ defining the details of “how to”
- Finding the right balance – don’t let the “perfect” be the enemy of the “good” (enough)
- Trade-off between simplicity and robustness

Annex 12
USING HEALTH INDICATORS IN SPATIAL PLANNING

Davide Geneletti
Department of Civil and Environmental Engineering, University of Trento, Italy

The spatial representation of effects on health plays a significant role in supporting decision-making during spatial planning. This contribution presents the findings of few SEA studies conducted in Italy for spatial plans at subregional level, by focusing in particular on the use of Geographic Information System (GIS) to predict the impact on health of plan's decisions. GIS-based indicators were used in different stages of plan making/SEA to visualize, and in some cases to quantify impacts on health. In Italy, the application of SEA is still in its infancy (a National law was passed only in 2008), and there is not yet a consolidated practice. Existing guidelines focus mainly on procedural issues, disregarding the technical content of SEA. As a result, reports differ significantly in the type of impacts they address, and in the way such impacts are predicted and assessed. Health impacts are no exception to that, and several definitions of 'health' can be found in SEA reports. Here, health was mainly addressed by considering the modifiable factors of the physical environment, due to the fact that most of them are related, directly or indirectly, to the type of decisions that are taken when drawing spatial plans.

According to the classification proposed by Fischer (2009[30]) the indicators that were applied covered the following health aspects:

- Access to health activities and services (example of indicator used: accessibility by foot to schools);
- Health inequalities (indicator examples: recreational coverage and connectivity of bike paths areas disaggregated at neighbourhood level);
- Open and green space (indicator examples: distribution and ease of access from residential areas);
- Biophysical aspects (indicator examples: impact zone of human activities such factories, quarrying, cattle breeding);
- Noise and light pollution, vibrations, smell (indicator example: maps of noise and air pollution levels exceeding guideline thresholds);
- Human behaviour and social/economic aspects (indicator examples: coverage and connectivity of bike paths; landscape perception and visibility).

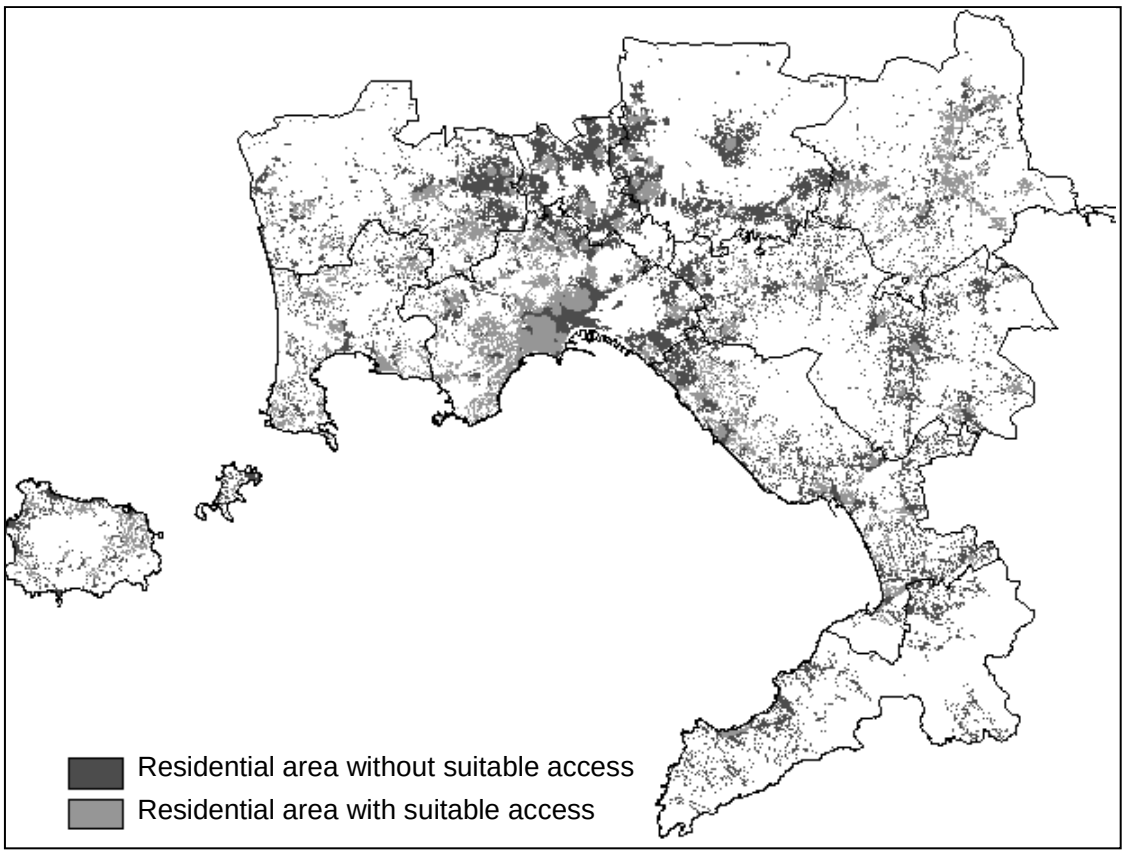
Different health indicators played a role in the different stages of planning/SEA. For the purpose of describing the approach, the planning process can be decomposed into four main stages: defining the scope and the objectives of the plan, identifying suitable actions to achieve such objectives, drafting a proposal of the plan, and finally reviewing and refining the proposal until the achievement of the final document. SEA is a parallel process, which aims at supporting each stage by providing insights on the environmental implications of choices and decisions.

In the first stage, the role of health indicators is to help identifying the most pressing health issues related to the territory under analysis, as well as to the scope and content of the plan. During this phase, health indicators can be used to put in evidence the presence of critical

[30] Fischer, T.B. (2009). The consideration of health in SEA. A report for the World Health Organization

problems, through the construction, for instance, of maps of the exposure of the population to nuisances, such as electromagnetic fields or noise. GIS analysis can be used to model the distribution of pollutants and overlay the results to the location of sensitive sites (residential areas, hospital, schools, etc). In this phase, analyses can be conducted also to assess the distribution of services, such as schools, green areas, bike paths. For instance, distance analysis allows to highlight populated area with and without suitable accessibility to green space (see Fig. 8). Another useful analysis that can be performed at this stage concerns the distribution of health-related spatial inequalities. For instance, the endowment of green areas can be broken down at district or neighbourhood level, so as to visualize patterns of areas more in need of new parks and green space. Health-related priorities for interventions can also detected at this stage, such as the presence of unsuitable land uses (e.g. a school nearby a high-trafficked road).

Fig. 8: Analysis of the accessibility to green areas



In the second stage, identify actions, the spatial plan begins to take shape, and proposals for land use change and allocation are made (e.g., new subdivisions). Health indicators can be used to map constraints to development (e.g., areas too close to noise sources) and to perform land suitability analysis. This can be conducted at parcel level and used for example to identify plots more suitable to host new residential areas from a health perspective, that is by accounting for factors such as the accessibility to public transportation, schools, bike paths, and the presence of noise, smell, dust, etc. Separate modelling can be carried out for each factor, and the results combined through multicriteria analysis. The results are used to support design, by suggesting the location of new infrastructures, the size and shape of a new plot, the distribution of services, etc.

During the third stage the plan is drafted, and SEA is useful to compare the effects of the new plan’s proposal with the ones of other scenarios (e.g., existing plan, alternatives to the new plan).

Future conditions are simulated by projecting factors such as population growth onto the provisions of the plan. This allows to generate land use scenarios, and then to compare them in order to understand whether (and where) the new plan will improve existing conditions and/or future conditions under the existing plan's provisions. The results of these analyses can be used to suggest revisions and modification of the plan, as well as to select between different alternative proposals, leading to the fourth and last stage: the drawing of the final plan.

In the last stage, the purpose of SEA is to conduct a final assessment of the plan's impact on the environment, by resorting to qualitative and/or quantitative indicators that allow to clearly understand the implications of the plan's provisions and decisions. The full set of health indicators used during the previous stages can be applied to this purpose. This stage must also contain indications on how to monitor the progress of the plan, and its health effects. Therefore, a monitoring programme must be set up by selecting critical issues and providing indications on how to monitor them, and especially on how to steer the plan's implementations according to monitoring results.

As a conclusion, few characteristics of the approach presented here are discussed. Firstly, the analyses performed to map health impacts had a modest data requirement, and were based on the use of well-established modelling techniques. As a matter of fact, all data used were requested and collected for plan making, so that no additional data collection was carried out for the purpose of SEA. Most of the analysis could be easily implemented by combining and running standard GIS operations. Therefore, the use of the proposed indicators did not represent a burden for the plan-making/SEA process, and can be extended to other studies. Secondly, for each case study, a limited number of health-related indicators was selected (usually in the range of 5-7), according to the specific needs. The selection of indicators was driven by the issues that could be actually influenced by Plan's provisions. These issues change according to the type of spatial plan, as well as to the overall objectives of planners and decision-makers. It is very important to focus on these issues only, so as to avoid the production of thick and useless report. Finally, the use of spatial indicators and maps proved to be important to allow decision-makers, planners, and in some case the general public to gain a better understanding of the implications of plan's decisions, and to support the proposal of revisions and modifications. Such support was particularly evident in the central phase of the plan-making process, i.e. during stages 2 and 3 described above. In these stages, several revisions were made according to suggestions that emerged from the results of the indicators, and the SEA team was asked to actively contribute to relevant plan's decisions, such as the delimitation of new urban subdivisions.

Annex 13

HEALTH IN DEVELOPMENT LENDING: AN UNTAPPED OPPORTUNITY TO PROTECT AND PROMOTE PUBLIC HEALTH

Michaela Pfeiffer
Interventions for Healthy Environments, WHO Geneva,

Introduction

Economic growth has long been seen as the key to poverty reduction and sustainable development. In order for developing economies to seize this potential, they must ensure that to the greatest extent possible, this economic development contributes positively and sustainably to human and environmental health and well-being.

A key objective of many of the development lending institutions or International Financial Institutions (IFIs) is to catalyse economic growth. They do this by co-financing large scale development projects, financing the development of essential economic infrastructure (e.g. water, power and transport systems), and by supporting the institutionalization of national policies that encourage economic activity.

A key challenge for environment and health objectives is the fact that many of these types of investment activities significantly affect environmental and social causes of disease. Because these policy decisions are often taken by specific sector actors (e.g. trade, finance, construction, transport, etc.), environment and health objectives are not always fully taken in to consideration as part of planning and decision-making.

For health, this is a major missed opportunity.

Roughly one quarter of the global disease burden is attributed to modifiable environmental factors (WHO 2006). In other words, 25 percent of disease globally could be prevented through environmental management.

By mainstreaming health considerations into non-health sector investment and development activities, prevention activities can be directed at the source from which these threats to health originate.

Development Bank Environmental and Social Policies a Key Entry Point

The international financial institutions, such as the World Bank, share a mandate to promote sustainable development, and have a common interest in seeing that investment decisions provide maximum benefit for environment, health and economic development objectives. They do this through the use of environmental and social lending conditions. These lending criteria, sometimes called performance requirements or safeguards, often act as an additional accountability mechanism in cases where national requirements concerning environmental and health protection are not well developed or implemented. Lending conditions typically also specify environmental emission thresholds, information disclosure requirements, and minimum workplace and community health and safety standards that must be met through out the lifecycle of the project.

Some of the IFIs recently introduced lending requirements that specifically address project impacts on the health and safety of communities. This move was largely influenced by increased awareness that project impacts on health are not always limited to environmental issues (such as pollution) and could include issues such as the spread of communicable diseases, accidents and injuries, food insecurity, impacts on psychosocial well-being and even health systems impacts.

SEA context for the IFIs

While the development lending safeguard mechanisms primarily apply to project financing activities, there are a number of instances where IFIs would use strategic environmental assessment to identify potential environmental and social issues at a sectoral or policy level. These applications include:

1) National policies and sector plans
   - Structural adjustment loans
   - Sector development plans

2) When used internally by the IFIs for strategic planning
   - Country assistance strategies
   - Sector investment strategies

3) For large scale development projects, for example an oil and gas pipeline that has many partners (public and private) and which spans several countries

Enablers and limiting factors for integrating health into SEA

Experience and practice with SEA within the IFIs and in countries is steadily growing. However, when it comes to addressing health broadly in the context of SEA mechanisms, there are a number of factors which can either enable or limit the ease with which health can be integrated into SEA. For example:

- **Institutional constraints:**
  - Division of roles and sector responsibilities: This may be due, for example to the institutional set up and corresponding division of roles and responsibilities between sectors or areas. The nature of these divisions can either enhance or constrain opportunities for multidisciplinary or cross-sectoral decision-making. These institutional barriers can be present within the IFIs themselves as well as within the countries in which they are operating.
  - Limited capacity for health in SEA: This refers to a lack of overall capacity and in some cases competency (expertise) to adequately identify potential health issues as part of an SEA.
  - Limitations of safeguard mechanisms: For many of the IFIs, the environmental and social lending criteria are most often used in the context of project financing and less in the context of strategic level decision-making. In cases where IFIs do use SEA, if there is no specific policy requirement for consideration of health issues (e.g. as outlined in the overall IFI environmental policy), requiring borrow action to include health can be challenging.

- **Data**: A key challenge for consideration of health in SEA is related to data, where data may not be readily available, reliable, and meaningful for the purpose of the assessment. In other words, whether the information provided in the figures have the right level of specificity (regional, national level aggregates) for the particular proposal.

- **Public participation and risk communication:**
  - Lack of experience in dealing with health issues and concerns: This includes low levels of experience (within IFIs and in countries) with dealing with health issues in the context of SEA related stakeholder engagement activities, particularly around dealing with health risk perceptions and community concerns.
  - Lack of community familiarity with participatory planning processes: In many developing countries, communities are unfamiliar with stakeholder engagement practices and have low levels of awareness about opportunities they may have to influence decision-making, for example through SEA processes.

- **Weak monitoring and follow-up:**
  - Countries often lack capacity and resources for monitoring and enforcement of mitigation/enhancement measures, if applicable.
  - There is an overall lack of tools (e.g. indicator frameworks) to monitor and report on health performance of other sector activities.
  - Incentive to continue to monitor and report can vary depending on the nature and length of engagement.

- **Changing and sometimes competing agendas:**
  - So many players…
  - … with different agendas…
  - … that can change within a short time frame.

Annex 14
WORKSHOP PROGRAMME

EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH

Workshop on Health and strategic environmental assessment **5086490/4**
Consultation meeting.

Rome, Italy, 8 – 9 June 2009 **8 June 2009**

Monday, 8 June 2009

09.30 – 10.00	Registration and Welcome Coffee
10.00 – 11.00	Introduction to the Workshop by WHO (M Martuzzi) Status of SEA Regulations: SEA Protocol (N Bonvoisin) Health in SEA: Views from IAIA (B Cave – via videoconference)
11.00 – 12.30	Review on Health inclusive SEAs – 8 Case Studies (T B Fischer)
12.30 – 13.30	Lunch break
13.30 – 15.30	National and sectoral experiences on Health inclusive SEA (1) ▪ Denmark (L Kørnøv) ▪ Lithuania (I Zurlyte) ▪ Germany (O Mekel)
15.30 – 16.00	Coffee break
16.00 – 17.30	National and sectoral experiences on Health inclusive SEA (contd) ▪ Portugal (M R Partidário) ▪ United Kingdom (B Cave) ▪ United Kingdom/sectoral (A Bond)

Tuesday, 9 June 2009

09.00 – 10.30	National and sectoral experiences on Health inclusive SEA (2) ▪ The Netherlands (R Verheem) ▪ Health in Impact Assessments of Development Bank (M Pfeiffer) ▪ Reflections on health, climate change and peak oil in SEA (M Birley)
10.30 – 11.00	Coffee break
11.00 – 12.30	Transportation (S Kahlmeier) Using Health Indicators in Spatial Planning (D Geneletti)
12.30 – 13.30	Lunch break
13.30 – 15.00	Discussion: How can the WHO best support its Member States on health inclusive SEA? Developing the WHO Guidance on Health inclusive SEA a step further Closure

Annex 15
LIST OF PARTICIPANTS

Martin Birley
BirleyHIA Consultants in Health Impact Assessment
44 Woodbines Ave.
Kingston upon Thames
Surrey KT1 2AY
United Kingdom

Alan J. Bond
InteREAM
School of Environmental Sciences
University of East Anglia – Norwich
Norwich NR4 7TJ
United Kingdom

Nicholas Bonvoisin
United Nations Economic Commission for Europe (UNECE) NHS
Palais des Nations
1211 Geneva 10
Switzerland

Ben Cave
Ben Cave Associates Ltd.
103 Clarendon Road
Leeds Innovation Centre
LS2 9DF Leeds
United Kingdom

Thomas B. Fischer
Department of Civic Design
University of Liverpool
74 Bedford Street South
Liverpool L69 7ZQ
United Kingdom

Davide Geneletti
Department of Civil and Environmental Engineering
University of Trento
Via Mesiano 77
38100 Trento
Italy

Lone Kørnøv
Aalborg University
Department of Development and Planning
Fibigerstraede 11-13
9220 Aalborg East
Denmark

Odile Mekel
Institute for Health and Work (LIGA.NRW)
Postfach 201 012
33548 Bielefeld
Germany

Maria Rosario Partidário
Instituto Superior Técnico
Departamento de Engenharia Civil e Arquitectura
Av. Rovisco Pais
1049-001 Lisbon
Portugal

Rob Verheem
The Netherlands Commission for Environmental Assessment (NCEA)
Arthur van Schendelstraat 800
P.O. Box 2345
3500 GH Utrecht
The Netherlands

Ingrida Zurlyte
Deputy Director
State Public Health Centre
Kalvariju str. 153
08221 Vilnius
Lithuania

World Health Organization

Headquarter

Michaela Pfeiffer
Technical Officer
Interventions for Healthy Environments
Public Health and Environment Department
World Health Organization
Av. Appia 20
CH-1211 Geneva 27
Switzerland

Regional Office for Europe

Sonja Kahlmeier
Technical Officer, Transport and Health
European Centre for Environment and Health
Via F. Crispi, 10
00187 Rome
Italy

Marco Martuzzi
Scientific Officer, Health Impact Assessment
European Centre for Environment and Health
Via F. Crispi, 10
00187 Rome
Italy

Julia Nowacki
Technical Officer, Health Impact Assessment
European Centre for Environment and Health
Via F. Crispi, 10
00187 Rome
Italy

Manuela Zingales
Secretary, Health Impact Assessment
European Centre for Environment and Health
Via F. Crispi, 10
00187 Rome
Italy

References

About WHO. Copenhagen, WHO Regional Office for Europe, 2009. (http://www.euro.who.int/AboutWHO/About/20010825_1).

Act on environmental assessment of plans and programmes. Act No. 316 of 5th May 2004. Copenhagen, Ministry of Environment, Denmark, 2004.

Activity Report of the State Public Health Service to the Ministry of Health. 2008 m. kovo 17 d. Nr. VD2-6. Riga, State Public Health Service under the Ministry of Health, 2008. (http://www.vvspt.lt/pub/imagelib/file/2008_m_apibendrinta_03_06.pdf, 60-63).

Arbter K. SEA of waste management plans – an Austrian Case Study; in: Schmidt M, João E, Albrecht E, eds., *Implementing Strategic Environmental Assessment*. Berlin, Springer-Verlag, 2005:621–630.

Aschemann R. *Gesundheitsverträglichkeitsprüfung*. Graz, ANIDEA, 2004.

Barton H, Grant M. A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health,* 2006, 126 (6):252–253.

Barton H. A Health Map for Urban Planners: towards a conceptual model for healthy, sustainable settlements. *Built Environment,* 2005, 31 (4):339–355.

Bollen J et al. *Co-benefits of climate change mitigation policies: literature review and new results*. Report no. 500116005. OECD Economics Department Working Papers. Paris, OECD, 2009. (http://www.oecd.org/eco/working_papers).

Burns J, Bond A. The consideration of health in land use planning: Barriers and opportunities. *Environmental Impact Assessment Review,* 2008, 28 (2-3):184–197.

Cave B, Bond A, Molyneux P, Walls V. *Reuniting health and planning: a training needs analysis. Research into developing a skills base for sustainable communities in the East of England.* East of England Regional Public Health Group and the Government Office for the East of England, Ben Cave Associates Ltd, 2005. (http://www.bcahealth.co.uk/docs/download/reuniting_health_planning_exec_sum.pdf)

Cave B, Bond A. Health heroes of Greenville. *Health improvement and health protection in SEA.* [Leaflet prepared for IAIA 2006 in Stavanger, Norway] Leeds, Ben Cave Associates Ltd, 2006. (http://www.bcahealth.co.uk/docs/health_girl/health_girl.pdf).

Cave B, Coutts A. *Health and well-being: health improvement, health services and health inequalities*. Sustainability Appraisal/Strategic Environmental Assessment of the further alterations of the London Plan. London: Greater London Authority and the London Health Commission, Ben Cave Associates, 2006. (http://www.londonshealth.gov.uk).

Cave B, Molyneux P. *Healthy sustainable communities. Key elements of the spatial planning system*. Wellingborough, Milton Keynes South Midlands Health and Social Care Group, 2004.

Cavill N et al. *Economic assessment of transport infrastructure and policies. Methodological guidance on the economic appraisal of health effects related to walking and cycling*. Copenhagen, WHO Regional Office for Europe, 2007. (http://http://www.unece.org/thepep/en/workplan/candw/candw_docs.htm).

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, 2008c. (http://www.who.int/social_determinants/thecommission/finalreport/en/index.html).

Co-benefits of climate policy. Bilthoven, Netherlands Environmental Assessment Agency (PBL), 2009. (http://www.pbl.nl/en/publications/2009/Co-benefits-of-climate-policy.html).

Constitution. Geneva, World Health Organization, 1946.

Costello A et al. Managing the health effects of climate change. *The Lancet and University College London Institute for Global Health*, 2009, 373:1693-1733. www.thelancet.com

Council directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC), last amended by Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003, *L 156*, 25/06/2003, 17. Luxembourg, European Commission, 2003.

Dahlgren G, Whitehead M. (1991). *Policies and strategies to promote social equity in health*. Stockholm, Stockholm Institute for Further Studies.

Dalal-Clayton B, Sadler B. *Strategic Environmental Assessment: A Sourcebook and Reference Guide to International Experience*. London, Earthscan, 2005.

Decision No 1350/2007/EC of the European Parliament and of the Council of 23 October 2007 establishing a second programme of Community action in the field of health (2008-13). Official Journal L 301, 20/11/2007. Luxembourg, European Commission, 2007.

Declaration of the Fourth Ministerial Conference on Environment and Health, Budapest, Hungary, 23–25 June 2004. Copenhagen, WHO Regional Office for Europe, 2004.

den Broeder JM et al. *Gezondheid in milieueffectrapportage en strategische milieubeoordeling – Verkenning van de mogelijkheden tot integratie*. Bilthoven, RIVM, 2005. (http://http://www.rivm.nl/bibliotheek/rapporten/270001001.html).

Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment of 27. June 2001, , Official Journal L197, 21/07/2001, 30-37. Luxembourg, European Commission 2001.

Draft Further Alterations to the London Plan. London, Greater London Authority, 2006. (http://www.london.gov.uk/mayor/strategies/sds/further-alts/docs.jsp).

Draft Guidance on Health in Strategic Environmental Assessment, London, Department of Health Department of Health, 2008.

Environment and Health, the European Charter and Commentary, Frankfurt. Copenhagen, WHO Regional Office for Europe, 1989.

Fischer TB et al. Learning through EC Directive based SEA in spatial planning? Evidence from the Brunswick Region in Germany, *Environmental Impact Assessment Review*, 2009, 29 (6):421-428.

Fischer TB. *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] 2008.

Fischer TB. *On the role(s) of (strategic) environmental assessment in 'greening' decision-making*. TwoEA-M. 2009b. (http://www.twoeam-eu.net/role.pdf).

Fischer TB. Reviewing the quality of strategic environmental assessment reports for English spatial plan core strategies, *Environmental Impact Assessment Review*, 2009a, 30 (1):62-69.

Fischer TB. *Theory & Practice of Strategic Environmental Assessment. Towards a more systematic approach*. London, Earthscan, 2007.

Forum for the Future, Ben Cave Associates, eds. *Sustainability Appraisal of the Draft Further Alterations to the London Plan* (Spatial Development Strategy for Greater London). London: Greater London Authority, 2006. (http://www.london.gov.uk/mayor/strategies/sds/further-alts/docs.jsp).

Great Britain Parliament Joint Committee on the Draft Gambling Bill (Regional Casinos) Draft Gambling Bill (Regional Casinos). Vol. 1: Report, together with formal minutes and annex, TSO (The Stationery Office), House of Lords papers 2003-04 146-I, House of Commons papers 2003-04 843-I. Cm 6014-I, 2003.

Greater London Authority Act. London, HM Government of Great Britain, 1999. (http://www.england-legislation.hmso.gov.uk/acts/acts1999/ukpga_19990029_en_1).

Greater London Authority Act. London, HM Government of Great Britain, 2007. (http://www.opsi.gov.uk/Acts/acts2007/pdf/ukpga_20070024_en.pdf).

Guidance on environmental assessment of plans and programmes. Copenhagen, Forest- and Nature Protection Agency, 2006.

Hann RG, Nuffield J. *Local community impacts of the Charity casinos.* Ontario, Ontario Ministry of Health and Long-term Care, 2005.

Health Impact Assessment Toolkit for Cities. Document 1. Background document: concepts, processes, methods. Vision to Action. Copenhagen, WHO Regional Office for Europe, 2005. (http://www.euro.who.int/healthy-cities/PHASE/20050806_9).

Health Inequalities. Third Report of Session 2008–09, Volume I. Report, together with formal minutes. Ordered by the House of Commons to be printed 26 February 2009. London, House of Commons – Health Committee, 2009. (http://www.publications.parliament.uk/pa/cm200809/cmselect/cmhealth/286/286.pdf).

Health issues in planning Best Practice Guidance. London, Greater London Authority, 2007. (http://www.london.gov.uk).

João E. Key Principles of SEA. In: Schmidt M, João E, Albrecht E, eds. *Implementing Strategic Environmental Assessment*. Berlin, Heidelberg, New York: Springer, 2005:3-14.

Kørnøv L. Strategic Environmental Assessment as a catalyst of healthier spatial planning: The Danish guidance and practice. *Environmental Impact Assessment Review*, 2009, 29 (1):60-65.

Kruopiene J et al. Evaluation of Environmental Impact Assessment Effectiveness in Lithuania. *Environmental Research, Engineering and Management*, 2008, 44(2):28-33.

Living well in London: the Mayor's draft health inequalities strategy for London Draft for consultation with the London Assembly and functional bodies. London, Greater London Authority, 2008a. (http://www.london.gov.uk).

Local Development Plan Manual. Cardiff, Welsh Assembly Government, 2006. (http://wales.gov.uk/topics/planning/policy/developplans/ldp_manual?lang=en).

Local Development Plan Wales Guidance. Welsh Assembly Government, 2005. (http://wales.gov.uk/splash?orig=/topics/planning/).

Medium Term Strategic Plan 2008-2013 and Programme Budget 2008-2009. WHA60.12. Geneva, World Health Organization, 2008b. (http://apps.who.int/gb/e/e_amtsp.html).

National Environmental Policy Act (NEPA). Washington, Environmental Protection Agency (EPA), 2009. (http://epa.gov/enforcement/nepa/index.html).

Partidário MR. *Strategic Environmental Assessment Good Practices Guide – Methodological Guidance*. Amadora, Portuguese Environment Agency, 2007.

Pfeiffer M. *Health in development lending: an untapped opportunity to protect and promote public health*. [Workshop on Health and Strategic Environmental Assessment – Consultation meeting. Rome, Italy, 8-9 June 2009] Copenhagen, WHO Regional Office for Europe, 2009.

Planning and Compulsory Purchase Act. London, HM Government of Great Britain, 2004. http://www.hmso.gov.uk/acts/acts2004/20040005.htm).

Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context, Kiev 2003. Geneva, United Nations Economic Commission for Europe (UNECE), 2003 (http://www.unece.org/env/eia/sea_protocol.htm)

Prüss-Ustün A, Corvalán C. *Preventing Disease Through Healthy Environments. Towards an Estimate of The Environmental Burden of Disease*. Geneva: World Health Organization. 2006. (http://www.who.int/quantifying_ehimpacts/publications/preventingdisease/en/).

Reith G. *Research on the social impacts of gambling*. Edinburgh, Scottish Centre for Social Research, 2006:44. (http://www.scotland.gov.uk/Resource/Doc/143770/0036514.pdf)

Reviewing the London Plan London, Statement of intent from the Mayor. London, Greater London Authority, 2005. (http://www.london.gov.uk/mayor/strategies/sds/docs/review-dec05.pdf).

Rutter H et al. *Health Economic Assessment Tool for Cycling (HEAT for cycling)*. Copenhagen, WHO Regional Office for Europe, 2009. (http://www.thepep.org/en/workplan%5Ccandw%5Cdocuments%5Cillustrative%20tool.zip).

Rutter H et al. *Health Economic Assessment Tool for Cycling (HEAT for cycling). User guide*, Version 2, Copenhagen: WHO Regional Office for Europe, 2008. (http://www.euro.who.int/transport/policy/20081219_1).

Schmidt M, João E, Albrecht E, eds.: *Implementing Strategic Environmental Assessment*. Berlin, Heidelberg, New York: Springer, 2005.

SEA Handbook for Cohesion Policy. Luxembourg, European Commission, 2006. (http://ec.europa.eu/ regional_policy/sources/docoffic/working/doc/sea_handbook_final_foreword.pdf).

Sexton K. Finding common group for environmental decisions: public health principles as a foundation for better choices. *Human and Ecological Risk Assessment,* 2006, 12:209-218.

Smutny M. *SEA in the Czech Republic: Case studies*. [Presentation at the 3rd working meeting of the Belgrade Initiative on SEA, Minsk] 2008.

Strategic Environmental Assessment (SEA) forum. Second SEA forum. Leeds, Institute of Environmental Management and Assessment, 2007. (http://www.iema.net/index.php).

Stricka M, Zurlyte I, Grabauskas V. A local-level HIA in the transport sector: following legal requirements in Lithuania. In: Wismar et al. eds. *The Effectiveness of Health Impact Assessment*. Observatory Studies series No 9, 105-113. Copenhagen, WHO Regional Office for Europe, 2007.

Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents. London, Office of the Deputy Prime Minister (ODPM), 2005.

The draft London Plan. London Greater London Authority, 2002. (http://www.london.gov.uk).

The European Environment and Health Information System (ENHIS). Copenhagen, WHO Regional Office for Europe, 2008. (http://www.enhis.org).

The global burden of disease. 2004 update. Geneva, World Health Organization, 2008.

The London Plan. London, Greater London Authority, 2004. (http://www.london.gov.uk).

The London Plan. Spatial Development Strategy for London. Consolidated with alterations since 2004. London, Greater London Authority, 2008b. (http://www.london.gov.uk).

Thérivel R, Walsh F. The strategic environmental assessment directive in the United Kingdom: 1 year onwards. *Environmental Impact Assessment Review,* 2006, 26 (7):663-675.

Towards the London Plan: initial proposals for the Mayor's Spatial Development Strategy. London, Greater London Authority, 2001. (http://www.london.gov.uk).

Treaty establishing the European Community. Amsterdam consolidated version – 97/C 340/03. *Official Journal C 340*10/11/1997, Luxembourg, European Commission, 1997.

Welte J W. The relationship of ecological and geographic factors to gambling behaviour and pathology. *Journal of Gambling Studies*, 2004, 20 (4):405-423.

What is the London Health Commission? London, London Health Commission, 2008. (http://www.londonshealth.gov.uk/pdf/whatisthelhc.pdf).

Whitehead M, Dahlgren G. What can be done about inequalities in health? *The Lancet*, 1991, 338:1059-1063.

Williams C, Fisher P, eds. *Draft Guidance on Health in Strategic Environmental Assessment. Consultation document*. London: Department of Health, 2007.

Contact

This document forms one of a number of activities led by the WHO Regional Office for Europe relating to impact assessment methods and strategies. In particular, it supports WHO's desire to support its Member States in the field of SEA. For further information please contact:

Marco Martuzzi
Scientific Officer
WHO Regional Office for Europe
Rome, Italy

E-mail: mam@ecr.euro.who.int

Julia Nowacki
Technical Officer
WHO Regional Office for Europe
Rome, Italy

E-mail: jno@ecr.euro.who.int

The WHO Regional Office for Europe

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

Original: English

The application of impact assessment is increasingly important for development of sustainable projects and policies. Substantial progress has been made on how to meaningfully include health in strategic environmental assessment (SEA) and other forms of impact assessment. However, in the light of the evolving policy context in Europe further promotion of the consideration of health effects and support with all sectors of civil society, including the health sector is required. In line with this, the Budapest Declaration on Environment and Health, 2004, calls for taking "significant health effects into account in the assessment of strategic proposals". Hence WHO is working to assist its Member States with their respective ministries of health to engage into the SEA process. This report summarizes the general discussion and conclusions of an international consultation meeting on "Health and strategic environmental assessment". The overall aim of the consultation meeting was to seek further advice from SEA and health experts and discuss challenges and opportunities for the further involvement of the health sector in SEA and strategic planning processes.

World Health Organization
Regional Office for Europe
Scherfigsvej 8, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 39 17 17 17. Fax: +45 39 17 18 18.
E-mail: postmaster@euro.who.int
Web site: www.euro.who.int