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Review of International Guidance and Recommendations for Good Practice in the Consideration of Health in SEA

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by

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Table of Contents

1. Introduction

This report presents an analysis of key international guidelines addressing the consideration of health in Strategic Environmental Assessment (SEA). It considers practical challenges on how to guide the consideration of health in SEA, including aspects related to how health-related concepts are presented, how health is integrated and how the content is presented and recommended in the guidelines.

The analysis is based on a review of seven guidelines that provide detailed instructions on integrating health into SEA practice. Unlike general guidelines for Environmental Impact Assessment (EIA), SEA or Health Impact Assessment (HIA), these guidelines target specific planning contexts and situations. They originate from international and national organizations.

In order to analyze guidelines, a review framework was developed based in particular, on the preliminary recommendations for good practice in SEA identified in Deliverable 1 - Chapter 7.

Ultimately, this analysis aims to establish criteria for the development of good practice in the consistent and proportionate consideration of health in SEA. Gaps are identified and strengths as well as weaknesses are established.

The results of this analysis are intended to inform a set of recommendations for good practice to be included in the 'Health in SEA Toolkit', including the main conceptual and practical components and parameters applicable to the Irish context.

2. Methodology

2.1 Selected guidelines

Given the specific focus of our study - addressing the integration of health in SEA, which is usually associated with Health Impact Assessment (HIA) practice and is influenced by the unique planning characteristics of each context, we established the following criteria for identifying and selecting the guidelines to be analyzed:

1. A focus on the integration of health in SEA practice.
2. Applied to HIA but with a special focus on recommendations on health in SEA.
3. Prepared by national and supranational institutions and organizations.
4. Representing different European environmental planning contexts and developed after the promulgation of the SEA Directive.

Seven guidelines were selected (Table 1), covering recommendations for national and international planning levels. The focus of our analysis, therefore, excludes recommendations aimed at other levels of planning, such as EIA and other assessment tools that focus do not focus on strategic levels.

The analysis of these guidelines is intended to capture how health has been recommended to be addressed in SEA.

#		Title[1]	Year	Country/Organization[2]	Reference[3]	Direct URL link
1	International	Assessing Health Impacts in Strategic Environmental Assessment	2023	UNECE – WHO – Note by the Bureau	(UNECE, 2023)	https://unece.org/environment/documents/2023/09/session-documents/assessing-health-impacts-strategic-environmental
2		Health Impact Assessment International Best Practice Principles	2021	IAIA - International Association for Impact Assessment	(Winkler et al., 2021)	https://www.iaia.org/best-practice.php
3		Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment	2012	UNECE – Annex A1.1	(United Nations, 2012)	https://unece.org/sea-protocol-resource-manual-0
4	National	Health Impact Assessment Guidelines in Georgia	2024	Georgia	(Roue Le Gall et al., 2024)	https://www.expertisefrance.fr/en/fiche-projet?id=861905
5		Health Impact Assessment Guidance: A Manual and Technical Guidance	2021	Ireland	(Pyper et al, 2021)	https://www.publichealth.ie/sites/default/files/resources/guidance_2.pdf
6		Guidance on Consideration of Human Health in Strategic Environmental Assessment	2019	Scotland	(SEPA, 2019)	https://www.gov.scot/policies/environmental-assessment/strategic-environmental-assessment-sea/
7		Draft Guidance on Health in Strategic Environmental Assessment - Consultation Document	2007	United Kingdom	(Williams and Fisher, 2008)	https://healthimpactassessment.pbworks.com/f/Draft+guidance+on+health+in+SEA+-+DH+England+-+2007.pdf

Table 1: Selected guidance documents.

[1] Complete references are provided in the appendices.
[2] Name as referred to in the report.
[3] See the references section for full details.

2.2 Review Criteria

Criteria for the analysis of the consideration of health in SEA were based on the preliminary recommendations for good practice, identified in Deliverable 1, Chapter 7 were applied.

The analysis establishes:

- The scope of the guidelines.
- The actors to whom they are directed.
- The definition and conceptualization of health.
- The presentation and consideration of environmental and health aspects.
- The existence of relationships between communicable and non-communicable diseases and environmental impacts.
- Recommendations on how to integrate inequalities (e.g. between populations and communities).
- Encouraging the participation of health professionals.

The analysis is based on "*questions to check*" (Table 2), aiming to identify good practice approaches to support the integration of health into SEA, highlighting also what environmental and health/wellbeing topics are presented, how detailed the recommendations are, whether different concepts/definitions are used, and whether recommendations are guided by examples, case studies and templates. The analysis establishes not only the aspects covered (as per the above criteria), but also how they are presented and considered, and the level of detail provided.

Questions

1. Brief overview of the guidance document

2. What is the scope of the guidance?

3. Who is the guidance directed at?

4. How does it define the concept of health? (exact quote)

5. Is this definition close to one of the following conceptualizations of health?

WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

(short description)

6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health? 8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?" 9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts? 10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people? 11. Is the participation of health/expert actors encouraged?

Table 2: Criteria for reviewing the selected guidance documents.

3. Findings

This section explores how the analysed guidelines address each criterion and provides a consolidated overview of the insights gained. While a detailed review of each document can be found in the appendices (A to E), this section correlates information in order to identify convergences, divergences and gaps. This done to identify commonalities in good practice recommendations, as well as to identify limitations and gaps which may inform the development of more comprehensive approaches.

3.1 Scope of the Guidance

The seven guidelines share the common purpose of guiding the integration of health into SEA practice, although they were developed in different contexts and with different objectives (Table 3).

Among the international documents, only UNECE - Annex A1.1 (United Nations, 2012) and UNECE - WHO - Note by the Bureau (UNECE, 2023) have the exclusive scope of guiding good practice in SEA, both in the context of the SEA Protocol (UNECE, 2003). IAIA Best Practice Principles (Winkler et al., 2021) are aimed at HIA but emphasize that recommendations can also be applied to SEA.

With regards to national guidelines, the Scottish guidance on the Consideration of Human Health in Strategic Environmental Assessment (SEPA, 2019) has been developed to assist authorities in integrating health considerations into SEA, in line with the SEA Directive (European Parliament and Council of the European Union, 2001)) and Scottish Environmental Protection Agency (SEPA, 2019) recommendations. Similarly, the UK draft guidance (Williams and Fisher, 2008) is aimed exclusively at SEA practice and seeks to address how significant population and human health impacts can be integrated into SEA. The Irish (Pyper et al., 2021) and Georgian (Roue Le Gall et al., 2024) guidelines focus primarily on HIA practice (this is particularly relevant in the Georgian guidelines given that national legislation has specific requirements about HIA in SEA), but emphasize their suitability for integrating health into SEA and EA in general. Both provide detailed and practical recommendations on how to effectively integrate health considerations.

Guidance	What is the scope of the guidance? Scope and Key Features:
International	
Assessing Health Impacts in Strategic Environmental Assessment (UNECE, 2023)	• Offers recommendations for applying SEA, identifying key environmental issues, including health, and reasonable alternatives. • Presents procedures, methods, tools, and approaches to better address health issues in SEA. • Organized into four main parts: a) Introduction to the approach in accordance with the Protocol. b) Principles for integrating health into SEA, building on the Resource Manual. c) Practical integration of health into SEA. d) Case studies to consider health in SEA.
Health Impact Assessment International Best Practice Principles - IAIA (Winkler et al., 2021)	• Promotes HIA to improve health consideration in projects, programs, plans, policies, and strategies across all sectors. • Provides high-level guidance on when and how to conduct or review HIAs. • Integrates health impacts into other forms of impact assessments (e.g., SEA). • Supports capacity building in HIA, including training and professional education. • Helps strengthen policies, institutions, and resources for effective HIA implementation. • Applies to both standalone HIAs and integrated assessments as part of broader impact assessments.
Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment (United Nations, 2012)	• Aims to support compliance with the SEA Protocol regarding the inclusion of human health in SEA. • Provides guidance on interpretive and methodological challenges in addressing health within SEA. • Focuses on: a) Determining significant health effects. b) Consulting environmental and health authorities. c) Assessing expected impacts on health (qualitative and quantitative). d) Scoping and preparing the environmental report.
National	
Georgia - Health Impact Assessment Guidelines in Georgia (Roue Le Gall et al., 2024)	• Provides a practical guide for incorporating health into strategic documents and projects subject to environmental assessment. • Supports capacity building in HIA for a wide range of stakeholders. • Aligns with regulatory frameworks for HIA within EA. • Offers guidelines to understand HIA within SEA and EIA in Georgia. • Provides tools and frameworks for stakeholders involved in SEA, particularly for sectors outlined in Annexes I and II of the Environmental Assessment Code.

	• Updates the 2020 UNDP Guidelines for the Practical Implementation of HIA in Georgia with practical tools. • Aims to enhance collaboration between National Centre for Disease Control (NCDC), health and environmental authorities. • Improves communication channels among all stakeholders, including planning authorities, consultants, health authorities, environmental authorities, and the population.
Ireland - Health Impact Assessment Guidance: A Manual and Technical Guidance (Pyper et al, 2021)	• Provides a practical, user-friendly framework for conducting independent HIAs and addressing health in SEA. • Updates guidance issued by the Public Health Institute of Ireland in 2009. • Focuses on both standalone HIAs and integrating health into environmental assessments. • Aims to support policymakers, commissioners, and practitioners in effectively carrying out HIAs. • Addresses the integration of health considerations within broader environmental assessment practices.
Scotland - Guidance on Consideration of Human Health in Strategic Environmental Assessment (SEPA, 2019)	• Provides guidance to support authorities in integrating human health considerations into SEA practice. • Complies with the statutory requirements of the SEA Directive and the Scottish Environment Protection Agency (SEPA). • Aims to assist authorities in addressing health issues in the context of sustainable development. • Aligns with SEPA's statutory guidance on its role in contributing to sustainable development.
United Kingdom - Draft Guidance on Health in Strategic Environmental Assessment - Consultation Document (Williams and Fisher, 2008)	• Explains how to consider the significant effects on population and human health in SEA. • Covers health benefits, requirements of the SEA Directive, and the Sustainability Appraisal. • Provides recommendations on what health includes, who to contact, and how to integrate health into the SEA stages. • Offers guidance for authorities to assess health effects in their plans and programs. • Aims to help health organizations understand the SEA context and how to participate effectively. • Promotes broader well-being by influencing social health determinants such as transportation, housing, education, and community safety.

Table 3: Summary of the scope of the reviewed health in environmental assessment guidance documents.

3.2 Definition of the Concept of Health

There is consensus that the WHO definition of health (i.e. "*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.*", WHO, 1946[4]**) is the starting point and the main basis for the development of most of the reviewed guidelines.** As illustrated in Table 4, the guidelines often build upon the WHO concept of health by linking them to broader frameworks. They incorporate aspects such as well-being, mental health, environmental inequalities, as well as public and planetary health, reflecting a more comprehensive understanding of health within their contexts. Annex A1.1 of the UNECE guidelines (United Nations, 2012) is the only exception, as it uses as a basis the perspective of the European Environment and Health Action Plan 2004-2010 (European Parliament, 2004). It considers that health is not only something good and desired by people, but also for society and the economy. Similarly, IAIA's best practice principles (Winkler et al., 2021) focus solely on the WHO's definition of health. The UNECE – WHO - Note by the Bureau (UNECE, 2023), in turn, merges the WHO concepts (WHO, 1946) with those of the SEA Protocol (UNECE, 2003), qualifying health as an intrinsic part of environmental impacts. Therefore, any impact on environmental components such as water, soil, climate, etc. also has an impact on human health. In this sense, it emphasizes that parties to the Protocol may voluntarily go beyond the requirements of the Protocol and take a broader approach to health, as long as the link to environmental factors is not lost or weakened.

The national guidelines adjust definitions to their contexts. The Scottish guidance (SEPA, 2019) interprets the WHO's conceptual basis by saying that there are other external and sometimes fixed or unchangeable health factors (such as socioeconomic, physical and cultural conditions) that can influence people's lifestyles. Environmental inequalities and health may therefore exist. In this sense, it focuses on the environmental factors that can potentially have an impact on health, more specifically in areas such as air, land, water, climatic factors and physical assets, which fall within the remit of SEPA.

The Irish guidelines (Pyper et al., 2021) highlights that the WHO definition of health has not changed since 1948, and that the definition needs to be expanded to incorporate factors such as mental and social well-being as integral aspects of health along with physical health. In this sense, they provide the reader with a wider definition of health and the broad determinants of health. Specifically, the concepts of One Health, Planetary Health, Environmental Health, Health Inequalities and Public Health are mentioned.

The draft guidance from the UK (Williams and Fisher, 2008) introduces two main definitions. The first is from the *European Guidance on the Implementation of the SEA Directive (European Parliament and Council of the European Union, 2001))*, which states: *"The notion of human health should be considered in the context of the other issues mentioned (e.g., biodiversity, fauna, flora, soil, water, air, and climatic factors) and thus environmentally related health issues such as exposure to traffic noise or air pollutants are obvious aspects to study"* (paragraph 5.26). The

[4] The Constitution was adopted by the International Health Conference held in New York from 19 June to 22 July 1946, signed on 22 July 1946 by the representatives of 61 States, and entered into force on 7 April 1948.

second definition comes from the WHO (1946), thus aligning the guidance with both European and international contexts.

The Georgian guidelines (Roue Le Gall et al., 2024) are also based on the WHO 1948 definition. However, they expand it by incorporating additional perspectives aimed at understanding the factors that determine people's health. In this context, human health determinants and health inequalities are introduced, serving as guiding principles.

Guidelines go beyond the definition of health provided by the WHO in 1948. By doing so they highlight the complexities inherent in defining health. Table 5 illustrates how the reviewed guidelines align with key international conceptualizations of health. It demonstrates how some guidelines, including the Georgian (Roue Le Gall et al., 2024) and Irish (Pyper et al, 2021, 2021) ones, directly reference other definitions. Others align definitions indirectly by combining them with the WHO definition. The 1948 WHO definition appears in six of the seven reviewed guidance documents, alongside references to 'Environmental Health' (in five), showing that the relationship between environmental factors and health is a common focus.

The Irish guidance (Pyper et al, 2021) presents the most comprehensive conceptualization, followed by the Georgian (Roue Le Gall et al., 2024), Scottish (SEPA, 2019), and UK guidelines (Williams and Fisher, 2008). It is also notable that all guidelines incorporate other definitions and concepts associated with health, such as the concept of health determinants.

In conclusion, the guidelines support environmental assessment practices in a tailored manner, giving due consideration to the specific social, economic, and cultural contexts in which they are applied. In addition, **they all acknowledge that population health and well-being are as dynamic as the environmental factors influencing them**.

Guidance	How does it define the concept of health
International	
Assessing Health Impacts in Strategic Environmental Assessment (UNECE, 2023)	"The Protocol explicitly refers to health wherever the term "environmental effects" is employed. In article 2, the Protocol determines that: "Environmental, including health, effect means any effect on the environment including human health, flora, fauna, biodiversity, soil, climate, air, water, landscape, natural sites, material assets, cultural heritage and the interaction among these factors." According to the Protocol, human health" "WHO has a wider approach to health. The preamble of the Constitution of WHO states that: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Parties may decide on a voluntary basis to go beyond the requirements of the Protocol and to use a broader approach to health, to the extent appropriate and as long as the link to the environmental factors is not lost or weakened" (p.5; para. 14;15)
Health Impact Assessment International Best Practice Principles - IAIA (Winkler et al., 2021)	The WHO definition on health: "A state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity." (p.8)

Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment (United Nations, 2012)	"Good health is something which everyone wants — for themselves, their children and for the wider economic and social benefits it brings to our society. It plays a major role in long-term economic growth and sustainable development – there is increasing evidence showing that it is not so much the cost of health that is high, but rather the cost of ill-health (in terms of health care, medicines, sick leave, lower productivity, invalidity and early retirement)." (p. 142; para. 2)
National	
Georgia - Health Impact Assessment Guidelines in Georgia (Roue Le Gall et al., 2024)	"In these guidelines, we adopt the WHO definition of human health, where health is considered as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". (p.19)
Ireland - Health Impact Assessment Guidance: A Manual and Technical Guidance (Pyper et al, 2021)	The WHO definition on health: "Health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (p.20)
Scotland - Guidance on Consideration of Human Health in Strategic Environmental Assessment (SEPA, 2019)	"This guidance is based on the World Health Organisation (WHO) definition of health i.e. health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Health is influenced by a range of factors that are 'fixed' (e.g. age, ethnicity and genetics). But there are other external factors which influence health e.g. wider socio-economic and cultural conditions as well as the physical and social environments in which people live, learn and work. These factors all affect our health; the unequal distribution of health-creating and health-harming environments can lead to health inequalities. This guidance is concerned with those health effects which are related to environmental factors (e.g. air, soil, water, climatic factors and material assets) which fall within SEPA's remit." (p. 3; para. 5)
United Kingdom - Draft Guidance on Health in Strategic Environmental Assessment - Consultation Document (Williams and Fisher, 2008)	"In these guidelines, we adopt the WHO definition of human health, where health is considered as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". (p.19)

Table 4: The main concepts and definitions of health across the reviewed guidance documents.

Is this close to one of the following conceptualizations of health?	UNECE – Annex A1.1	UNECE – WHO – Note by the Bureau	IAIA	Scotland	Ireland	Georgia	UK
WHO definition		●	●	●	●	●	●
One health					●		
Planetary health					●		
Environmental Health	●		●	●	●		●
Environmental Health Inequalities				●	●	●	●
Public Health	●				●		
No Direction							

Table 5: Alignment of health concepts and definitions across the reviewed guidance documents.

3.3 Target Audience

All reviewed guidelines have, as their main audience, the actors involved in (SEA and/or HIA) assessment processes, including responsible authorities, planning authorities and consultancies, who wish to more effectively consider health aspects in impact assessment.

The international UNECE-WHO guidance - Note by the Bureau (UNECE, 2023) aims to help parties to the SEA Protocol (UNECE, 2003) to efficiently and consistently address relevant health impacts in SEA. The UNECE Annex A1.1 (United Nations, 2012) guides both, SEA professionals and environmental and health authorities, explaining how to apply the guidelines to consider health in their national contexts. It also seeks to sensitize health professionals to the effective integration of the issue. Furthermore, the IAIA principles (Winkler et al., 2021) offer some generic recommendations (for all those involved), given the diversity of contexts that can benefit from them.

All national guidelines, except the Scottish (SEPA, 2019), define their target audience more specifically, as they have a more defined scope of action. The Irish guidance (Pyper et al, 2021) is aimed directly at planning authorities developing laws, policies, plans and programmes (e.g. ministerial committees, county councils, government departments official groups, local partnerships and authorizing bodies). This also includes private practitioners undertaking environmental assessments.

The draft UK guidance (Williams and Fisher, 2008) is aimed at two main audiences: a) health organisations, which include actors who could potentially be engaged in SEA processes to maximize public health benefits; and b) organizations responsible for preparing plans and programs subject to the SEA Directive (known as responsible authorities).

The Georgian guidelines (Roue Le Gall et al., 2024) is aimed at two main groups: a) stakeholders involved in environmental assessment processes (e.g. planning authorities, consultants, health and environmental authorities); and b) health authorities from the National Center of Disease Control (NCDC) – which represent a legal entity of public law of the Georgian Ministry of Health. The NCDC are responsible for: a) Integrating health into strategic documents and the development of projects and activities; b) reviewing the quality of environmental assessment reports in relation to health; and c) under the supervision of the Ministry of Health, making recommendations to these processes.

This means that **national guidelines are aimed at a more specific target audience. This is reflected in the size and level of detailed recommendations**. The Georgian guidance (Roue Le Gall et al., 2024), for example, contains more than 200 pages and includes models and sections dedicated to the practical application of the topic of health in environmental assessment. The Scottish guidance (SEPA, 2019), on the other hand, is about 20 pages long and offers more general information with few examples.

Despite the differences, all guidelines stress that anyone interested can benefit from the recommendations provided, meaning that there is a generic approach to the organization of these documents, and that they all seek to clarify and standardize definitions, concepts and legal

frameworks for different audiences. In addition, it is common to find sections and/or annexes containing case studies, models and other examples targeting different aspects and audiences.

3.4 Environmental Topics Covered

The **relationship between environmental effects and health is the central theme of all the reviewed guidelines**. Environmental topics are addressed in a variety of ways: from partial references with specific examples to more detailed discussions that explore the connections between the environment and health. However, some topics remain untreated or are only mentioned in passing (e.g. air, water, population, and climate change). The IAIA best practice principles (Winkler et al., 2021) do not provide specific recommendations as such on how to address the links between environmental topics and human health.

In the UNECE guidelines - Annex A1.1 (United Nation, 2012) environmental topics relating to air, water, climate change, land use, biodiversity, population, flora, fauna, soil, cultural heritage and landscape are mentioned. However, these topics are treated more indirectly through examples of health-related questions that can be asked by professionals to help identify any potential health effects of plans and programs. They are not explored in detail, but the examples allow the reader to infer how health issues can be related to/or be impacted by environmental topics.

The UNECE guidance - WHO - Note by the Bureau (UNECE, 2023) does not discuss environmental topics. There is only an example of a checklist of health determinants related to environmental exposures that is recommended to be considered at the SEA scoping stage. However, the document also introduces a "Driving Force, Pressure, Condition, Exposure, Effect, Action" framework as a simple tool for tracing relationships between health effects and other factors, to help the assessment of plans and programmes identify health effects at the community and population levels. This framework would then allow potential health effects to be linked to environmental topics in the SEA. Therefore, even while not directly referring to environmental topics or providing examples and/or detailed discussion of how each could be addressed, the guidance suggests ways of considering them.

Among the national documents, the Irish guidance (Pyper et al, 2021) adopts an example-based approach. While environmental issues are not explored in detail, they are referred to when setting up the scope of an EIA – specifically recommending the identification of health determinants for each environmental topic. Nevertheless, this guidance only provides examples for climate change, air quality, water, soil, noise and radiation. It also introduces a reference table (see Appendices E Figure E2) to be used to identify the relevance of environmental topics and health determinants at the scoping stage.

Similarly, the draft UK guidelines (Williams and Fisher, 2008) adopt an example-based approach, with a focus on recommending a thorough consideration of how the health of the population is influenced by different topics covered in the SEA Directive (European Parliament and Council of the European Union, 2001). However, it is pointed out that while in some cases this relationship is direct and obvious, environmental and health issues can be complex and that it is sometimes necessary to rely on specific studies. Annex D of the guidelines, addressing '*SEA topics and health*

evidence', highlights environmental topics (as per the SEA Directive) accompanied by various examples that show how the environment can impact on health, and the interrelationship of health with other environmental factors. The theme of 'population', however, is given greater prominence, being frequently mentioned in different examples. Arguably, this theme can be interpreted as a cross-cutting element in the consideration of health in SEA.

The Scottish guidelines (SEPA, 2019) take a more detailed approach than the other national guidelines. It assumes that new plans may affect environmental topics which in turn may affect or be affected by human health. Examples are given to illustrate how human health interacts with SEA topics. However, unlike the other guidelines, the focus of this document is on highlighting aspects of the general state of environmental topics in Scotland, specifically soil, air, water, physical assets and climatic factors. Examples are also provided of common environmental problems in the country and their potential impact on human health. Similarly to the draft UK guidelines (Williams and Fisher, 2008), population is addressed in a cross-cutting manner. The Scottish guidance presents strategies for identifying how environmental impacts of planning can affect health aspects of different population groups. It provides examples of data sources, the use of indicators, as well as mapping and assessment methods related to population. The document, therefore, emphasizes a Scottish contextual approach, providing tools and information adapted to the specifics of the country.

In the Georgian guidelines (Roue Le Gall et al., 2024), the linkages between environmental and health issues are treated in principle in a general but clear way, translated into examples of information sources and baseline indicators for the SEA scoping phase. However, nine supporting tables are presented in the appendices D, Figure D2, addressing health determinants and environmental topics (e.g. water management and quality, waste management, active lifestyle, transport and access to services, housing and living environment, etc.). These tables are based on Georgian and EU case studies and include indicators, legislation, policies and scientific evidence related to these contexts. For each health determinant, these tables detail health-related issues and their interrelationships. They provide a template for collecting data and identifying key elements for assessing impacts (temporary and permanent).

The Georgian guidelines stand out from the rest of the reviewed documents by adopting a practical and exemplary approach, and offering a template for systematically assessing the links between environmental topics and health determinants, and any associated impacts.

Providing examples is a key approach by all guidelines: in most cases, environmental topics are either only mentioned and/or associated with examples of issues/goals/indicators related to health and its determinants. The Scottish and Georgian guidelines present a slight variation to this, as they contextualize health issues to the local environment, and provide dedicated case studies and/or templates and case studies for specific environmental topics.

Table 6 shows that environmental topics such as air, water, climate change and soil are present in most of the reviewed guidelines, suggesting consensus on their relevance. On the other hand, topics such as material assets, biodiversity, cultural heritage, chemical pollution, landscape and the interrelationships between these factors are often overlooked. This reveals important gaps in

the consideration of SEA environmental topics, and suggests that these topics may be more complex and more challenging to articulate and link with health issues.

The cross-cutting nature of the 'population' theme in the UK and Scottish guidelines stands out. Arguably, this topic can be considered the one most directly related to health, as it addresses broader range of health determinants.

Environmental Topic	Yes	Partially	No
Air	2	3	2
Noise	1	3	3
Water	2	3	2
Climate Change	2	3	2
Chemical Pollution	0	1	6
Land Use	0	3	4
Biodiversity	0	3	4
Food	0	2	5
Population	1	4	2
Fauna	0	3	4
Flora	0	3	4
Soil	2	2	3
Material Assets	1	2	4
Cultural Heritage	0	3	4
Landscape	0	3	4
Interrelationship	0	0	7
Others	1	0	6
Note: “Yes” for when a topic is mentioned and discussed in detail; “Partially” for when a topic is only mentioned or quoted without any detail or explanation, being used only as an example; and “No” for when the topic is not mentioned.			

Table 6: Environmental topics included/referred to in the reviewed guidance documents.

In summary, the revised guidelines present different approaches to considering and guiding the assessment of environmental topics and health, reflecting both, diversity and the varying depths of assessments. Despite the differences, **all guidelines recognize the importance of considering environmental impacts on human health, although the depth of such consideration, the assessment methods and the level of integration vary**. All in all, the guidelines highlight the need for more integrated and detailed consideration of health in future environmental assessments.

3.5 Health and Well-being Topics Discussed

The reviewed guidelines suggest that there are challenges with regards to the integration of health and well-being in SEA, especially in relation to the inclusion of specific health topics such as economic security, education, social context, healthy behaviors, health care, infections and parasitic diseases, nutritional and neonatal diseases, communicable diseases, illnesses or injuries. These topics are therefore often considered in an indirect way or framed within the broader concept of health determinants in a generic sense, using practical and illustrative methods to show how health and well-being topics can be considered. For example, documents such as the UNECE - WHO - Note by the Bureau (UNECE, 2023), IAIA principles (IAIA, 2021) and the Scottish guidance (SEPA, 2019) do not specifically address specific health topics and provide for only limited examples.

The UNECE document Annex A1.1 (UNECE, 2023) gives examples for how health and well-being can be addressed and provides an example table (matrix) that relates possible environmental risk factors to disease risks, providing a clear link between environmental and health issues. However, this table only provides examples for topics such as infectious and parasitic diseases, nutritional and neonatal diseases, non-communicable diseases, other diseases and injuries. There are no examples related to, for example, equity, education, physical environment, socio-economic and community contexts, healthy behaviours and access to health care. Nevertheless, the Annex highlights the difficulty of integrating these aspects into the SEA process, particularly given the difficulty of making detailed and accurate predictions about possible health effects, benefits or problems of a plan or programme. In addition, it explains that, in this decision-making context, it is not feasible to carry out detailed studies and that it is therefore essential to take a more simple and practical approach to the consideration of these issues.

The Irish guidance (Pyper et al, 2021) does not discuss health and well-being in any detail either. There is a table exemplifying how health determinants can be relevant in shaping the scope of assessments, with a set of examples to inspire future application. In the draft UK guidance (Williams and Fisher, 2008), health and well-being topics are dealt with in a similar way. Here, a table is included to show examples of possible effects on the population to be considered in SEA. Both, the Irish and UK guidance documents opt for a generic and broad approach, using examples of health determinants and/or effects on population.

Different from the others, the Georgian guidance (Roue Le Gall et al., 2024) places health determinants at the forefront. To this end, a template table is provided for the identification and selection of health determinants at the SEA scoping stage. The guidance explains in detail how to carry out this process, providing examples of health and well-being determinants, selection criteria and a box to be filled in for the assessment of each determinant. While not directly addressing all topics considered in this research, the health determinant examples provided in these templates link to them, including e.g. physical environment, social and community context, healthy behaviors, and health care.

The key finding from the review of specific health criteria is that all reviewed guidelines recognize the difficulty of accurately addressing health and well-being issues in SEA, especially given the limited data available and the complexity of predicting direct plan and programme impacts. In addition, health and well-being topics are commonly linked to health determinants or environmental issues, yet detailed health determinants are not widely discussed. The range of well-being considerations is limited with some aspects (e.g. economic security and equity, education, physical environment, social and community context, healthy behaviors, health care, infections and parasitic diseases, nutritional and neonatal diseases, non-communicable diseases, diseases or injuries or other considerations) not being considered at all. All reviewed guidelines adopt a **pragmatic and didactic approach, through the provision of examples, tables or frameworks** to help scope and assess health considerations in SEA.

3.6 Health Indicators

Indicators to monitor changes in health are widely recognized as being relevant in most guidelines, although they are approached in different ways. Among the international guidelines, only the UNECE - WHO Note by the Bureau (UNECE, 2023) does not raise the issue. Also, the UNECE - Annex A1.1 document (United Nations, 2012) does not provide recommendations on indicators or practical examples, but it emphasizes the importance of distinguishing between indicator levels. This document explains that in SEA practice, data tend to be more generic at national and regional levels, while health indicators tend to be detailed and specific to local contexts. The Annex then highlights the need to develop or adapt monitoring systems that are applicable for addressing health issues at the relevant planning level, suggesting ways to use health indicators at different SEA stages, including scoping, monitoring and environmental reporting.

Similarly, the IAIA principles document (Winkler et al., 2021) recommends the use of indicators but does not provide examples of practical application. It points out that indicators that monitor health determinants are fundamental and can be based on both, existing data and qualitative or quantitative information generated during the assessment process. Challenges of considering and applying these indicators are also recognized. For example, it explains that monitoring of health outcomes is important, but it is usually expensive and complex to gather associated data as it requires specific knowledge and appropriate data management and protection procedures to ensure confidentiality. It then goes on to recommend monitoring frameworks that focus on verifying compliance with legal requirements or performance standards which may relate to health determinants/indicators.

At a national level, the Irish and Scottish guidelines take a more indirect approach. Whilst the former (Pyper et al, 2021, 2021) do not provide for specific recommendations on indicators for evaluating environmental topics (such as health, social issues, education and the economy), they provide national sources of information and data that can be used in monitoring. The latter (SEPA, 2019) include an example of indicators to be applied when monitoring significant health impacts. However, the example is limited to the logic of good air, soil and water quality indicators reflecting improvements in health.

The draft UK guidance (XX Williams and Fisher, 2008) and the Georgian guidance (Roue Le Gall et al., 2024) address the use of indicators in a detailed manner. The former strongly recommends the use of indicators, particularly as an element to be defined at the scoping stage, along with objectives and targets. It also suggests national sources of information and the development of a system of standardized indicators. It highlights the importance of involving health professionals at this stage to improve the definition and use of indicators. It also points out that the selection of these indicators should take the various factors that affect health into account. To this end, it recommends that the choice of indicators should not be based solely on evidence of correlation, but on a transparent assessment of causality - for example, whether the construction of a particular facility might affect the mental health of a community. This guidance goes on to provide a wide range of examples of indicators for monitoring changes in health and, importantly, their relationship to SEA objectives and targets (refer to Appendices G for more detail).

The Georgian guidance (Roue Le Gall et al., 2024), on the other hand, not only reinforces the importance of using indicators, but also presents a template to support the proposal of a baseline at the scoping phase, with a focus on identifying relevant indicators. The template (see Appendices D, Figure D4) presents a series of indicators associated with a range of categories such as demographic, health, health services, environmental and socio-economic. The table makes it possible to check the existence of each indicator, its availability and whether it can be compared with national data or information contained in other Georgian documents.

All the reviewed guidelines recommend the use of indicators to monitor changes in health. UK and Georgia guidelines present detailed approaches with practical examples, suggestions for standardized systems and emphasize the importance of involving health professionals, while others, such as those from Ireland and Scotland, offer more general guidance. A common **challenge is the need to balance generic and specific indicators to ensure they are applicable and useful at regional and local levels**. There is some concern about **the selection of indicators being based on robust evidence, taking into account the causality of SEA objectives and impacts, which requires effective monitoring systems and care in data management and protection**. This review concludes that **there is a need to develop clearer and more detailed recommendations on health indicators in SEA**.

3.7 Indicators/Topics Recommended for Inclusion in any Guidance

The reviewed guidelines provide an array of examples, data and supporting references, some of which are presented and summarized here to inform the development of health indicators for SEA (Table 7).

The UNECE - Annex A1.1 (United Nations, 2012) provides examples for how measures of socio-economic status can be important determinants of health. This can be translated into indicators involving topics such as education, demographics and income. Similarly, the UNECE - WHO - Note by the Bureau (UNECE, 2023) includes an example of the application of the Driving Force, Pressure, State, Exposure, Effect, and Action method, with specific examples of driving forces that could be translated into and monitored by indicators, such as climate change, demography and income.

The Irish guidance (Pyper et al., 2021) provides examples of health determinants applicable to projects, which can consequently be monitored using indicators related to water, soil, noise and radiation. The Georgian and draft UK guidelines (Williams and Fisher, 2008), directly provide several examples of indicators and emphasize the need for appropriate contextualization of these to the relevant planning and assessment levels.

Guidance	Examples of potential indicators to address health in the SEA.	Potential Indicators Themes*
International		
Assessing Health Impacts in Strategic Environmental Assessment (UNECE, 2023)	Examples of Driving Force (Driving Force, Pressure, State, Exposure, Effect, Action framework) that can suggest the development of indicators.	
More details in figure A1 of appendices A.	A number of macro-scale factors ultimately affect human health include: • The global, national, regional and local economy having an indirect impact on human health by affecting income levels and the distribution of income. • A changing climate meaning increased risk of severe weather events with short-, medium- and long-term effects on physical and mental health. Demographic changes directly and indirectly affecting health and well-being through changes to the age and employment structure of the workforce, meaning that people will have to work until they are older and a smaller workforce will have to support a larger non-working population.	• Climate change • Demographics • Income
Health Impact Assessment International Best Practice Principles – IAIA (Winkler et al., 2021)	There are no elements in these principles that can be used as recommendations for developing indicators.	None
Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment (UN, 2012)	Examples of socio-economic status that can be monitored using indicators	
More details in figure C3 of appendices C.	Measures of socio-economic status that are important determinants of health such as: • Income (individual or aggregated):influences health through a direct effect on material resources. Income is the best single indicator of material living standards. However, the collection of income data can be limited due to the sensitive nature of such information. • Education levels (individual assets): is a strong determinant of future employment and income and it may affect a person's cognitive functioning. Information on education levels is easy to measure. However, these measures do not generally assess the quality of education.	• Education • Demographics • Income

<table>
<tr><td></td><td colspan="3">• Occupation: is strongly related to income. Further, occupational class reflects social standing and may relate to health outcomes. Occupations may also reflect specific toxic environmental or work-task hazard exposures. Occupation information is easily available in routine data sources.</td><td></td></tr>
<tr><td colspan="5">National</td></tr>
<tr><td>Georgia - Health Impact Assessment Guidelines in Georgia (Roue Le Gall et al., 2024)</td><td colspan="3">Set of indicators suggested in the template available for setting up the baseline.</td><td rowspan="2">• Health services
• Health
• Air
• Water
• Waste
• Urban facilities
• Soil
• Well-being
• Mobility
• Housing
• Employment
• Homelessness
• Unemployment
• Poverty</td></tr>
<tr><td>More details in figure D4 of appendix D.</td><td>Health services
• City health education programs
• Immunization rates
• Inhabitants per primary health care practitioner
• Inhabitants per nurse
• Percentage of population covered by health insurance
• Availability of services in foreign and minority
• languages in the area
• Health debates in city council
• Healthcare services</td><td>Health
• Mortality
• Main causes of death
• Low birth weight
Environmental indicators
• Air pollution
• Water quality
• Sewage collection
• Household waste
• Green space
• Derelict industrial sites
• / Soil contamination
• Sport and leisure facilities
Pedestrianization</td><td>• Cycle routes
• Public transport access
• Public transport range
• Living space

Socioeconomic indicators
• Percentage of population in inadequate housing
• Homelessness
• Unemployment
• Poverty
• Availability of child care
• Age of mothers at time of birth</td></tr>
<tr><td>Ireland - Health Impact Assessment Guidance: A Manual and Technical Guidance (Pyper et al, 2021)</td><td colspan="3">Examples of health determinants to be applied at project-level scoping that can inspire the development of monitoring indicators.</td><td rowspan="2"></td></tr>
<tr><td>More details in figure E5 of appendix E.</td><td colspan="3">Project-level scoping tool for health determinant and health issues within each health determinant such as:
• Environmental conditions – Water:
o Drinking water quality (including biological and chemical agents)
o Drinking water - quantity or access
o Bathing water quality (including biological and chemical agents, disease vectors)
• Environmental conditions: Soil:
o Mobilisation of historic pollution
o Risk of new ground pollution (e.g. industrial agents or accidental spills)
o Food resources and safety (e.g. agricultural land availability and quality)</td><td>• Water
• Soil
• Noise
• Radiation
• Food</td></tr>
</table>

	• Environmental conditions – Noise:
	  ○ Plant, processes and vehicle disturbance.
	  ○ Vibration
	• Environmental conditions - Radiation:
	  ○ Electro-magnetic fields, actual risk
	  ○ Electro-magnetic fields, understanding of risk (risk perception)
	lonization, understanding of risk (risk perception)	

Scotland - Guidance on Consideration of Human Health in Strategic Environmental Assessment (SEPA, 2019)	Examples of cumulative impact monitoring indicators.	
More details in figure F3 of appendix F.	Cumulative effects - Examples: • Frequent and numerous occurrences of poor air quality result in negative effects on human health. • Historic landfill operations lead to water contamination result in negative effects on human health. • High concentration of industry in one area creates nuisance resulting in negative effects on human health. • Inadequate waste water management results in poor bathing water quality at a location removed from the source. • A plan includes proposals for two different industries, each likely to discharge a different pollutant into the same watercourse. Alone, these pollutants are not harmful to human health. • Together they result in a chemical reaction creating a new pollutant which is harmful to human health. A plan includes a proposal for a development, which results in low levels of discharge of a pollutant into a watercourse. The pollutant is dispersed by the volume of water and does not have a significant effect on the water environment. The plan also includes a proposal which results in water abstraction from the same watercourse which does not have a significant effect. However, together the water abstraction concentrates the levels of pollutant discharged, and thus potentially affects the quality of the water environment which results in harmful effects to human health. • Restoration of derelict land for re-development which includes landscape improvements results in an overall improvement to the local living / working environment. Frequent small additional demands of infrastructure (e.g. waste water treatment) result in system failure which may affect human health.	• Waste • Air • Soil • Water • Chemical Pollution • Landscape • Land Use
United Kingdom - Draft Guidance on Health in	Examples of health indicators to be used in different types/levels of plans and assessments.	• Housing

Strategic Environmental Assessment - Consultation Document (Williams and Fisher, 2008)				• Urban facilities • Education • Employment • Demographic aspects • Climatic Factors • Transport • Mobility • Traffic • Accidents • Flooding risk • Material assets
More details in figure G4 of appendix G.	*For an* Unitary Development Plan (It's a development plan prepared by a metropolitan district) • Percentage of new housing accessible to major public open space • Percentage of new housing with access to: ○ health facilities: clinics, GPs and hospitals, etc ○ educational facilities: primary and secondary schools ○ community facilities: library, police, post office, shops and local shopping • Percentage of affordable housing within and outside settlements • Unemployment rates for men and women • Amount of new businesses and employment created • Employment in agriculture and farm diversification	*For a* Flood Risk Management Strategy or Catchment Flood Management Plan • Number of death or injuries causes by flooding • Uptake of Flood Warning Service • Preparation of Flood Action Plans • Number of community assets protected from flooding (e.g. housing, facilities such as schools, hospitals and businesses) • Extent of recreation and amenity facilities	*For a* Local Transport Plan • Number of people killed and seriously injured on roads • Number of children killed or seriously injured on roads • Number of slight casualties on roads • Percentage of children travelling to and from school by different transport modes • Cycling trips indicator • Increase in cycling • Improved accessibility to a main NHS hospital • Adoption of Rights of Way Improvement Plans • Increase in the number of people attending job interviews per year via "access" initiatives • Number of new dwellings within 250m of a local network stop with a service between 07:00 and 20:00 • Improve actual and perceived personal safety whilst travelling on public transport	
*Note: These are examples of possible themes for recommended indicators, based on the association between the examples identified in the documents analyzed and the corresponding environmental topics.				

Table 7: Compiled examples of potential indicators for health and well-being monitoring in SEA.

3.8 Recommendations on Environmental Impacts on Health and Relationships with Communicable and Non-communicable Diseases

Recommendations on the importance of environmental impacts on health and their relationships with communicable and non-communicable diseases is a topic that is not addressed directly or in detail in the majority of the reviewed guidance documents. It appears to be linked to other issues, with a greater focus on environmental health impacts and their linkages to communicable and non-communicable diseases only through examples. As a result, there is not a clear and detailed discussion of how these issues can be linked.

The Georgian guidance (Roue Le Gall et al., 2024) presents an exception. It not only makes this relationship clear, but also presents supporting template sheets. More specifically, the "Support Sheet 7 - Adaptation to climate change and energy management", provides references to national documents and data sources, including some examples on vector-borne diseases; and "Support Sheet 8 - Active lifestyles, transport and access to facilities/services", which addresses in detail the impact of environmental changes on non-communicable diseases.

UNECE guidance - Annex A1.1 (United Nations, 2012) also encourages the consideration of health and well-being determinants, illustrating how they can be a starting point for assessing potential health effects of a plan or programme. However, the relationships between environmental impacts on health, particularly communicable and non-communicable diseases, are only indirectly explored. Only a limited number of examples illustrate how health determinants can be affected by plans/programmes and their relationship with communicable and non-communicable diseases.

In contrast, in the UNECE document - WHO - Note by the Bureau (UNECE, 2023) there are no detailed recommendations, and the relationship between communicable and non-communicable diseases is dealt with through examples in the descriptions of how health can be considered at each SEA stage.

In the IAIA principles (Winkler et al., 2021), these relationships are strongly emphasized through recommendations on the need to verify how the environmental impacts can change health conditions, such as health risks and opportunities, as well as changes in health outcomes. It is recommended to prioritize the assessment of the significance of impacts that can consequently produce effects on health, allowing management and monitoring actions to be established. However, the relationship between communicable and non-communicable diseases appears to be understated in these recommendations.

The topic is covered to the smallest extent in the Irish (Pyper et al, 202), Scottish (SEPA, 2019) and draft UK (Williams and Fisher, 2008) guidance documents, as there are no clear or detailed references and recommendations on the links between environmental impacts and health. Furthermore, it is only briefly mentioned in some of the examples.

In summary, this review of guidelines **reveals a fragmented approach to addressing the relationships between environmental impacts, health, and communicable and non-communicable diseases.** While some guidelines provide clear and detailed recommendations along with practical tools, most address these links and considerations only briefly and indirectly.

Nevertheless, guidelines recognize the importance of environmental impacts on health and well-being, even if the connections to communicable and non-communicable diseases are not always explicitly explored.

Ultimately**, the guidelines collectively underscore the need for stronger integration of health determinants into environmental assessment practices**, ideally by bridging the gap between conceptual discussions and actionable recommendations.

3.9 Recommendations on Inequalities within Populations or Communities

All reviewed guidelines address this issue, but with different approaches and levels of detail. **Recommendations on how to consider population aspects in a health context are often linked to social, economic and health inequalities**. In addition, there is **a recurring emphasis on identifying and analyzing the vulnerabilities of specific population groups**, reinforcing the importance of incorporating these issues into the SEA process.

The UNECE - Annex A1.1 (United Nations, 2012) and UNECE - WHO - Note by the Bureau (UNECE, 2023) guidance does not present clear or detailed recommendations on how to address health inequalities but uses a few examples and mentions general principles. The Note is aligned with IAIA guidance, implying the inclusion of the voices of vulnerable populations in decision-making processes when advocating for good public participation and governance practices (transparency, accountability). More specifically, the IAIA recommendations highlight the need to consider inequalities between populations and communities. It is emphasized that people have the right to be informed about initiatives for development, to influence decisions and to express their hopes and concerns related to health. In this context, the principles of equity and equality are highlighted as being essential for decision-making, avoiding the unequal distribution of health risks and opportunities, with special attention to potentially vulnerable or marginalized groups.

National guidelines, on the other hand, explore this consideration in more detail. The Scottish guidance (SEPA, 2019) links the issue to the population theme, stating that different groups and individuals can react to the same health risks in different ways, depending on their ability to adapt. In this context, the guidance presents strategies for searching and assessing information on social inequalities in Scotland, indicating sources of information, national services, databases, and strategies for creating maps, encouraging the use of Geographic Information Systems.

The Irish guidance (Pyper et al., 2021) emphasizes the importance of considering the vulnerability of population groups at the scoping stage. Here, the first step is to identify affected population groups, in particular the most vulnerable, and a template is presented to guide this. The document argues that this makes it possible to identify a short and consistent list of population groups to be considered in an assessment of cumulative (in)equalities. This will make it possible to demonstrate to the importance of balancing the characteristics of the populations concerned (e.g. age, income, education, housing and the mapping of this information) with the aims and impacts of future planning, including health.

The draft UK guidance (Williams and Fisher, 2008) states that population aspects should be considered in relation to health determinants, assessing the extent to which potential impacts on

the natural and built environment could affect the health of the population. NB: this is draft guidance and some of these issues are only poorly explored. However, it does include a reference box on how health inequalities are dealt with in the UK health system, highlighting the need to consider them throughout an individual's life, particularly in relation to the risks and exposures associated with socio-economic backgrounds.

The Georgian guidance (Roue Le Gall et al., 2024) reinforces the importance of considering health inequalities right from the screening and scoping stages. In this context, it provides a tool for determining and assessing inequalities which takes socioeconomic status, age, and gender into account. Impacts are also scored by theme (e.g., population, specific populations, food security, physical activity, social isolation, public participation, childcare, access to culture, heat island; more details are provided in Appendix D, Figure D7.) for each population group.

It is concluded that the guidelines consider population health inequalities a cross-cutting issue, fundamental to the consideration of health and inherent to SEA. They all emphasize that health inequalities need to be addressed in a clear and consistent manner.

3.10 Participation of Health Experts/Actors

Participation of health actors and/or experts is encouraged in the guidelines, with the sole exception of the Scottish guidance (SEPA, 2019), which does not provide for any recommendations to this effect.

Participation of health experts/actors can ensure and optimize the consideration and integration of various health dimensions, including health determinants.

The UNECE and WHO international guidance (UNECE- Annex A1.1 and UNECE WHO - Note by the Bureau - United Nations, 2012 and UNECE, 2023) specifically states that the joint work of environmental and health authorities would be crucial for the effective consideration of health in SEA. This allows for the identification and integration of relevant health determinants, and cam lead to:

- The identification of health determinants that are likely to be significantly affected by plans and programmes.
- The identification of causal links between changes in health determinants and the corresponding effects on health.
- The establishment of measures to prevent, reduce or mitigate any significant adverse effects on health.
- The Identification of strategies to monitor actual health effects during the implementation of various plans and programs.

There is consensus that **the involvement of health experts/actors in SEA tends to be rare** and that they may not, at least initially, have the capacity to contribute effectively to the assessment. Furthermore, if necessary, it is important to **raise awareness and set up mechanisms to involve these actors**. The findings of this review point to challenges of cross-sectoral work, especially as public health authorities may not have expertise in SEA or be familiar with the procedures. It is for

this reason that most of the guidelines have an introduction to the subject of health and the role of health expertise.

Some guidelines outline who the health experts would be (e.g. health organizations or authorities) and what their participation could potentially provide to SEA. For example, the IAIA principles (Winkler et al., 2021) emphasize that the involvement of health experts can be through many different stakeholder groups (e.g., proponents, local communities or institutions, regulators / competent authorities and HIA practitioners). With their diverse knowledge, skills and experience in the field of EA, these can contribute to the development of a productive inter-disciplinary and cross-sectoral dialogue.

The Georgian guidance (Roue Le Gall et al., 2024) lists specific thematic areas where potential health expertise can make a significant contribution to decision-making, such as specialists in: air quality, cancer, cardiovascular disease, diabetes, disease prevention, climate change, nutrition, food safety, mental health, obesity, transport, urban development, noise, and physical activity.

In terms of the roles played by these actors, the draft UK guidance (Williams and Fisher, 2008) indicates some of the benefits that the participation of these actors can offer. These include:

- To promote and ensure improvements in the health of a population by fostering an environment conducive to healthier lifestyles;
- To ensure that broad determinants of health are taken into account in planning;
- To reduce health inequalities;
- To strengthen partnerships between planners; and
- To improve community engagement.

In addition, the participation of health experts/actors in SEA has the effect of e.g., preventing disease and promoting good health by influencing the broader determinants of health (transport, housing, education, employment, community safety and the built environment).

It is concluded that by emphasizing the importance of the participation of health experts/actors, the guidelines convey that **their participation early in the decision-making process is essential for an effective identification and consideration of health issues in environmental assessments.**

4. Key Findings

In this section key findings are subsequently formulated with regards to a range of themes.

Scope of the guidelines

International guidelines tend to have a broader scope and, therefore, often take a more generic/strategic approach, introducing concepts such as those related to environmental impacts, their relationship with health, and the role of SEA and/or HIA. On the other hand, national guidelines tend to have a more specific scope, tailored to local legislative contexts and requirements (e.g. more specifically defining the concept of health and the scope of application of SEA in their national context).

Definition of health

The concept of health in the revised guidance documents is predominantly grounded in the WHO definition - "*Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*" (WHO, 1948). Most guidelines build upon this definition by integrating broader frameworks, such as environmental health, health inequalities, and planetary health, to address the complex interplay between health and environmental factors. While international guidelines focus on linking health with environmental and economic considerations, national guidelines (Scottish, Irish, Georgian) adapt the WHO concept to their specific socio-economic and regulatory contexts. This demonstrates the adaptability of guidance to diverse realities while underscoring the critical connection between environmental impacts and human health. In this context, the reviewed guidelines demonstrate that health is understood as an integrated and multidimensional concept, in line with the WHO definition, which goes beyond the absence of disease to include physical, mental and social well-being. In SEA, this approach is broadened by considering the environmental and socio-economic determinants that affect quality of life.

In practice, health is intrinsically linked to the impacts of policies, plans and programmes on factors such as air, water and soil quality, as well as broader and complex issues such as climate change, environmental and social inequalities and living conditions. Thus, by positioning it as a core sustainability indicator, SEA promotes an integrated approach that connects the natural environment, social systems and human well-being, guiding strategic decisions to improve population health, quality of life and resilience of communities.

Target audience

The reviewed guidelines different target audiences. In the national context, these involve specific stakeholders, responding to local needs to ensure their relevance to the specific regulatory and social contexts. Furthermore, the effective implementation of the guidelines depends on the formulation of recommendations that promote awareness among both, environmental and health professionals, taking into account the diversity of contexts and actors involved.

Environmental topics

a. Guidelines cover environmental topics in relation to health in different ways. While some, including those from the UK and Scotland, provide detailed examples and strategies for linking environmental issues to health impacts, others, including those from IAIA and UNECE, take a more general or indirect approach. Variations reflect how different regional contexts and different levels of recommendations shape the ways in which guidance is developed.
b. Environmental topics such as air, water, climate change and soil are frequently mentioned in guidelines, indicating their importance in SEA. Complex issues, such as food security, biodiversity, chemical pollution, landscape and cultural heritage, are often neglected or only partially addressed - mostly through examples. This suggests gaps in the way these issues are integrated, despite their relevance to the consideration of health in SEA.
c. The topic of "population" is addressed consistently in most guidelines. It is considered a cross-cutting element, as it relates to various environmental factors and impacts on health. This cross-cutting approach helps to incorporate broader health determinants into the environmental assessment framework, highlighting the importance of population-based considerations as a way of achieving health-related aspects.
d. The Georgian guidelines stand out for with regards to their detailed approach. They provide a clear and comprehensive template for assessing health impacts, with nine supporting tables that offer specific indicators, legislation, policies, and scientific evidence for environmental topics such as air quality, water management, and climate change adaptation. This approach provides a valuable tool for linking environmental and health impacts in a more actionable and localized context.
e. Despite the varying depth of treatment of environmental topics, all guidelines acknowledge the importance of linking environmental factors to human health. The analysis suggests that there is a need for more integrated and detailed approaches in future guidelines, ensuring that all relevant environmental topics, especially those complex and less directly related to health, are systematically included and addressed in the context of health assessments.
f. In most guidelines, a triangulation is attempted between health, health determinants and environmental topics. It is noted that bringing about a balanced emphasis between these topics is challenging. There is a greater focus on health topics (e.g. physical health versus mental health) and health determinants (e.g. behaviours, food, access to healthcare) than on environmental topics (e.g. air and water quality),showing a greater emphasis on the human impact of environmental change. In this sense, it is possible that future guidance will need to place more emphasis on the interrelationships between these factors to provide a more holistic understanding of the links between health and the environment.

Health and well-being considerations

a. Most guidelines address health and well-being topics indirectly, framing them within health determinants. This approach highlights the connection between health and

environmental issues but does not provide for detailed discussions of specific well-being aspects such as economic security, education, or social contexts.

b. There is a general acknowledgment across the reviewed guidelines that integrating both health and well-being into SEA is complex. It is underlined that predicting the direct impacts of plans and programmes on health often requires detailed studies that are not always feasible within an SEA context.
c. Guidelines often prioritize practical frameworks or illustrative methods to integrate health into SEA. For example, the UNECE guidance includes a table that links environmental risk factors to disease risks, covering e.g. infectious diseases and injuries. However, it does not deal with well-being topics such as economic security, healthy behaviours, and social equity, revealing gaps in the exemplification. The Georgian guidance stands out by offering a structured methodology for selecting and evaluating health determinants at the scoping phase. Although it does not explicitly address all well-being topics, the support sheet indirectly covers many related themes, providing a robust tool for integrating health considerations into environmental assessments.
d. In summary, the main strategy to steer the approach to health and well-being consists of presenting general examples of application, describing case studies and providing templates. Health and well-being are often framed by/with examples of determinants of health, using frameworks or tables to help identify and assess impacts. This approach, however, results in a diluted treatment of certain issues.

Proposed indicators

Guidelines highlight the relevance of indicators for monitoring changes in health, although their definition, scope and application vary considerably. While guidelines from the UK and Georgia present more detailed approaches, with practical examples, suggestions for standardized systems and the recommendation to involve health professionals in the formulation of indicators, guidelines from Ireland and Scotland offer more generic approaches. A common challenge is to balance the use of generic and specific indicators, ensuring their applicability for both SEA of national/regional and local plans/programmes. In addition, it is emphasized that the choice of indicators should be based on robust evidence, considering the causality of impacts and the objectives of SEA, which requires effective monitoring systems and careful data management. Table 8 presents a summary of the key indicator themes related to health in the SEA.

Key indicator themes for considering health in the SEA	
Environmental Topics	• Air • Climate change • Climatic Factors • Noise • Radiation • Soil • Water • Waste • Flooding risk

Socio-Economic Topics	• Demographics • Education • Employment • Housing • Income • Material assets • Traffic • Transport • Urban facilities • Homelessness • Unemployment • Poverty
Health and Well-being Topics	• Accidents • Health • Health care • Health services • Mobility • Well-being

Table 8: Key indicator themes for considering health in the SEA.

Environmental impacts on health and relationships with communicable and non-communicable diseases

There is a fragmented approach to addressing the relationships between environmental impacts, health, and communicable and non-communicable diseases across the reviewed guidelines. While some, including the Georgian guidance, provide clear and actionable recommendations supported by detailed tools and examples, others, like those from Ireland, the UK and Scotland, approach the topic more indirectly, relying on illustrative examples. Despite these variations, a shared emphasis is evident on recognizing environmental health as a critical consideration, albeit with differing levels of detail and practical application.

A common theme among the documents is the acknowledgment of the importance of environmental determinants of health, including their influence on communicable and non-communicable diseases. However, the connections with these health outcomes are usually implicit rather than explicit. This underscores a need for more comprehensive and detailed guidance to bridge the gap between general recognition and actionable integration of health determinants into SEA.

Consideration of inequalities within populations or communities

There is a shared acknowledgment across the reviewed guidelines of the importance of addressing health inequalities and vulnerabilities in populations as a fundamental component of SEA. However, the depth of recommendations vary. National guidelines, such as those from Scotland, Ireland and Georgia, provide more detailed advice, often offering practical tools like templates, mapping strategies, and data sources to assess inequalities. They emphasize the need for tailored

assessments that consider socio-economic factors, age, gender, and other determinants, highlighting the value of inclusive and equitable planning processes.

In contrast, international guidelines like those from the UNECE and IAIA take a broader approach, linking health inequalities to principles of public participation and governance without delving deeply into specific methodologies. Despite these differences, the collective message is clear: addressing health inequalities is critical for ensuring equitable outcomes in SEA, and stronger, more explicit integration of these considerations is necessary to enhance the effectiveness and fairness of the assessment process.

Participation of health experts/actors

The reviewed guidelines consistently emphasize the importance of involving health actors and experts in the assessment process, with the notable exception of the Scottish guidance, which does not address the issue. The general message is that the inclusion of health professionals can ensure that health determinants are integrated into decision-making processes, ultimately supporting more comprehensive SEAs. The UNECE and WHO guidelines specifically highlight the crucial role of collaboration between environmental and health authorities, enabling the identification of health determinants, causal links between environmental changes and health effects, and strategies to mitigate adverse health impacts.

While cross-sectoral collaboration remains a challenge due to limited capacity or expertise within public health authorities, most guidelines advocate introductory approaches for building awareness for the importance of involving health experts in SEA. The IAIA and Georgian guidelines provide further clarity, identifying specific health expertise in areas such as air quality, mental health, and urban development. They stress the need for health professionals' early involvement to improve health outcomes, reduce inequalities, and enhance inter-sectoral dialogue, underscoring that without participation, effective identification and integration of health considerations into SEAs would be significantly hindered.

5. Recommendations

The key findings presented in section 4 have informed the following set of good practice recommendations that will inform the preparation of health in SEA guidance for Ireland:

- **National guidance should define a clear and specific scope which reflects local environmental and health challenges while maintaining flexibility to address emerging issues**. It is recommended that such guidance will make the role of SEA and the links between environment, health and health determinants clear.
- **National SEA guidance should base any recommendations on the WHO definition of health, integrating it with broader, multidimensional conceptual approaches that encompass physical, mental, social and environmental dimensions.** In this context, consideration should be given to concepts such as One Health, Planetary Health, public health, health inequalities and environmental health. The integration of these allows for an expanded and contemporary interpretation of the WHO definition, explicitly addressing the interconnections between health determinants and the environment. This would allow for an exploration of both, environmental and socio-economic issues as well as broader challenges such as climate change and social and health inequalities.
- **National guidance should clearly define their target audience, tailoring the content to stakeholders, especially health and environmental professionals**, policy-makers and community representatives. They should also address local regulatory and social contexts, while promoting intersectoral collaboration and raising awareness about the interconnections between health and the environment.
- **Guidance should adopt a more consistent and comprehensive approach to addressing environmental issues in relation to health,** ensuring that both, common issues (e.g. air, water, climate change, soil) and complex issues (e.g. food security, , chemical pollution, etc.) are adequately addressed. While maintaining the cross-cutting approach to population health, guidance should focus on integrating environmental factors in a more systematic way and provide practical tools (e.g. template indicator tables, support assessment sheets), to link environmental and health impacts. In addition, balancing the emphasis between health determinants and environmental topics is key to a holistic understanding of their interrelationships.
- **More direct and detailed discussions of health and well-being need to be provided**, adapted to the level of planning and evaluation and the needs of each specific case. They can include aspects related to population inequalities, economic and social context and education. Future guidance should prioritize practical frameworks and methods (e.g. template tables for evaluating indicators of health determinants in relation to environmental effects; frameworks of pressure, state and exposure, effect and action; matrices of correlation between physical and environmental risks in relation to the risk of disease); this would allow for a more complete assessment of the determinants of health and well-being when defining the scope of assessment.
- **Guidance must strongly encourage the use of evidence-based indicators to monitor health change,** with a balance of generic and specific indicators that are appropriate to SEA of

national/regional and local plans or programmes. Guidance should provide practical examples and ensure effective monitoring and data management systems. In this context, an approach to guide the establishment of a monitoring system based on these indicators is also recommended.

- **There is a need to provide clearer and more comprehensive recommendations on the relationship between environmental impacts and health, specifically addressing communicable and non-communicable diseases.** Providing clear, introductory definitions of these considerations and their important relationships with environmental impacts is important, as well as providing practical guidance, including detailed tools and examples. This will help to bridge the gap between general recognition of environmental health determinants and their practical integration into SEA.
- **Health inequalities and vulnerabilities, with a focus on vulnerable populations should be explicitly addressed.** Detailed and practical tools need to be provided to address this, with a special focus on socio-economic factors, age, gender, income, education, work and other determinants. The topic of population needs to be seen in a cross-cutting way and be recognized as having a direct impact on the consideration of health inequalities. This needs to be considered from the outset in SEA, especially at the scoping stage. Tools such as templates, mapping strategies and data sources should be provided to facilitate the assessment of inequalities.
- **The active participation of health professionals and specialists should be encouraged at each stage of the SEA process as appropriate**. This includes identifying specific areas of expertise, such as air quality, socio-economic aspects, communicable and non-communicable diseases, and mental health, to ensure the effective integration of health determinants. In addition to health-related specialists, such as health authorities, data scientists, public health specialists, and epidemiologists should also be considered. Intersectoral collaboration should be encouraged from the outset to improve health outcomes, reduce inequalities and strengthen dialogue between the environmental and health sectors.

Acronyms

EA	Environmental Assessment
EIA	Environmental Impact Assessment
HIA	Health Impact Assessment
IAIA	International Association for Impact Assessment
IPH	Institute of Public Health
SIA	Social Impact Assessment
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
UNECE	United Nations Economic Commission for Europe
WHO	World Health Organization

Appendices

Appendix A – UNECE – WHO - Assessing health impacts in strategic environmental assessment - Note by the Bureau[5].

A.1. Introduction

The document, released in 2023, it is a note developed in a meeting between the involved parties in the workplan for the implementation of the Convention on Environmental Impact Assessment in a Transboundary Context and its Protocol on Strategic Environmental Assessment (SEA Protocol, established in 2003[6]), which acts under the auspices of the United Nations Economic Commission for Europe (ECE). The note provides guidance on how to assess health effects in SEA and was initially developed by consultants in collaboration with the ECE, the World Health Organization (WHO) and the European Investment Bank and subsequently revised by the Parties to the Protocol. As a practical reference to guide the application of the SEA Protocol, the note was builds on the recommendations provided in the "Resource Manual to Support Application of the UNECE Protocol on Strategic Environmental Assessment" [7](Resource Manual released in 2012) particularly in its annexes A1.1 and A5.1, prepared in collaboration with WHO.

A.2. What is the scope of the guidance?

The document develops recommendations in contexts where SEA is applied and whereby the main environmental issues, including health, and reasonable alternatives are determined. In this sense, the SEA procedure, methods, tools and appropriate approaches to better address health issues are presented.

The document is organized in four main parts: i. The present introduction, which explains the approach taken in accordance with the Protocol; ii. Principles for the integration of health into strategic environmental assessment (following on from those introduced in the Resource Manual); iii. The integration of health into strategic environmental assessment in practice; iv. Case studies to consider health in strategic environmental assessment.

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[5] United Nations Economic Commission for Europe. (2023). *Assessing health impacts in strategic environmental assessment: Note by the Bureau*. Meeting of the Parties to the Convention on Environmental Impact Assessment in a Transboundary Context, Ninth session, Meeting of the Parties to the Protocol on Strategic Environmental Assessment, Fifth session, Geneva, 12–15 December. Available at: https://unece.org/environment/documents/2023/09/session-documents/assessing-health-impacts-strategic-environmental

[6] More information at: https://unece.org/introduction-sea-protocol

[7] The Resource Manual to Support Application of the UNECE Protocol on Strategic Environmental Assessment (Resource Manual) was initially prepared as decided by the first meeting of the Signatories to the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (Cavtat, Croatia, 1–4 June 2004). The document was released in 2012 and its Annex A1.1, which is dedicated to integrating health into SEA, was also the subject of our review.

A.3. Who is the guidance directed at?

The document aims to assist parties and future parties to the Protocol in efficiently and consistently addressing relevant health impacts in the practical application of SEA.

A.4. How does it define the concept of health? (Inset the exactly quote here)

The Note is a practical guide for developing SEA practices within the context of the SEA Protocol. Therefore, the concept of health is based on the definition by the Protocol and by WHO. More specifically its explained:

“The Protocol explicitly refers to health wherever the term “environmental effects” is employed. In article 2, the Protocol determines that: “Environmental, including health, effect means any effect on the environment including human health, flora, fauna, biodiversity, soil, climate, air, water, landscape, natural sites, material assets, cultural heritage and the interaction among these factors.” According to the Protocol, human health”

“WHO has a wider approach to health. The preamble of the Constitution of WHO states that: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” Parties may decide on a voluntary basis to go beyond the requirements of the Protocol and to use a broader approach to health, to the extent appropriate and as long as the link to the environmental factors is not lost or weakened”

A.5. Is this close to one of the following conceptualizations of health?

●						
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

The note is based on the concept of health defined by the WHO. However, it organizes it into 2 parts:

(a) The first part emphasizes how human health encompasses mental and physical health and social well-being. Health can be affected by environmental, social and economic factors, therefore possible impacts on health should be assessed in advance when preparing plans and programmes;

(b) The second part emphasizes the importance of addressing and treating disease and infirmity; however, this is the role of the health sector.

Then it explains that in SEA it is necessary to access the environmental effects, which also include health, and that it is therefore necessary to take into account both the positive and negative impacts on health.

A.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

The environmental topics are not discussed directly. However, Figure A1 shows an example of an indicative checklist of health determinants related to environmental impacts that can be considered at the scoping stage, where some environmental topics are presented. In addition, the document presents the 'Driving Force, Pressure, State, Exposure, Effect, Action' framework approach, which shows how the relationship between health effects and other factors in society can be traced. The framework is presented as a tool to help plans and programmes identify health effects at the community and population levels. It's presented as a simple tool that can be used to develop a pathway to identify changes in health effects, health determinants and SEA topics.

Figure A1: Example of how the UNECE Note presents examples on environmental topics and health determinants.

§2. Table 2 below provides an indicative checklist of determinants of health related to environmental impacts that can be taken into consideration at the scoping stage, if applicable.

Table 2
Illustrative determinants of health

Please indicate whether plan/programme's environmental impacts will lead to changes in:	*Yes/No*	*Explanation*
Health inequalities		
Health inequalities between population groups		
Health inequalities between geographical areas		
Healthy lifestyles		
Healthy lifestyles and leisure activity opportunities		
Nutrition		
Safe and cohesive communities		
Housing, buildings and connecting routes		
Poverty, social exclusion and crime		
Socioeconomic conditions		
Education		
Employment (including quality)		
Environmental conditions		
Air quality		
Water		
Solid and liquid waste		
Soil		
Noise and vibration		
Health- and social-care services		
Access to health- and social-care activities/services		
Occupational safety and health		

A.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

Health and well-being topics are not discussed directly. As noted in the previous question, these topics are only briefly mentioned, as well as, are mentioned by generical examples during the document and study cases. The topics of health, well-being, and SEA are thus linked to the concept of health determinants. The note aims to offer guidance on how to identify these determinants.

A.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

There are no recommendations on the topics throughout the use of indicators.

A.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?

The guidance uses the Driving Force, Pressure, State, Exposure, Effect, Action framework approach to traces the relationship between health effects and other factors in society. Its supports an approach to assessment that considers health broadly through the determinants of health and their distribution among the populations affected. To illustrate this in more detail, the guide provides examples of the application of the framework and mobilizes some information in the form of examples (Figure A2). These examples can be translated as a reference or inspiration for possible indicators, data and information that can be used to integrate health into SEA. This is possible because, according to the guidance, the assessment approach takes a broad view of health and is based on health determinants, their distribution across affected populations and possible environmental impacts.

Figure A2: Example of questions/information that can be used or inspire the use of indicators to monitor changes in health.

57. Table 3 below sets out ways in which the framework can be used. By describing the content relevant for the plan or programme for each stage of the framework, a useful representation of the possible impacts and opportunities can be generated, as well as ways to mitigate the adverse effects.

Table 3
Using the Driving Force, Pressure, State, Exposure, Effect, Action framework

Stage	*Description*
Driving force	A number of macro-scale factors ultimately affect human health, e.g.: The global, national, regional and local economy will have an indirect impact on human health by affecting income levels and the distribution of income. A changing climate will mean increased risk of severe weather events with short-, medium- and long-term effects on physical and mental health. Demographic changes will directly and indirectly affect health and well-being through changes to the age and employment structure of the workforce, meaning that people will

Stage	*Description*
	have to work until they are older and a smaller workforce will have to support a larger non-working population.
Pressure	The above-mentioned driving forces result in pressures on the social, economic and physical environment. Pressures are generated on all sectors of economic activity, e.g., transport, energy, housing, agriculture, industry and tourism. The pressures are manifest in changes to living conditions, quality of infrastructure and income poverty, among other things.
State	The state (quality) of the social, economic and physical environment is affected by these various pressures, which can be adverse or beneficial. Some changes may be complex and widespread – such as pollution of a whole marine environment or strengthening of a regional economy – while others may be more localized, e.g., contamination of a local water supply or effects restricted to a local economy.
Exposure	Even where there are major effects on the state of the environment, people's health and well-being will be affected only when they are actually exposed to a particular state, whether for good or for ill. Many factors determine whether an individual will be exposed, e.g., to pollution in the environment. Pollution levels vary from place to place and over time, and people's activities and behavioural patterns may influence the extent to which they come into contact with the environment. Likewise, in the case of economic downturn, not all sections of society are affected.
Effect	Once a person has been exposed to a hazard, health effects can vary in type, intensity and magnitude, depending on the type of hazard, the level of exposure and other factors. The ill-health effects of environmental exposures may be acute, occurring relatively soon after exposure (e.g., from a single large dose due to an accident or spill), or they may be chronic, occurring as a result of cumulative exposures over time. A long period of time may elapse between initial exposure and the appearance of the adverse health effect, like exposure to asbestos and mesothelioma, or exposure to radiation and leukaemia. Dispersal of the population at risk over time and the long incubation period make reconstruction of exposures problematic, so that acute health effects are often easier to detect than chronic ones, which may be difficult to relate to specific hazards or sources.
Action	An approach to health hazard control and prevention that focuses on hazards of human origin is useful as it addresses potentially remediable problems, giving due regard to uncertainty that exists about the extent of risks to human health associated with specific agents in the environment, or with the broader development process. Various actions can thus be taken, based on consideration of the nature of the risks, their amenability to control and the public understanding of, and attitude towards, the risks.

Source: Adapted from Schirnding, *Health in Sustainable Development Planning*, chap. 7.

A.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

There is no clear and detailed recommendation on the importance of environmental impacts on health and their relationship with communicable and non-communicable diseases. These relationships appear discreetly through examples in the descriptions of how health can be considered at each stage of the SEA and also in the case studies exemplified in the document.

A.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

There are no recommendations on the importance of considering inequalities within populations or communities. However, there are clear recommendations on the importance of public participation, which must be based on good governance practices, the right to participate, transparency and accountability.

A.11. Is the participation of health/expert actors encouraged?

The participation and consultation of health professionals and/or experts is strongly encouraged. It is emphasized that this is a requirement of the SEA Protocol and that authorities responsible for

health and involved in the implementation of the plan or programme must also be consulted, preferably from the beginning of the assessment process. It also emphasizes the need to consider organizations that hold relevant data on environmental and health aspects, as this knowledge is crucial. According to the document, the involvement of these actors is important because it would enable the identification and subsequent integration of relevant health determinants. However, this cross-sectoral work is challenging, especially as public health authorities may not have expertise in SEA or be familiar with the procedures.

Appendix B – International Association for Impact Assessment (IAIA) - Health Impact Assessment: International Best Practice Principles[8]

B.1. Introduction

The International Association for Impact Assessment (IAIA) is the leading global network on best practices in the use of impact assessment for informed decision-making on policies, programs, plans and projects. The association develops different types of publications that guide practitioners on how to ensure that environmental assessments follow good practices. In 2021, the association updated the best practice guide for health impact assessment (HIA) and also ensured that health was considered in assessments and decision-making processes for plans, programs and strategies. There is also another publication exclusively for ensuring health at the project scale[9], which is not the focus of our review. The HIA is a process which systematically judges the potential, and sometimes unintended, effects of a project, program, plan, policy, or strategy on the health of a population and the distribution of those effects within the population. In this sense, HIA generates evidence for appropriate actions to avoid or mitigate health risks and promote health opportunities. To this end, the guide provides guidelines on key issues to ensure that health changes are considered, monitored and evaluated as part of performance management and sustainable development.

B.2. What is the scope of the guidance?

The best practice guidelines intend to promote health impact assessment (HIA) and lead to better consideration of health in the development of new projects, programs, plans, policies, or strategies in all sectors.

More precisely the guideline intended to:

- Provide high-level guidance about when and how to do, or review, HIAs.
- Integrate consideration of health impacts into other forms of impact assessments (IA).
- Be used to support capacity building on HIA, including training and professional education.
- Clarify to practitioners how they can contribute to the strengthening of an enabling environment for HIA in terms of policies, institutions and its resource base.

These principles are applying to a standalone HIA and to the integrated assessment of human health conducted as part of another form of impact assessment (integrated HIA) or other type of impact assessment.

[8] Winkler, M.S., Viliani, F., Knoblauch, A.M., Cave, B., Divall, M., Ramesh, G., Harris-Roxas, B. and Furu, P. (2021) Health Impact Assessment International Best Practice Principles. Special Publication Series No. 5. Fargo, USA: International Association for Impact Assessment. Available at: https://www.iaia.org/uploads/pdf/SP5%20HIA_21_5.pdf

[9] More information at : https://www.iaia.org/reference-and-guidance-documents.php

B.3. Who is the guidance directed at?

The best practice guidelines are intended for anyone involved in an assessment process (HIA, integrated HIA, SEA, EIA, etc), and that aims to consider health in impact assessment.

B.4. How does it define the concept of health? (Inset the exactly quote here)

The WHO definition on health:

"A state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity."

B.5. Is this close to one of the following conceptualizations of health?

●				●		
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

The best practice guideline is substantially based on the WHO concept of health, but a glossary of health definitions is presented, among which is a definition of Health Inequality is included.

B.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

There is no discussion on environmental topics. The topic is described in general terms without details or examples.

B.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

There is no discussion on health and well-being topics. The topic is described in general terms without details or examples.

B.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

There are no detailed recommendations on indicators, such as health, social, education, economic, etc. However, the use of indicators is recommended by the guidance.

The guide emphasizes that indicators of health determinants are essential in this analytical context and that they are generally available in existing data or can be generated through quantitative and qualitative data collection methods. It also highlights the difficulty of considering and applying the use of these indicators at the planning scale of environmental assessment. For example, it is explained that monitoring health outcomes provides the specificity needed to assess health impacts, but it is also an indicator that is generally more expensive and complex. It is explained that its use requires specific knowledge and appropriate data management and protection

procedures to ensure confidentiality. It is also recommended that monitoring may focus on verifying compliance with legal requirements or performance standards, which may be related to health determinants/indicators.

B.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?

There are no elements on health that could serve as potential references for recommending indicators.

B.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

These relationships are strongly emphasized by the document, more specifically as recommendations on the need to verify how the environmental impacts, identified in the impact assessment step, can change the health conditions, such as health risks and opportunities, as well as changes in health outcomes. It emphasizes the need to prioritize the assessment of the significance of the impact, which can provide the basis for drafting the health management and monitoring plans to be developed in the reporting step. However, there are no clear or detailed recommendations on the importance of environmental impacts on health and the relations with communicable and no-communicable diseases.

B.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

The considering of inequalities between populations or communities are strongly recommended. According to the document, people have a right to be informed about proposed development initiatives and should be given a chance to influence the decision-making process. In HIA or Impact Assessment context, this principle should involve and engage the involved that potentially cab be affected by the development of an initiative, and they must have an opportunity to express their hopes and concerns regarding health and can influence the formulation of public health actions.

The principle of equity and equality is also expressed and is intended to sensitize the reader to the importance of considering existing inequalities and the potential for unequal distribution of health risks and opportunities across the population during an assessment, with particular attention to groups that may be vulnerable and/or marginalized.

B.11. Is the participation of health/expert actors encouraged?

The participation of health/expert actors are strongly recommended. Figure B1 describes the key actors in HIA and for IA, including the why and how they can be important on the assessment. The health/expert actors are associated as proponents, local communities or institutions, regulators/competent authorities and HIA practitioners.

Figure B1: The key actors in HIA and for IA on IAIA best practice guidance.

Key actors in HIA

There are generally four key actors involved in the HIA process, each with specific roles:

1. **Proponents of development initiatives** such as project developers, planning authorities/departments, or governmental authorities/departments responsible for formulating policies and/or designing programs.
2. **Local communities/institutions:** depending on the type of development initiatives assessed, these can be conceptualized in two different categories:
   - **Beneficiaries:** direct recipients/target of a development initiative.
   - **Affected communities/institutions:** located in proximity to a development initiative or indirectly/disproportionately affected by the development initiative while not being the beneficiaries of the initiative.
3. **Regulators/competent authorities:** these can be any authorities/departments with the roles of (i) formal responsibilities during the screening and/or scoping steps, (ii) creating intersectoral linkages between different departments, (iii) reviewing the quality of HIA, (iv) giving consent for a development initiative to proceed, or (v) monitoring and evaluating a development initiative to ensure compliance with the measures included in the HIA report. Additionally, national and international financial institutions or bi- and multi-lateral donors (quasi-regulatory entities) can have policies for health that need to be satisfied through an HIA.
4. **HIA practitioners:** these are the professionals carrying out the HIA. Practitioners usually have diverse knowledge, skills, and experiences (see "HIA capacity and capability"). A wide range of skills is required to undertake HIA, but at the core is the skill to engage in a productive interdisciplinary and intersectoral dialogue. The knowledge, skills, and experience are rarely held by one individual. The leader of an HIA team should be a professional with a broad public health outlook rather than one with a narrow medical area of expertise and should be good at communicating with non-health actors.

Appendix C – UNECE - Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment[10] – (Annex A1.1)

C.1. Introduction

The United Nations Economic Commission for Europe (UNECE) Protocol on Strategic Environmental Assessment, under the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), was adopted in Kyiv in May 2003. The Protocol is not limited to the states of the ECE region, and any member state of the United Nations may accede to the Protocol upon approval. Thus, the Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment (the Manual) was developed in 2012 and does not constitute formal legal or other professional advice, but rather provides guidance to those applying the Protocol or assisting others in doing so. The Manual outlines the main requirements of the Protocol on Strategic Environmental Assessment (SEA Protocol - decided by the Meeting of the Signatories), addresses key practical issues for its application, and offers materials for training and capacity-building programmers. The focus of SEA under the Protocol is on the physical environment. However, as the Protocol's application practice develops, it is anticipated that more complex interactions between the physical, social and behavioral environments will have to be assessed, as well as the obvious links between the state of the environment and the state of health. As a result, the Protocol provides for the consideration of health as an integral part of the SEA of plans and programs. In this sense, Annex A1.1 of the Manual provides guidance on how to integrate and ensure the consideration of health in SEA.

C.2. What is the scope of the guidance?

Annex A1.1 aims to support compliance with the SEA Protocol regarding the inclusion of human health in SEA. It provides guidance on the interpretative and methodological challenges involved in addressing health within SEA, particularly focusing on:

- The determination of significant health effects.
- Consulting environmental and health authorities
- Assessing the expected impacts on health, including both qualitative and quantitative assessment of health effects
- Scoping and preparation of the environmental report

C.3. Who is the guidance directed at?

The annex is aimed at both SEA professionals and environmental and health authorities, with the aim of guiding them in understanding the possible effects of plans and programs on human health. In addition, it seeks to show how they can facilitate the integration of these considerations into assessments between the parties involved in decision-making. The guidelines aim to sensitize

[10] United Nations. (2012). *SEA protocol resource manual: Resource manual to support application of the Protocol on Strategic Environmental Assessment*. New York and Geneva. Available at: https://unece.org/sea-protocol-resource-manual-0

these actors on how they can apply the ideas in this annex to consider health in their national context. This includes carrying out pilot studies, developing procedures that meet the Protocol's requirements and drawing up guidelines adapted to their own needs and institutional context.

C.4. How does it define the concept of health? (Inset the exactly quote here)

The annex takes a health perspective based on the "European Environment & Health Action Plan 2004–2010"[11], that notes: "Good health is something which everyone wants — for themselves, their children and for the wider economic and social benefits it brings to our society. It plays a major role in long-term economic growth and sustainable development – there is increasing evidence showing that it is not so much the cost of health that is high, but rather the cost of ill-health (in terms of health care, medicines, sick leave, lower productivity, invalidity and early retirement)."

C.5. Is this close to one of the following conceptualizations of health?

			●		●	
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

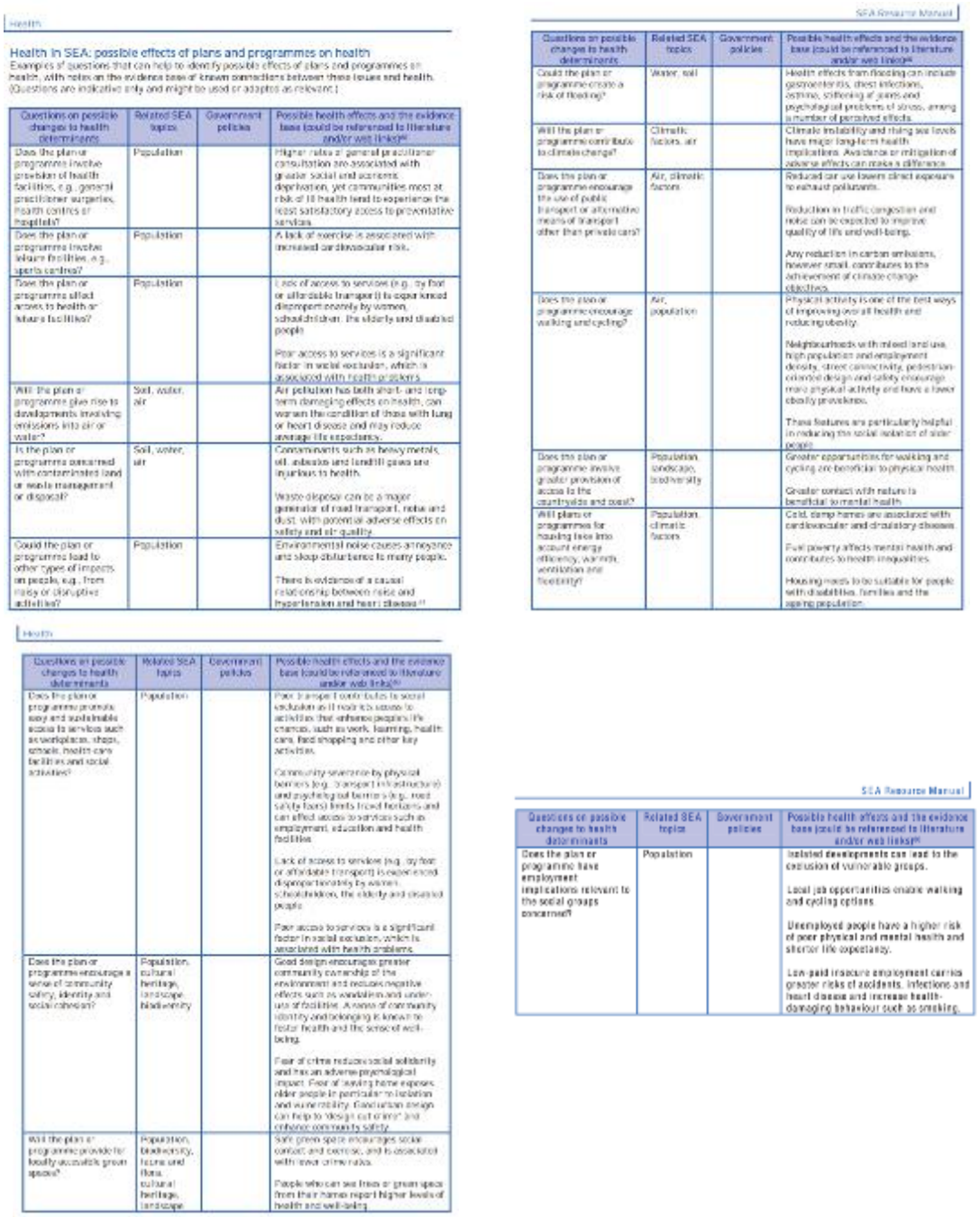
Overall, the annex closely aligns with **Public Health** and **Environmental Health** due to its focus on the interconnectedness of health, the environment, and societal benefits. It emphasizes the need for a health perspective in decision-making processes, which is a central tenet of these conceptualizations.

C.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

The Annex provides guidance on topics related to air, water, climate change, land use, biodiversity, population, flora and fauna, soil, cultural heritage, and landscape. These orientations are presented indirectly through examples of health-related questions that can be asked by professionals to help identify the potential health effects of plans and programs. As shown in Figure C1 (page 153 from the manual), these questions are organized in a sequence that ranges from specific and direct inquiries to broader health-related questions, all linked to potential SEA topics. Therefore, these topics are not explicitly explored by the annex, and they only allow us to infer the extent to which health issues may be related to or impact on the respective topics.No examples are mentioned regarding food, noise, material assets and the interrelationship between these factors.

[11] Commission of the European Communities, COM (2004) 0416 final. Available from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004DC0416:EN:HTML

Figure C1: Example of how the UNECE Annex A1.1 presents examples on environmental topics.



Health

Health in SEA: possible effects of plans and programmes on health

Examples of questions that can help to identify possible effects of plans and programmes on health, with notes on the evidence base of known connections between these issues and health. (Questions are indicative only and might be used or adapted as relevant.)

Questions on possible changes to health determinants	Related SEA topics	Government policies	Possible health effects and the evidence base (could be referenced to literature and/or web links)[a]
Does the plan or programme involve provision of health facilities, e.g., general practitioner surgeries, health centres or hospitals?	Population		Higher rates of general practitioner consultation are associated with greater social and economic deprivation, yet communities most at risk of ill health tend to experience the least satisfactory access to preventative services.
Does the plan or programme involve leisure facilities, e.g., sports centres?	Population		A lack of exercise is associated with increased cardiovascular risk.
Does the plan or programme affect access to health or leisure facilities?	Population		Lack of access to services (e.g., by foot or affordable transport) is experienced disproportionately by women, schoolchildren, the elderly and disabled people. Poor access to services is a significant factor in social exclusion, which is associated with health problems.
Will the plan or programme give rise to developments involving emissions into air or water?	Soil, water, air		Air pollution has both short- and long-term damaging effects on health, can worsen the condition of those with lung or heart disease and may reduce average life expectancy.
Is the plan or programme concerned with contaminated land or waste management or disposal?	Soil, water, air		Contaminants such as heavy metals, oil, asbestos and landfill gases are injurious to health. Waste disposal can be a major generator of road transport, noise and dust, with potential adverse effects on safety and air quality.
Could the plan or programme lead to other types of impacts on people, e.g., from noisy or disruptive activities?	Population		Environmental noise causes annoyance and sleep disturbance to many people. There is evidence of a causal relationship between noise and hypertension and heart diseases [1]

SEA Resource Manual

Questions on possible changes to health determinants	Related SEA topics	Government policies	Possible health effects and the evidence base (could be referenced to literature and/or web links)[a]
Could the plan or programme create a risk of flooding?	Water, soil		Health effects from flooding can include gastroenteritis, direct infections, asthma, stiffening of joints and psychological problems of stress, among a number of perceived effects.
Will the plan or programme contribute to climate change?	Climatic factors, air		Climate instability and rising sea levels have major long-term health implications. Avoidance or mitigation of adverse effects can make a difference.
Does the plan or programme encourage the use of public transport or alternative means of transport other than private cars?	Air, climatic factors		Reduced car use lowers direct exposure to exhaust pollutants. Reduction in traffic congestion and noise can be expected to improve quality of life and well-being. Any reduction in carbon emissions, however small, contributes to the achievement of climate change objectives.
Does the plan or programme encourage walking and cycling?	Air, population		Physical activity is one of the best ways of improving overall health and reducing obesity. Neighbourhoods with mixed land use, high population and employment density, street connectivity, pedestrian-oriented design and safety encourage more physical activity and have a lower obesity prevalence. These features are particularly helpful in reducing the social isolation of older people.
Does the plan or programme involve greater provision of access to the countryside and coast?	Population, landscape, biodiversity		Greater opportunities for walking and cycling are beneficial to physical health. Greater contact with nature is beneficial to mental health.
Will plans or programmes for housing take into account energy efficiency, warmth, ventilation and flexibility?	Population, climatic factors		Cold, damp homes are associated with cardiovascular and circulatory diseases. Fuel poverty affects mental health and contributes to health inequalities. Housing needs to be suitable for people with disabilities, families and the ageing population.

Health

Questions on possible changes to health determinants	Related SEA topics	Government policies	Possible health effects and the evidence base (could be referenced to literature and/or web links)[a]
Does the plan or programme promote easy and sustainable access to services such as workplaces, shops, schools, health care facilities and social activities?	Population		Poor transport contributes to social exclusion as it restricts access to activities that enhance people's life chances, such as work, learning, health care, food shopping and other key activities. Community severance by physical barriers (e.g., transport infrastructure) and psychological barriers (e.g., road safety fears) limits travel horizons and can affect access to services such as employment, education and health facilities. Lack of access to services (e.g., by foot or affordable transport) is experienced disproportionately by women, schoolchildren, the elderly and disabled people. Poor access to services is a significant factor in social exclusion, which is associated with health problems.
Does the plan or programme encourage a sense of community, safety, identity and social cohesion?	Population, cultural heritage, landscape, biodiversity		Good design encourages greater community ownership of the environment and reduces negative effects such as vandalism and under-use of facilities. A sense of community identity and belonging is known to foster health and the sense of well-being. Fear of crime reduces social solidarity and has an adverse psychological impact. Fear of leaving home exposes older people in particular to isolation and vulnerability. Good urban design can help to 'design out crime' and enhance community safety.
Will the plan or programme provide for locally accessible green spaces?	Population, biodiversity, fauna and flora, cultural heritage, landscape		Safe green space encourages social contact and exercise, and is associated with lower crime rates. People who can see trees or green space from their homes report higher levels of health and well-being.

SEA Resource Manual

Questions on possible changes to health determinants	Related SEA topics	Government policies	Possible health effects and the evidence base (could be referenced to literature and/or web links)[a]
Does the plan or programme have employment implications relevant to the social groups concerned?	Population		Isolated developments can lead to the exclusion of vulnerable groups. Local job opportunities enable walking and cycling options. Unemployed people have a higher risk of poor physical and mental health and shorter life expectancy. Low-paid insecure employment carries greater risks of accidents, infections and heart disease and increase health-damaging behaviour such as smoking.

C.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

The annex provides examples of how aspects of health and well-being can be discussed. For this purpose, a table (Figure C2) is provided that shows, by way of example, how possible risk factors from the physical environment can be related to possible diseases and risks. The table is not exhaustive, but gives examples of topics such as: infectious and parasitic diseases, nutritional and

neonatal diseases, non-communicable diseases, diseases or injuries. There are no examples related to economic security and equity, education, physical environment, social and community context, healthy behaviors and health care. The appendix also points out that it is difficult to link these issues within the SEA process, particularly to make accurate and detailed predictions about the potential health effects, both beneficial and adverse, of plans and programs. It also explains that it is not feasible to carry out detailed studies in this decision-making context and that it is therefore essential to adopt a more appropriate, simple and practical approach to these issues.

Figure C2: Example of how UNECE Annex A1.1 provides recommendations on how health and well-being issues could be assessed in a SEA

Examples of physical environmental risk factors and related diseases and risks (WHO, 2006; adapted to refer to the ECE region)

Disease or Risk	Physical Environment Risk Factors												
	Water, sanitation and hygiene	Indoor air pollution	Outdoor air pollution	Noise	Other housing risks	Chemicals	Recreational environment	Water resources management	Land use and built environment	Other community risks	Radiation	Occupation	Climate change
Lower respiratory		■	■		■								
Upper respiratory		■	■		■								
Diarrhoeal diseases	■												■
Intestinal nematode infections	■												
Leishmaniasis					■								
Sexually transmitted diseases												■	
Human immunodeficiency virus (HIV)												■	
Hepatitis B and C												■	
Tuberculosis		■			■							■	
Perinatal conditions	■	■	■			■						■	
Congenital anomalies			■			■					■	■	
Malnutrition	■					■				■			■
Cancer	■	■	■			■				■	■	■	
Neuropsychiatric disorders				■	■	■						■	■
Cataracts		■									■	■	
Deafness												■	
Cardiovascular diseases	■	■	■	■		■	■		■			■	■
Chronic obstructive pulmonary disease		■	■									■	
Asthma		■	■		■							■	
Musculoskeletal diseases												■	
Physical inactivity									■				
Road traffic accidents									■			■	
Falls					■		■		■	■		■	
Drowning							■			■		■	■
Fires					■							■	
Poisonings					■	■						■	
Other unintentional injuries					■		■		■	■	■	■	■
Violence					■	■			■				
Suicide					■	■			■			■	
Diseases absent from, or less prevalent in, the ECE region (*except in Central Asia):													
Malaria *								■		■		■	■
Trachoma	■												
Schistosomiasis (Bilharzia)	■												
Chagas disease (American Trypanosomiasis)					■								

Disease or Risk	Physical Environment Risk Factors												
	Water, sanitation and hygiene	Indoor air pollution	Outdoor air pollution	Noise	Other housing risks	Chemicals	Recreational environment	Water resources management	Land use and built environment	Other community risks	Radiation	Occupation	Climate change
Lymphatic filariasis	■							■					
Onchocerciasis (River Blindness)								■					
Dengue (and dengue haemorrhagic fever) *					■								■
Japanese encephalitis								■					

C.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

The annex does not provide recommendations or examples of indicators for monitoring changes in health. However, it highlights the difference between the level of detail and breadth of data used in SEA, which tends to be more generic, and health data, which is generally more specific and applied on a local scale. It also highlights the difficulty of integrating these different types of information into the decision-making process.

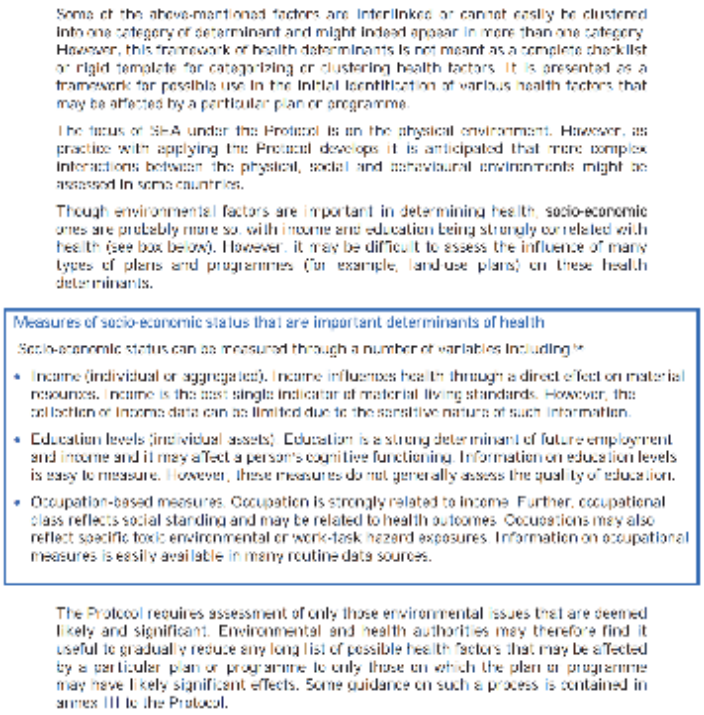
The annex also presents some tips for possible approaches to addressing health in environmental report, and, between them, there is the mention on the importance of use of health indicators. They recommend that it would be useful to continue to use the health indicators chosen during the scoping and environmental reporting stages to monitor the health impacts of the plan or program, as this would allow for consistency of analysis throughout the SEA. However, they recommend that some adjustments to existing monitoring systems to incorporate new health indicators may be necessary. In this sense, they recommend that the feasibility of establishing any monitoring system should be carefully analyzed.

C.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?"

The annex gives some possible examples. In addition to the examples of physical environmental risk factors and related diseases and risks shown in Figure A2 above, the document also provides some examples of how measures of socio-economic status are important determinants of health, Figure C3 below.

It is explained that while environmental factors are important in determining health, socio-economic factors are probably more important, with income and education being strongly correlated with health. In this sense, some examples of socio-economic factors that can be translated as potential indicators to be recommended are presented. More precisely, they refer to salary, education and occupation.

Figure C3: Example of issues presented in the UNECE Annex A1.1 that can be used or inspire the use of indicators to monitor health changes.



Some of the above-mentioned factors are interlinked or cannot easily be clustered into one category of determinant and might indeed appear in more than one category. However, this framework of health determinants is not meant as a complete checklist or rigid template for categorizing or clustering health factors. It is presented as a framework for possible use in the initial identification of various health factors that may be affected by a particular plan or programme.

The focus of SEA under the Protocol is on the physical environment. However, as practice with applying the Protocol develops it is anticipated that more complex interactions between the physical, social and behavioural environments might be assessed in some countries.

Though environmental factors are important in determining health, socio-economic ones are probably more so, with income and education being strongly correlated with health (see box below). However, it may be difficult to assess the influence of many types of plans and programmes (for example, land-use plans) on these health determinants.

Measures of socio-economic status that are important determinants of health

Socio-economic status can be measured through a number of variables including:a

- Income (individual or aggregated). Income influences health through a direct effect on material resources. Income is the most single indicator of material living standards. However, the collection of income data can be limited due to the sensitive nature of such information.
- Education levels (individual assets). Education is a strong determinant of future employment and income and it may affect a person's cognitive functioning. Information on education levels is easy to measure. However, these measures do not generally assess the quality of education.
- Occupation-based measures. Occupation is strongly related to income. Further, occupational class reflects social standing and may be related to health outcomes. Occupations may also reflect specific toxic environmental or work-task hazard exposures. Information on occupational measures is easily available in many routine data sources.

The Protocol requires assessment of only those environmental issues that are deemed likely and significant. Environmental and health authorities may therefore find it useful to gradually reduce any long list of possible health factors that may be affected by a particular plan or programme to only those on which the plan or programme may have likely significant effects. Some guidance on such a process is contained in annex III to the Protocol.

C.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

There are a clear encouragement on the importance of on the main determinants of health and well-being (See page . 144 from the document)[12], more precise on how they could be used as a starting point for assessment of the likely significant health effects of a plan or programme. However, the relationships between environmental impacts on health and communicable and non-communicable diseases from environmental impacts are indirectly explored.

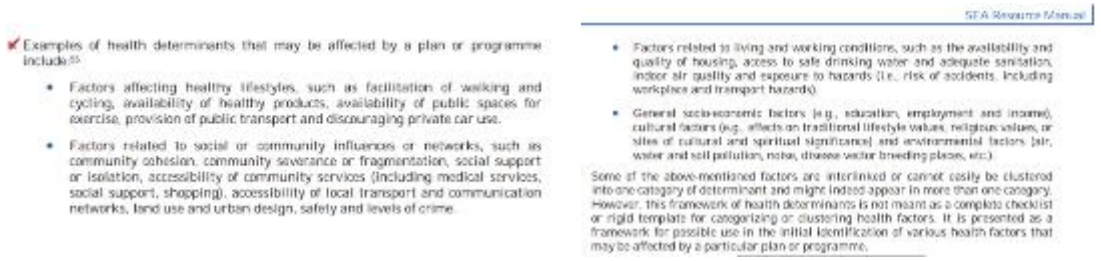
Figure C4 (extracted from page 145) illustrates how health determinants related to communicable and non-communicable diseases can be influenced by a plan or program.

On the other hand, by showing how health and well-being issues could be assessed in an SEA (see figure C2 above), it is also indirectly addressed. The same happens when the Annex provides

[12] Sources : Hugh Barton, "A Health Map for Urban Planners: towards a conceptual model for healthy, sustainable settlements", Built Environment , vol. 31, No. 4 (2005), pp. 339–355; Hugh Barton and Marcus Grant, "A health map for the local human habitat", Journal of the Royal Society for the Promotion of Health ,vol. 126, No. 6 (2006); and M. Whitehead and G. Dahlgren, "What can be done about inequalities in health?", The Lancet , vol. 338, No. 8774 (1991), pp. 1059–1063.

examples of "possible effects of a plan or program on health" (see figure A1 above), which show the links between the objectives of plans and programs on health.

Figure C4: Example of how UNECE Annex A1.1 provides insights on how health determinants can be affected by a plan or programme



Examples of health determinants that may be affected by a plan or programme include:[5]

- Factors affecting healthy lifestyles, such as facilitation of walking and cycling, availability of healthy products, availability of public spaces for exercise, provision of public transport and discouraging private car use.
- Factors related to social or community influences or networks, such as community cohesion, community severance or fragmentation, social support or isolation, accessibility of community services (including medical services, social support, shopping), accessibility of local transport and communication networks, land use and urban design, safety and levels of crime.

SEA Resource Manual

- Factors related to living and working conditions, such as the availability and quality of housing, access to safe drinking water and adequate sanitation, indoor air quality and exposure to hazards (i.e., risk of accidents, including workplace and transport hazards).
- General socio-economic factors (e.g., education, employment and income), cultural factors (e.g., effects on traditional lifestyle values, religious values, or sites of cultural and spiritual significance) and environmental factors (air, water and soil pollution, noise, disease vector breeding places, etc.).

Some of the above-mentioned factors are interlinked or cannot easily be clustered into one category of determinant and might indeed appear in more than one category. However, this framework of health determinants is not meant as a complete checklist or rigid template for categorizing or clustering health factors. It is presented as a framework for possible use in the initial identification of various health factors that may be affected by a particular plan or programme.

In this sense, there are no direct recommendations on these relationships, but there are a number of examples and topics that sensitize the reader to the subject.

C.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

There are no specific recommendations regarding the importance of considering inequalities within populations or communities, particularly for vulnerable people.

C.11. Is the participation of health/expert actors encouraged?

The annex recommends the involvement of environmental and health authorities and that their joint work is crucial to the consideration of health in the SEA. It points out that there are difficulties in identifying and involving relevant health authorities, especially as they have different fields of activity and responsibilities - municipal, regional and national.

The annex explains that these authorities are rarely involved in the process of developing plans or programs and that they might not, at least initially, have the capacity to effectively contribute to the assessment and that, if necessary, agreements and awareness-raising need to be made on how to properly develop the consultation.

It also explains that relations between environmental and health authorities can share information that can gradually lead to:

- Identification of health determinants that are likely to be significantly affected by different types of plans and programs.
- Identification of causal links between changes in health determinants and the corresponding effects on health.
- The establishment of measures to prevent, reduce or mitigate any significant adverse effects on health.
- Identifying strategies to monitor actual health effects during the implementation of various plans and programs.

Appendix D – Georgia - Health Impact Assessment Guidelines in Georgia: Practical Application of Health in Environmental Assessment[13]

D.1. Introduction

The "Guidelines for Health Impact Assessment in Georgia: Practical Application of Health in Environmental Assessment" is one of the products of the European Twinning project "Support in implementation of Health Impact Assessment Practice in Georgia" supported by the European Union. This project aims to improve HIA practice and environmental health in Georgia through the approximation of best standards and legislation, capacity building, institutional partnerships and public participation. The guide is the result of work carried out from February 2022 to April 2024. It draws on French and Finnish expertise in HIA and the integration of health into environmental assessments. It's a very comprehensive document, where the first part is intended for a wide range of stakeholders (planning authorities, health authorities, environmental authorities, consultants and any other civil society representatives) and corresponds to the theoretical part of the guidelines. It aims to provide a common knowledge base of the HIA approach, key concepts and principles related to HIA applied to strategic documents and development projects at the level of the living environment (systemic approach to health, health inequalities, health in all policies, etc.) and the integration of health in environmental assessment, including SEA and EIA.

The second part, which is aimed more specifically at officials of the National Center of Disease Control (NCDC) of Georgia, corresponds to the practical part of the Guidelines for Implementing HIA in EAs. It aims to clarify the role of the NCDC and its interactions with the National Environmental and Public Health Agency of Georgia and other stakeholders, and provides recommendations, tools and templates that can be used at each stage of the process.

In this way, this part is structured in an approach that aims to support the implementation of health/HIA in EAs. It presents a wide range of recommendations, examples and templates adapted to the five-step EA process (E1-Screening, E2-Scoping, E3-Report writing & public consultation, E4-Report evaluation & recommendations, and E5-Monitoring/follow-up). It also shows the three horizontal themes (Governance, Public Participation and Expertise & Data) to be activated at each of the five steps. In addition, a series of nine Supporting Sheets are dedicated to a number of specific topics and aim to provide a range of practical and applied examples.

The guidelines can be applied to SEA and, more generally, to any environmental assessment likely to affect public health (e.g. EIA, sectoral application or any other project application).

D.2. What is the scope of the guidance?

The Georgian document is a practical guide to taking health into account in strategic documents and projects subject to environmental assessment. It fulfills the need to support capacity building

[13]. Anne ROUE LE GALL, Benoît VAN GASTEL, Guilhem DARDIER and Michèle LEGEAS. HIA Guidelines in Georgia: Practical Application of Health in Environmental Assessment. 2024. EHESP School of Public Health. 284 pages. Available at: https://www.expertisefrance.fr/en/fiche-projet?id=861905

in Health Impact Assessment (HIA) for a large group of stakeholders, following the regulatory changes that approved the rules for human HIA within Environmental Assessment (EA). The document provides a set of guidelines that give a broad understanding of HIA within Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) in Georgia, provide different tools for stakeholders, and fit well for any SEA in the sectors mentioned in Annexes I and II of the Environmental Assessment Code. It updates the first draft of the UNDP Guidelines for the Practical Implementation of HIA in Georgia (internal document, 2020) with practical tools and frameworks and addresses identified needs to establish more formal collaboration about environmental/health impact assessment between National Centre of Disease Control (NCDC) composed by Health Authorities and Environmental Authorities and improve the channel of communication between all the stakeholders involved (Planning Authorities, Consultants, Health Authorities, Environmental Authorities, and the Population).

D.3. Who is the guidance directed at?

The guidance is aimed at all stakeholders involved in the EA process (Planning Authorities, Consultants, Health & Environmental Authorities), and it is specifically targeted at the Georgian health authorities from the National Centre of Disease Control (NCDC).

They are the Health Authority in charge of:

- Supporting the integration of health in strategic documents, development project and activities;
- Reviewing, assessing the quality of the environmental assessment report with a health lens in collaboration with the environmental authorities and;
- Making recommendations, under the supervision of the Ministry of Health.

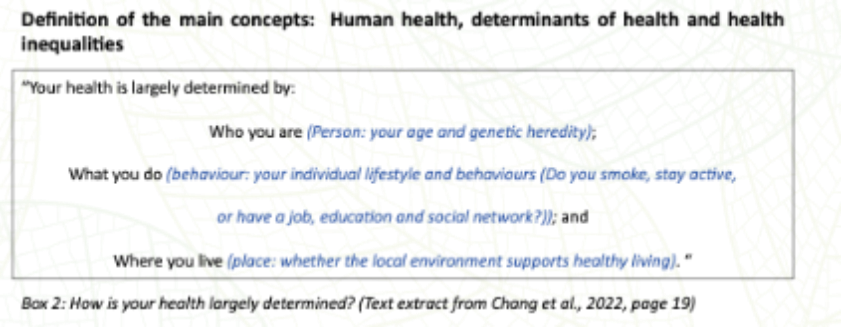
D.4. How does it define the concept of health? (Inset the exactly quote here)

The guidance uses the WHO definion on health:

“In these guidelines, we adopt the WHO definition of human health, where health is considered as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity””.

However, the guide broadens this concept by including other definitions, such as human health, health determinants and health inequalities (Figure D1).

Figure D1: Example of how the Georgian guide looks at the main concepts related to health.



D.5. Is this close to one of the following conceptualizations of health?

●				●		
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

In Part I of the guide, titled "Sharing a Common Language on HIA and Related Concepts", various concepts and definitions are presented with the aim of establishing a shared knowledge base on key principles and concepts related to HIA and Environmental Impact Assessment (EIA) applied to project development within environmental contexts.

Definitions such as built environment, natural environment, human health, health determinants, and health inequalities are discussed. The concept of health inequalities and social inequalities in health is explored in detail, highlighting its parallels with the concept of Environmental Health Inequalities. The guide emphasizes the interconnections between population health status and environmental factors.

D.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

There is guidance on the relationships between environmental and health issues. They appear in general terms in the recommendations for baseline indicators for the scope phase (see answer to question 8 and figure x). However, they do not appear in detail, there are only references to where information on these indicators can be found.

In addition, the guide includes nine supporting tables in the appendices for the analysis of health determinants and environmental topics (see overview on Figure D2 below). These support sheets detail, for each determinant, the main health-related issues and their connections, refer to the latest scientific knowledge and legislation in force in Georgia and the European Union, and provide indicators and key elements for evaluation.

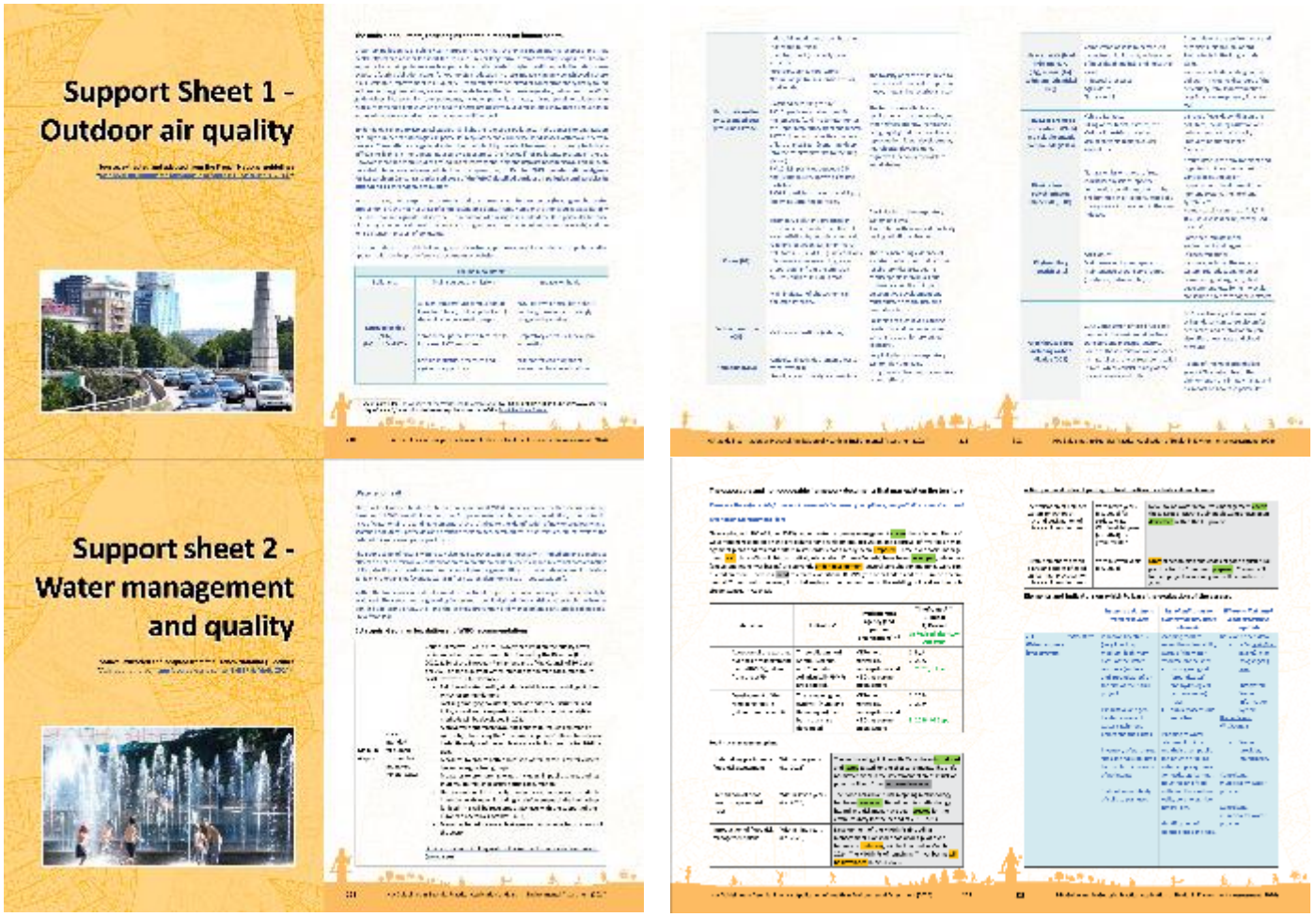
They can be used in particular to collect data for the assessment of impacts (both temporary and permanent) and the identification of baseline elements. These sheets deal in detail with:

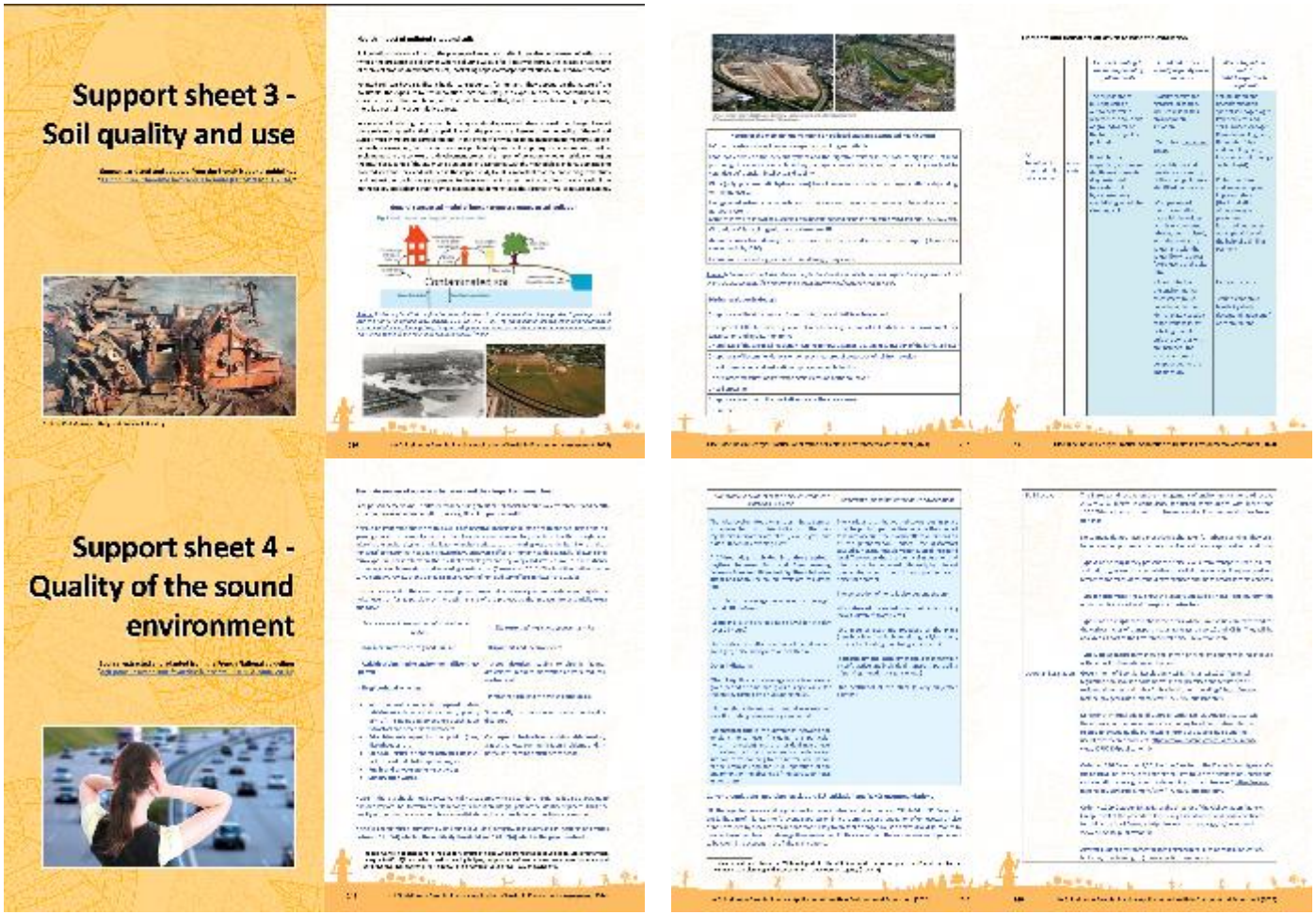
1. Outdoor air quality
2. Water management and quality
3. Soil quality and use
4. Quality of the Sound Environment
5. Waste management
6. Non-ionising radiation management
7. Adaptation to climate change and energy management
8. Active lifestyle, transport and access to facilities/services
9. Housing and Living Environment

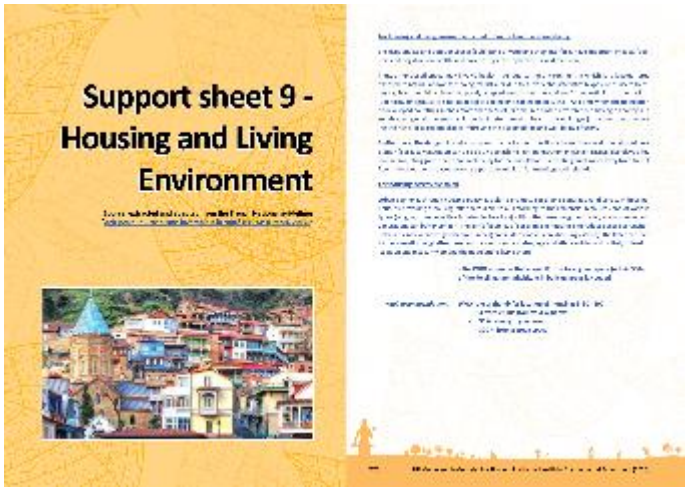
These guidelines and templates associated with these topics have been extracted and adapted from the French national guidelines (EHESP-MoH) "Agir pour un urbanisme favorable à la santé 2014[14]" (Action for healthy urban planning 2014).

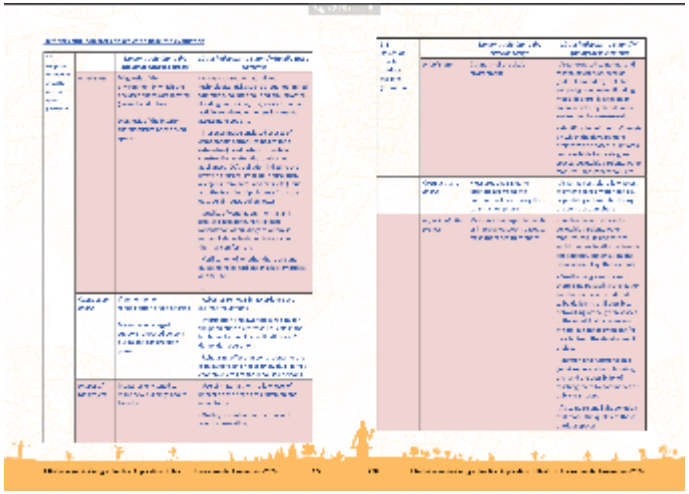
[14] More information at : Agir pour un urbanisme favorable à la santé, concepts et outils. https://www.ehesp.fr/2014/09/16/nouveau-guide-agir-pour-un-urbanisme-favorable-a-la-sante-concepts-outils/

Figure D2: Overview of the support guides applied to environmental topics in the Georgian guidance.




Support sheet 3 -
Soil quality and use
Support sheet 4 -
Quality of the sound
environment


Support sheet 9 -
Housing and Living
Environment



D.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

The guide considers the determinants of health as the main approach to addressing issues related to human health and well-being in the context of environmental assessment. In this sense, it offers specific guideline on how to select health determinants at the scoping stage. Figure D3, for example, presents a detailed template to guide this process, including examples of determinants, selection criteria and a field to record an assessment of each determinant.

Although the document does not directly mention the topics listed in the question - such as economic security and equity, education, physical environment, social and community context, healthy behaviors, health care, infectious and parasitic diseases, nutritional and neonatal diseases, non-communicable diseases, injuries, or other considerations - the examples of determinants presented connect indirectly to many of these themes. Thus, the guide addresses the need for guidance on these issues, albeit in a more general and indirect way.

Figure D3: Georgian guideline example on how to make the selection of health determinants to the scoping phase (Page 124 – CODE E2CT4)

Tool of the guidelines to consider Health in Environmental Assessment			
Name:	Health Determinant Sorting grid (E2CT4)	Code	E2CT4
Objective:	Make the final selection of health determinants (by using selection criteria) and prepare the impact assessment (in step E3). At the end the health determinants are selected for the appraisal.		
User:	Consultants and Planning Authority with final opinion by NCDC		
Step of use:	E2. Scoping		
Description:	It is a turnkey tool in the form of a spreadsheet that allows for quick and easy handling and offers an optimized time to provide the final selection of health determinants selected for the appraisal, according to 2 ranges of items: • Selection criteria: Local issues; Potential impacts of the project/ plan/ programme; HIA added value • Final decision on whether or not to include the health determinant in the impact assessment and comments on data availability and impact assessment methodology or, if not, reasons why the health determinant was excluded) • Preparation of impact assessment: Main issues/mechanisms to be investigated; expertise and stakeholders to be mobilised; Data to be collected; impact assessment methods and tools		
Composition:	Modifiable Excel file of 2 spreadsheets		
Origin and references:	Adapted from & References: • 2017. [illegible] Evaluation des impacts sur la santé du projet d'aménagement du quartier du Port du Rhin, École des hautes études en santé publique, [illegible] https://www.researchgate.net/publication/318342519_Evaluation_d%27impact_sur_la_sante_du_projet_d%27amenagement_du_quartier_du_Port_du_Rhin_a_Strasbourg • 2023. [illegible] 'Health impact assessment to promote urban health: a trans-disciplinary case study in Strasbourg, France', Sustainability, 2023/15, [illegible] https://www.mdpi.com/2071-1050/15/[illegible]		
Version of the tool:	Version 1_5 of the tool; last update: April 2024. Other further versions are possible based on the modifiable Excel document and its de management of NCDC.		

Link to the turnkey tool in the form of a spreadsheet with 2 sheet (How to fill the grid & The Sorting grid): E2CT4_Health Determinant Sorting grid_Matrix

EXCEL - HEALTH DETERMINANTS SORTING GRID					
Health determinants	Selection criteria			Final decision: is the health determinant scoped in for impact assessment?	
	Local issues	Potential impacts of the project/ plan/programme	HIA added value	YES / NO	Comments (If yes, on data availability and impact assessment methodology; if no, reasons why the health determinant was suspected)
Individual behaviors and lifestyles					
Nutrition					
Physical activity					
Alcohol and tobacco consumption					
Risk taking (for example, smoking, excessive alcohol consumption or unsafe sexual behaviour)					
Gambling					
Personal skills (level of education, self-confidence and self-esteem, sense of control, autonomy, social and parenting skills, sense of security)					
Physical environment					
Air quality					
Water resources (quality & quantity)					
Soil quality					
Other chemical substances					
Waste production and management					
Biodiversity					
Living environment					
Noise					
Temperature (related to climate change issues)					
Brightness					
Electromagnetic fields and infrastructures					
Quality of public spaces (including green spaces [aesthetics, continuity, security, amenities])					
Housing (access, safety, quality)					
Socio-economic environment					
Food (access, quality)					
Energy (access, security)					
Employment (access, safety, conditions)					
Economic development					
Gender equality					
Social equality					
Diversity of public services, facilities and shops (e.g. healthcare services, transport infrastructures, educational facilities, sport services, grocery stores)					
Accessibility of public services, facilities and shops (e.g. healthcare services, transport infrastructures, educational facilities, sport services, grocery stores)					
Socio-familial environment (family support, social ties and support, social and generational diversity, social cohesion, self-help networks and solidarity)					

Local issues*	Potential impacts*	HIA added value*	Final decision*	Comments*
H: High	H: High	H: High	YES or NO	
M: Medium	M: Medium	M: Medium		
L: Limited	L: Limited	L: Limited		
* Does the determinant contribute to the health status of local populations? Determined thanks to the available documentation on the territory and/or the project/policy/program and to exchanges with local stakeholders.	* Will the activities of the project/policy/programme, and any change in the determinants of health, result in a likely significant effect on health? Or are the effects of the project/policy/ programme likely to be unevenly distributed among different population groups? Determined thanks to the consultation of the bibliography, from the scientific literature.	* Can the approach provide new data and/or solutions in addition to the information already available? Or are the approach, report or critical findings in other assessments? Determined thanks to the analysis of the SEA/EIA and the other existing studies related to the project/policy.		* If the final decision is NO, meaning the health determinant is not scoped in for impact assessment, comments regarding data availability and planned appraisal methodologies. Which quantitative or qualitative methodologies should be used to assess the potential effects of the project on this health determinant? Which data is necessary to implement these methodologies and will it be possible to mobilize and/or produce it? With whom who is necessary to implement these methodologies and will it be possible to mobilize it? If the final decision is NO, meaning the health determinant is suspected, excludes from impact assessment, short explanation of the decision.

(1): "Significance refers to informed, expert judgement about what is important, desirable or acceptable with regards to changes triggered by the project in question" (Cave et al., 2020, p.17)

(2): Necessary data might refer to local quantitative data but also to local qualitative data or general data coming from national surveys or the scientific/grey literature.

Source:

D.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

The guide presents a set of examples organized as a template to support the proposal of a baseline in the scoping phase, with a focus on identifying relevant indicators.

The table in Figure D4 shows a number of indicators that can be proposed, grouped into categories such as demographic, health, health services, environmental and socioeconomic indicators. These indicators are general and aim to measure aspects related to demographics and health. The table then allows you to check the existence of each indicator, its availability, and whether it can be compared with national data or information in other Georgian documents.

Figure D4 : Georgian guideline exemple on how to presente a data collection that can be used as a baseline.

Tool of the guidelines to consider Health in Environmental Assessment			
Name:	Health & Environment Data for first baseline (E1-2H_DE2)	Numb:	E1-2H_DE2
Objective:	To present a data collection that could be used as a baseline in the Draft Project/Strategic Document and in the application documents. It supports the screening decision for activities/strategic documents under Annex 2 of the Environmental Assessment Code.		
User:	Planning Authority and Consultants		
Step of use:	P1 P2, Screening and scoping		
Description:	The list is composed of a table with general indicators required to measure demography and health according to the literature. The table allows checking for each indicator if it is available and if it could be compared to the national level or another level in the different application documents.		
Composition	Modifiable Word file		
Origin and references:	Adapted from: Webster, 2012 References: Webster, Premila & Sanderson, Denise. (2012). Healthy Cities Indicators-A Suitable Instrument to Measure Health?. Journal of urban health : bulletin of the New York Academy of Medicine. 90. 10.1007/s11524-011-9643-0.		
Version of the tool	Version 1. 5 of the tool; last update: April 2024 Other further versions are possible based on the modifiable tool document and inside management of NCDC.		

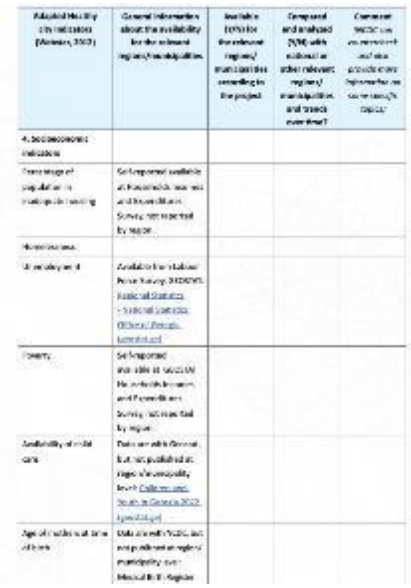
Data Baseline proposed for screening and scoping application

Demographic Indicators	General information about the availability for the relevant regions/municipalities	Available (Y/N) for the relevant regions/ municipalities according to the project	Compared and analysed (Y/N) with national or other relevant regions/ municipalities and trends over time?	Comment (NCDC can counter-check and also provide more information on some specific topics)
Population on the impacted territory	Data are available at region and municipal level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Population by sex	Data are available at region and municipal level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Population major age group	Data are available at region and municipal level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			

Adapted Healthy city Indicators (Webster, 2012)	General information about the availability for the relevant regions/municipalities	Available (Y/N) for the relevant regions/ municipalities according to the project	Compared and analysed (Y/N) with national or other relevant regions/ municipalities and trends over time?	Comment (NCDC can counter-check and also provide more information on some specific topics)
1. Health				
Mortality	Data are available at region and municipal level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Main causes of death	Data are available at region and municipal level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Low birth weight	Data are with NCDC, but not published at region/municipality level. Medical Birth Register			

Adapted Healthy city Indicators (Webster, 2012)	General information about the availability for the relevant regions/municipalities	Available (Y/N) for the relevant regions/ municipalities according to the project	Compared and analysed (Y/N) with national or other relevant regions/ municipalities and trends over time?	Comment (NCDC can counter-check and also provide more information on some specific topics)
2. Health services				
City health education programs				
Immunization rates	Data are with NCDC, but not published at region/municipality level. Immunization statistics			
Inhabitants per primary health care practitioner	Data are available at region level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Inhabitants per nurse	Data are available at region level. Statistical Information by Regions and Municipalities of Georgia (geostat.ge)			
Percentage of population covered by health insurance Availability of services in foreign and minority languages in the area	Data are with NCDC, but not published at region/municipality level. Health statistics			
Health debates in city council				
Healthcare services				

Adapted Healthy city Indicators (Webster, 2012)	General information about the availability for the relevant regions/municipalities	Available (Y/N) for the relevant regions/ municipalities according to the project	Compared and analysed (Y/N) with national or other relevant regions/ municipalities and trends over time?	Comment (NCDC can counter-check and also provide more information on some specific topics)
3. Environmental Indicators				
Air pollution	*(If any database, exist, list the potential sources of Pollutants of the territory (emission))*			
Water quality				
Sewage collection				
Household waste treatment				
Green space				
Derelict industrial sites / Soil contamination				
Sport and leisure facilities				
Pedestrianisation				
Cycle routes				
Public transport access				
Public transport range				
Living space				



D.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?"

The guide already has many indicator examples.

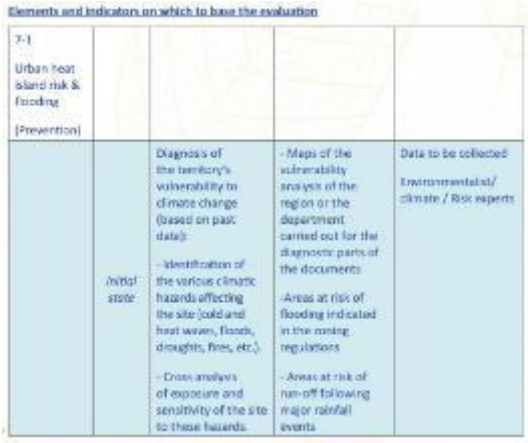
D.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

There are detailed recommendations on the importance of considering environmental health impacts and their relationship to communicable and noncommunicable diseases.

Support Sheet 7 - "Adaptation to climate change and energy management", which deals with aspects related to health, energy and climate, provides references to national documents and data sources and, in particular, a number of examples of elements and indicators that can serve as a basis for an assessment. Figure D5 provides examples of how climate change can affect the risk of vector-borne diseases.

Similarly, Support Sheet 8 - Active lifestyle, transport and access to facilities/services presents the relevance of the relationship between aspects of mobility and well-being and, consequently, addresses in detail the effects of changes in the environment on non-communicable diseases. More precisely, it explains how physical activity, lifestyle, transport and access to facilities or services enable people to adopt healthy lifestyles and that this requires the provision of infrastructure and financial incentives to promote the adoption of habits such as walking, cycling and using public transport, as well as encouraging physical activity and sports in green areas and recreational spaces. Figure D6 shows examples of indicators that can serve as the basis for an evaluation.

Figure D5: Georgian guideline example on communicable diseases presented in the support sheet 7 - Adaptation to climate change and energy management.



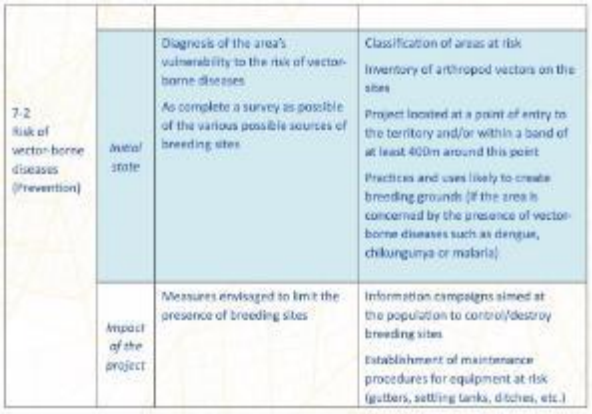
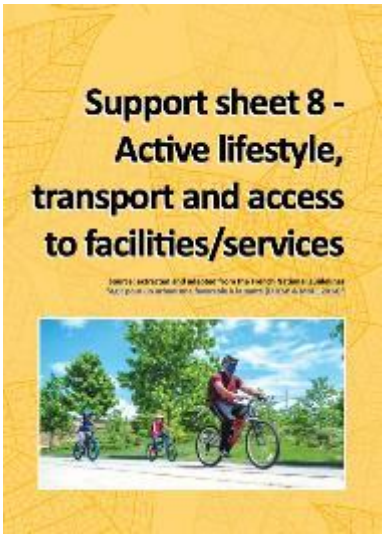
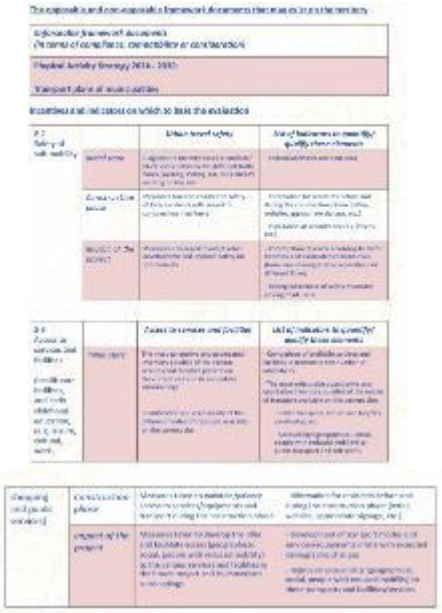


Figure D6: Georgian guideline example on how to ensure bobility and well-being - the support sheet 8 - Active lifestyle, transport and access to facilities/services.





D.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

The guide emphasizes the importance of addressing health inequalities within populations and communities. The additional tools section includes specific guidance for tackling these inequalities during the screening and scoping stages of evaluation, supported by a template illustrated in Figure D7.

This template, based on a practical example, helps identify the HIA needs related to the potential impacts of urban development projects on health inequalities. It links themes such as public space, access to infrastructure, and individual behaviors to health determinants. Additionally, it serves as a practical tool for assessing the impact of planning on different population groups, categorized by factors such as socioeconomic status, age, and gender. Impacts are also scored by theme for each group.

Figure D7: Georgian guideline example "Template from a case study" on how to identify the need for HIA in addressing social inequalities in health (page 95 - CODE E1-2AT2)

Tool of the guidelines to consider Health in Environmental Assessment			
Name:	Screening and Scoping health inequalities assessment grid (E1-2AT2)	Code:	E1-2AT2
Objective:	Tool for identifying the need of HIA according to the potential impacts of an land-use and urban development project on social inequalities in health.		
User:	Planning Authority and Consultants		
Step of use:	E1-E2, Screening, scoping (with adaptation of use)		
Description:	Tool for identifying the potential impacts of an urban development project on social inequalities in health. The tool addresses 8 themes, such as public space, access to infrastructures or individual behaviors, which are broken down into 22 questions on health determinants. It also proposes a division of the population into identified groups, according to socio-economic level, age, gender, etc., and a score to be assigned collectively according to the impact on the different social groups by theme. It is completed by informative answers on the evaluation of health impacts and the highlighting of "points of vigilance". It is a turnkey tool in the form of a spreadsheet linked to a website that allows for quick and easy handling and offers an optimized time for shared reflection on health-friendly urban planning.		
Composition:	Modifiable Excel file of 2 spreadsheets - 1 Grid - 1 Summary		
Origin and references:	Adapted from: This grid was developed and co-constructed in 2019 by a French inter-university research federation (IFERISS) and the Toulouse urban planning and development agency (AUAT) within the framework of PRSE3 (Environmental Health Regional Plan number 3 of Occitanie). Reference: Breteau et al, 2022		
Version of the tool:	Version 1_5 of the tool; last update: April 2024. Other further versions are possible based on the modifiable text document and inside management of NCDC.		

Link to the turnkey tool in the form of a spreadsheet with 2 sheet ("Screening/Scoping grid social inequalities" & "Summary"|

Screening Health inequality Tool.xlsx - Google Sheets

Health determinants					Unknown impact	Points of vigilance on the project/ Levers identified	Recommendations
Very negative impact = -2 Negative impact = -1 No impact = 0 Positive impact = 1 Very positive impact = 2							
INDIVIDUAL BEHAVIOURS							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
1. What impact will the project have on the way people eat? For example: Has accessibility to shops been considered? Are organic farming, community garden or open air markets planned? Are there fast food restaurants located near homes or schools?	0	0	0	0	-		A HIA is not necessary
Populations and specific populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
2. What impact does it have on people's ability to be physically active? Does it have a more specific impact on women? early childhood, people with reduced mobility? For example: Have sports facilities, green spaces, pedestrian areas, landscaped waterfronts... been planned for the project?	0	0	0	0	-		A HIA is not necessary
	Women	Children	Person with a disability	Other:	Unknown impact		
	0	0	0	0	-		Careful with specific populations
SOCIAL DETERMINANTS AND SOCIAL SUPPORT							
Populations and specific populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
3. What impact can the project have on social isolation? Does it have a more specific impact on the elderly, people with reduced mobility? For example: Does the project provide for meeting spaces, a neighborhood square, equitably distributed convivial spaces?	0	0	0	0	-		A HIA is not necessary
	Elderly	Person with a disability	Children	Other:	Unknown impact		
	0	0	0	0	-		Careful with specific populations
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
4. What impact can the project have on citizen participation/decision making or involvement in the associative life of the population? For example: is there a local community centre close and accessible, are there local unions, is there a active community life?	0	0	0	0	-		A HIA is not necessary
5. What impact will the project have on the availability of childcare? For example: Are there any preschool institutions, kindergartens, day care centers, nurseries nearby and accessible? Is there a need to create other infrastructures?	0	0	0	0	-		A HIA is not necessary
6. Does the project promote "living together"? Cf. mix of building types, pavilion, collective, social housing...	0	0	0	0	-		A HIA is not necessary
CULTURAL OFFER AND ACCESS TO EMPLOYMENT							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
7. What impact does the project have on the population's access to a public (free) school?	0	0	0	0	-		A HIA is not necessary
8. What impact does the project have on the access (distance, offer) of the populations to cultural places such as associations, artistic associative workshops, cinema, theater...?	1	2	0	-2	-		Careful with health and social inequalities in designing the plan/ program/project
9. What impact does it have on access (distances and offers from the neighborhood or nearby neighborhoods) to employment? For example: Is the project a source of employment, or is there sufficient employment in the project area? What types of jobs for what types of populations?...	-2	-2	1	1	-		Careful with health and social inequalities in designing the plan/ program/project

ACCESS TO HEALTHCARE SERVICES							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
10. What impact does the project have on access to a primary care health professional? For example: multidisciplinary health center, general practitioner...	-1	-1	-1	0	-		A HIA is highly recommended
Populations and specific populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
11. What impact does it have on access to a pharmacy? Can it impact more particularly people with reduced mobility? accessibility, distance of the service from living areas ..."	-1	-1	-1	0	-		A HIA is highly recommended
	Person with a disability	Elderly	Other		Unknown impact		
	-2	-1			-		Careful with specific populations
PUBLIC SPACE							
Populations and specific populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
12. Does the project facilitate the use of public space (green spaces, benches, children's games, accessibility of bicycle lanes/tracks, pedestrian areas, lighted spaces, etc.)? Urban Amenities and Quality of Life Does it have a more specific impact on women, early childhood, people with reduced mobility?	-1	-1	-1	0	-		Careful with specific populations
	Women	Children	Person with a disability or elderly	Other	Unknown impact		
	-1	-1	-1	0	-		Careful with specific populations

Populations spécifiques	Women	Children	Person with a disability or elderly	Other	Unknown impact		
13. Does the project design the spaces to promote a sense of safety? For example: Perceived sense of safety by women, children, parents. Facilities that make people feel safer...	-1	-1	-1	0	-		Careful with specific populations
Populations and specific populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
14. What impact does it have on access to public transportation? For example: Are existing transportation services sufficient, safe (e.g., consideration of women's use of transportation, especially at night), and accessible?	-1	-1	-1	0	-		A HIA is highly recommended
	Women	Children	Person with a disability or elderly	Other	Unknown impact		
	-1	-1	-1	0	-		Careful with specific populations
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
15. Does the project expose populations to noise pollution? For example: Housing planned near noisy places (roads, bars, factories) or noisy services, housing architecture and sound insulation, neighborhood noise... Excluding nuisances linked to the construction phase of the urban project	-1	-1	-1	0	-		A HIA is highly recommended

PHYSICAL ENVIRONMENT							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
16. Does the project expose populations to degraded outdoor air quality? Adequacy between uses and air quality For example, a school near a highway	-1	-1	-1	0	-		A HIA is highly recommended
17. Does the project expose populations to degraded indoor air quality? Architecture of the dwellings, their depth / orientation to the prevailing winds...	-1	-1	-1	0	-		A HIA is highly recommended
18. Does the project expose populations to degraded soil quality? Adequacy between uses and soil quality E.g. a kindergarten on soil that was previously polluted by chemicals	-1	-1	-1	0	-		A HIA is highly recommended
19. Does the project expose populations to degraded water quality? Adequacy between uses and water quality. For example, stormwater management to avoid flooding, infiltration, sealing...	-1	-1	-1	0	-		A HIA is highly recommended

20. Does the project expose populations to urban heat islands? These may be existing or potentially created by the project	-1	-1	-1	0	-		A HIA is highly recommended
HOUSING							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
21. Does the project facilitate access to quality housing for all? For example: Creation or renovation of housing for all types of budgets, housing accessible to people with reduced mobility...	1	1	1	0	-		A HIA is highly recommended
NEGATIVE AND POSITIVE EXTERNALITIES OF THE PROJECT							
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
22. Can the project have impacts on populations outside the project? For example: does the project have an impact on the populations adjacent to the project, or the flow of people or cars, or the use of public space, or access to services, to facilities...?	-1	-1	-1	0	-		A HIA is highly recommended
Populations	Affluent	Upper Middle class	Lower Middle class	Modest	Unknown impact		
	-10	-10	-9	-1			Careful with health and social inequalities in designing the plan/ program/project

Summary table of recommendations according to the different determinants of health					
	A HIA is not necessary	A HIA is highly recommended	Careful with health and social inequalities in designing the plan/ program/project	Unknown impact on health	Comments
Food safety					
Physical activity					
Social isolation	X				
Public participation					
Childcare					
Social mixity					
Access to education					
Access to culture	X				
Access to employment					
Access to healthcare					
Access to a pharmacy					
Public spaces	X				
Sense of safety	X				
Transports	X				
Environmental noise					
Outdoor air					
Indoor air	X				
Soils					
Water					
Urban heat islands					
Access to housing					
Externalities					

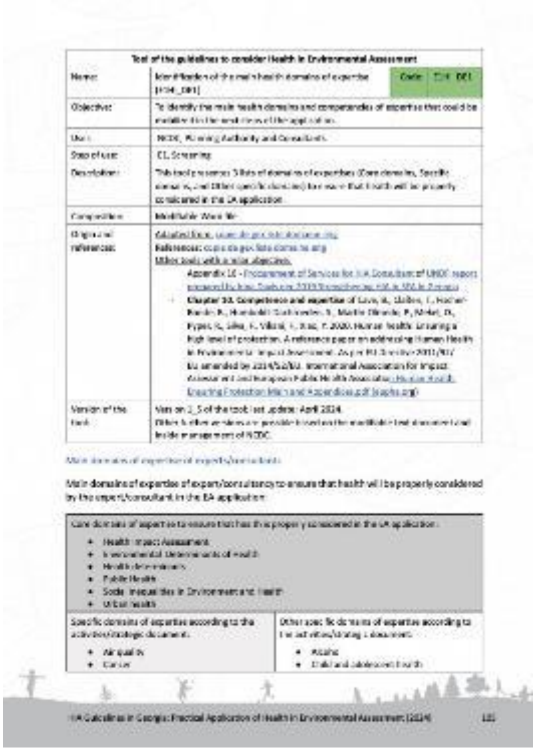
D.11. Is the participation of health/expert actors encouraged?

The participation of health actors and/or experts is strongly encouraged and there are direct and detailed recommendations aimed at guiding the identification of important expertise in decision-making. Figure D8 shows a list of possible experts who can make a significant contribution to the consideration of health in environmental assessment. The list also indicates that these experts can contribute directly to the following themes:

- Health Impact Assessment
- Environmental Determinants of Health
- Health determinants

- Public Health
- Social Inequalities in Environment and Health
- Urban health

Figure D8: Georgian guideline example on how to identify the main health domains of expertise (Page 105 – Code E1HI_DE1)



Tool of the guidelines to consider Health in Environmental Assessment

Name:	Identification of the main health domains of expertise [E1HI_DE1]	Code	E1HI_DE1
Objective:	To identify the main health domains and competencies of expertise that could be [illegible]		
Use:	NCDC, Planning Authority and Consultants		
Stage of use:	E1. Screening		
Description:	This tool presents 3 lists of domains of expertise (Core domains, Specific domains, and Other specific domains) to ensure that health will be properly considered in the EA application		
Composition:	Modifiable Word file		
Original references:	Adapted from: [illegible] References: [illegible] Other tools with a similar objective: Appendix 10 - [illegible] Chapter 10. Competence and expertise of Cave, B., [illegible] 2020. Human health: Ensuring a high level of protection. A reference paper on addressing Human Health in Environmental Impact Assessment. As per EU Directive 2011/92/EU amended by 2014/52/EU. International Association for Impact Assessment and European Public Health Association. [illegible]		
Version of the tool:	Version 1_5 of the tool. Last update: April 2024. [illegible] inside management of NCDC.		

Main domains of expertise of experts/consultants

Main domains of expertise of expert/consultancy to ensure that health will be properly considered by the expert/consultant in the EA application

Core domains of expertise to ensure that health is properly considered in the EA application: Health Impact Assessment; Environmental Determinants of Health; Health determinants; Public Health; Social Inequalities in Environment and Health; Urban health	
Specific domains of expertise according to the activities/strategic document: Air quality; Cancer	Other specific domains of expertise according to the activities/strategic document: Alcohol; Child and adolescent health

EA Guidelines in Georgia: Practical Application of Health in Environmental Assessment (2024) 105

• Cardiovascular Disease • Chemical safety • Climate and territories • Climate change • Diabetes • Disease prevention • Environmental risk assessment and risk management • Food safety • Health service delivery • Housing and health • Mental health • Migration and health • Noise • Non communicable diseases • Nutrition • Obesity • Parasitic and vector-borne diseases • Physical activity • Prevention, reduction and adaptation to natural, accidental risks • Primary health care • Public health services • Social Determinants • Transportation and health • Urban development • Water and sanitation	• Chronic respiratory diseases • Communicable diseases • Culture and Heritage • eHealth • Health policy • HIV/AIDS • Illicit drugs • Laboratory services • Malaria • Maternal, newborn and child health (MNCH) • Nursing and obstetrics • Oral health • Sexual and reproductive health • Sexually Transmitted Infections • Technological innovations • Tobacco use • Tuberculosis • Violence and trauma

According to B. Cave (2020), 8 competencies across the field of impact assessment are relevant for those who produce, and for those who examine, EIA Reports. Health professionals should be responsible for, and engaged in, the health assessment of the EIA. That includes public health professionals, officers, officials and health authorities.

Competencies:

1. hold a relevant degree from an accredited university and/or be a member in good standing of a relevant professionally accredited organization;
2. have sufficient experience in undertaking or reviewing IA studies (number of years of experience reflecting seniority);
3. have a good or thorough working knowledge of IA methods, including cumulative and strategic IA;
4. have a capacity to effectively lead IA studies or reviews (or carry them out effectively under direction) and to look beyond compliance to develop and promote best practice;
5. have a good understanding of the structure, functioning and interrelatedness of ecological, socio-economic, health and political systems that support sustainable development and the ability to apply this understanding to sound impact assessment, review or decision-making;
6. have a working knowledge of IA administrative systems, institutions and guidelines in the country(s) in which s/he works (including related legislation and policies), and a demonstrated ability to effectively interpret and fulfill their requirements;
7. have an ability to evaluate the adequacy of IA documents, and if appropriate to craft (and follow-up on) practical project approval conditions; and
8. have an active commitment to best practice and continuing professional development through readings, publications/presentations, training, and/or mentoring.

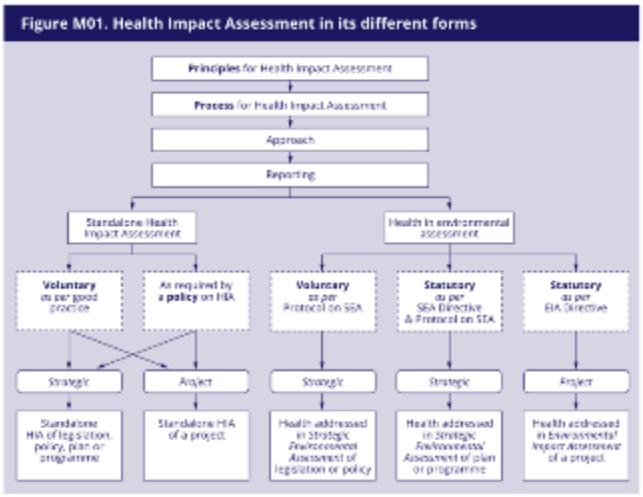
Appendix E – Ireland - Health Impact Assessment Guidance: A Manual and Technical Guidance[15]

E.1. Introduction

The document, released in 2021, it's an update from the guidance issued by the Institute of Public Health in Ireland in 2009. The document is based on best practice in impact assessment from across the island of Ireland, the UK and internationally.

The guide is aimed at Health Impact Assessment (HIA) and addresses the topic of health in environmental assessment, including SEA. Thus, it seeks to steer the user through the process and it takes account of changes in health in environmental assessment (Figure E1).

Figure E1: The Irish Guide to Health's approach to environmental assessment - the flowchart shows the different paths an HIA can take.



The document consists of a main Manual, which contains guidance on the subject, starting with introductory and conceptual guidance on the determinants of health and on the stages of the environmental assessment process, which guides the HIA as part of the EIA and SEA stages. The detailed information presented in the manual is referenced in the Technical Guidance, which in turn presents details of the environmental assessment tools. The guide also provides key HIA resources to help the reader understand the technical concepts, legal nuances and knowledge base needed to make best use of the tools.

E.2. What is the scope of the guidance?

The guide is a practical, user-friendly framework to guide policymakers, commissioners and practitioners in carrying out independent HIAs and environmental health assessments.

[15] Pyper, R., Cave, B., Purdy, J. and McAvoy, H. (2021). Health Impact Assessment Guidance: A Manual. Standalone Health Impact Assessment and health in environmental assessment. Institute of Public Health. Dublin and Belfast. Available at: https://www.publichealth.ie/sites/default/files/resources/guidance_2.pdf

It focuses on updating guidance issued by the Public Health Institute of Ireland in 2009 and refers to standalone HIA and health in environmental assessment.

E.*3.* Who is the guidance directed at?

The Irish guidance is directed for organizations that are developing legislation, policies, plans or programmes. It is also for planning authorities and developers who are considering whether to grant, or who are seeking, permission for an individual project. The guidance can be used at different levels of government and decision-making, such as: ministerial committees, official groups, project boards, local partnerships, authorizing bodies, and also for councils and government departments. It is also for practitioners delivering impact assessments, including standalone HIAs, as well as health within environmental assessments.

E.4. How does it define the concept of health? (Inset the exactly quote here)

The guide offers multiple definitions of health, but it centers on the definition provided by the World Health Organization (WHO):

“Health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”

However, the guide also considers that the links between people, political systems, economies and, consequently, the planet continue to grow and that its necessary to define health in a way that recognizes the fundamental connections between health, society and the environment.

According to the guide: “This means a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”

The guide further asserts that the definition of 'health' has remained unchanged since 1948, emphasizing that mental and social well-being are integral aspects of health, alongside physical health. It also points out that health and well-being are influenced by a range of factors, known as the ‘wider determinants of health’. In this context, additional concepts are relevant and directly support this understanding of health.

E.5. Is this close to one of the following conceptualizations of health?

●	●	●	●	●	●	
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

Although the guide is based on the World Health Organization (WHO) definition of health, it presents in detail different concepts that help to understand how the concept of health is broad and diverse, is associated with the determinants of health and needs to be considered in SEA and HIA.

To this end, the definitions summarized in the technical guide on the concepts of:

- Governance for health
- Health as a human right

- Health as a cross-cutting aspect of the Sustainable Development Goals
- One Health
- Planetary Health

E.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

The environmental topics are not explored in detail. They are presented in the guidelines for developing the scoping of the assessment and are linked to the identification of "likely" and "potentially significant" health determinants. However, only climate change, air quality, water, soil, noise and radiation are mentioned. Figure E2 shows a reference table showing how health determinants, including environmental topics, can be discussed at the scoping stage.

Figure E2: Table 10 from the Irish Guideline: Key Topics “determinants of health” for Consideration and Evaluation in the Scoping Phase

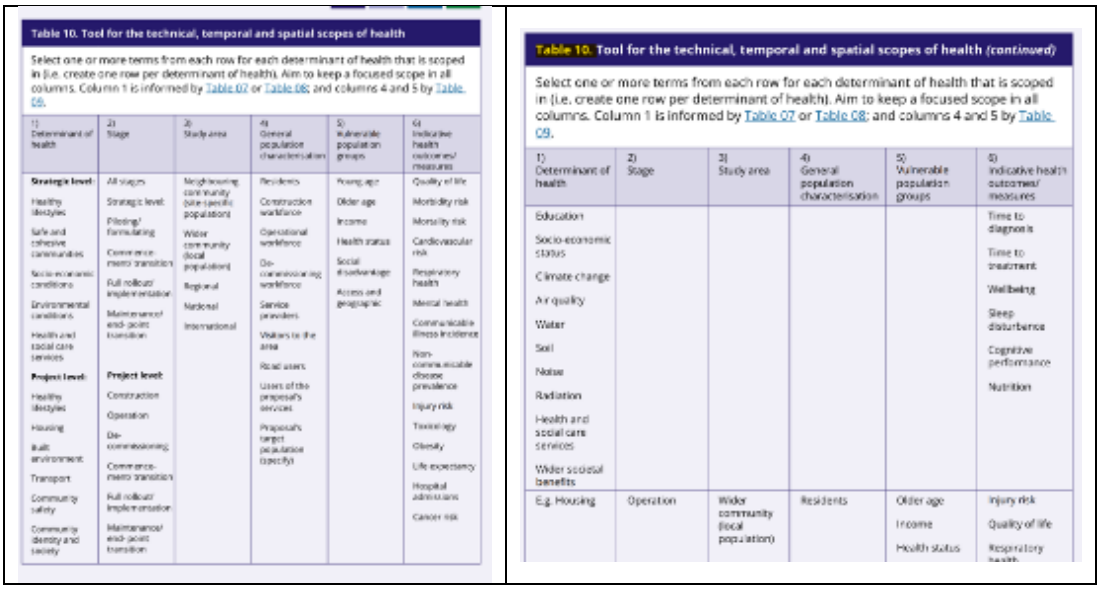


Table 10. Tool for the technical, temporal and spatial scopes of health

Select one or more terms from each row for each determinant of health that is scoped in (i.e. create one row per determinant of health). Aim to keep a focused scope in all columns. Column 1 is informed by Table 07 or Table 08; and columns 4 and 5 by Table 06.

1) Determinant of health	2) Stage	3) Study area	4) General population characterisation	5) Vulnerable population groups	6) Indicative health outcomes/ measures
Strategic level: Healthy lifestyles Safe and cohesive communities Socio-economic conditions Environmental conditions Health and social care services **Project level:** Healthy lifestyles Housing Built environment Transport Community safety Community identity and society	All stages Strategic level: Piloting/ formulating Commence-ment/ transition Full rollout/ implementation Maintenance/ end-point transition **Project level:** Construction Operation De-commissioning Commence-ment/ transition Full rollout/ implementation Maintenance/ end-point transition	Neighbourhood/ community (site-specific population) Wider community (local population) Regional National International	Residents Construction workforce Operational workforce De-commissioning workforce Service providers Visitors to the area Road users Users of the proposal's services Proposal's target population (specify)	Young age Older age Income Health status Social disadvantage Access and geographic	Quality of life Morbidity risk Mortality risk Cardiovascular risk Respiratory health Mental health Communicable illness incidence Non-communicable disease prevalence Injury risk Toxicology Obesity Life expectancy Hospital admissions Cancer risk

Table 10. Tool for the technical, temporal and spatial scopes of health *(continued)*

Select one or more terms from each row for each determinant of health that is scoped in (i.e. create one row per determinant of health). Aim to keep a focused scope in all columns. Column 1 is informed by Table 07 or Table 08; and columns 4 and 5 by Table 09.

1) Determinant of health	2) Stage	3) Study area	4) General population characterisation	5) Vulnerable population groups	6) Indicative health outcomes/ measures
Education Socio-economic status Climate change Air quality Water Soil Noise Radiation Health and social care services Wider societal benefits					Time to diagnosis Time to treatment Wellbeing Sleep disturbance Cognitive performance Nutrition
E.g. Housing	Operation	Wider community (local population)	Residents	Older age Income Health status	Injury risk Quality of life Respiratory

While figure E3 shows a reference table to be used when assessing the relevance of certain environmental topics at the scoping stage. Both guidelines are for the development of assessments at strategic levels, be it the HIA or to add health to the SEA.

Figure E3: Table 07 from the Irish Guideline: Key Topics for Consideration and Evaluation in strategic-level scoping Phase.

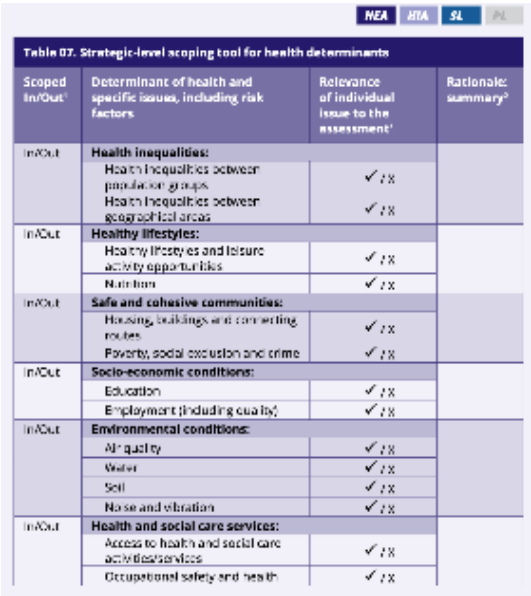


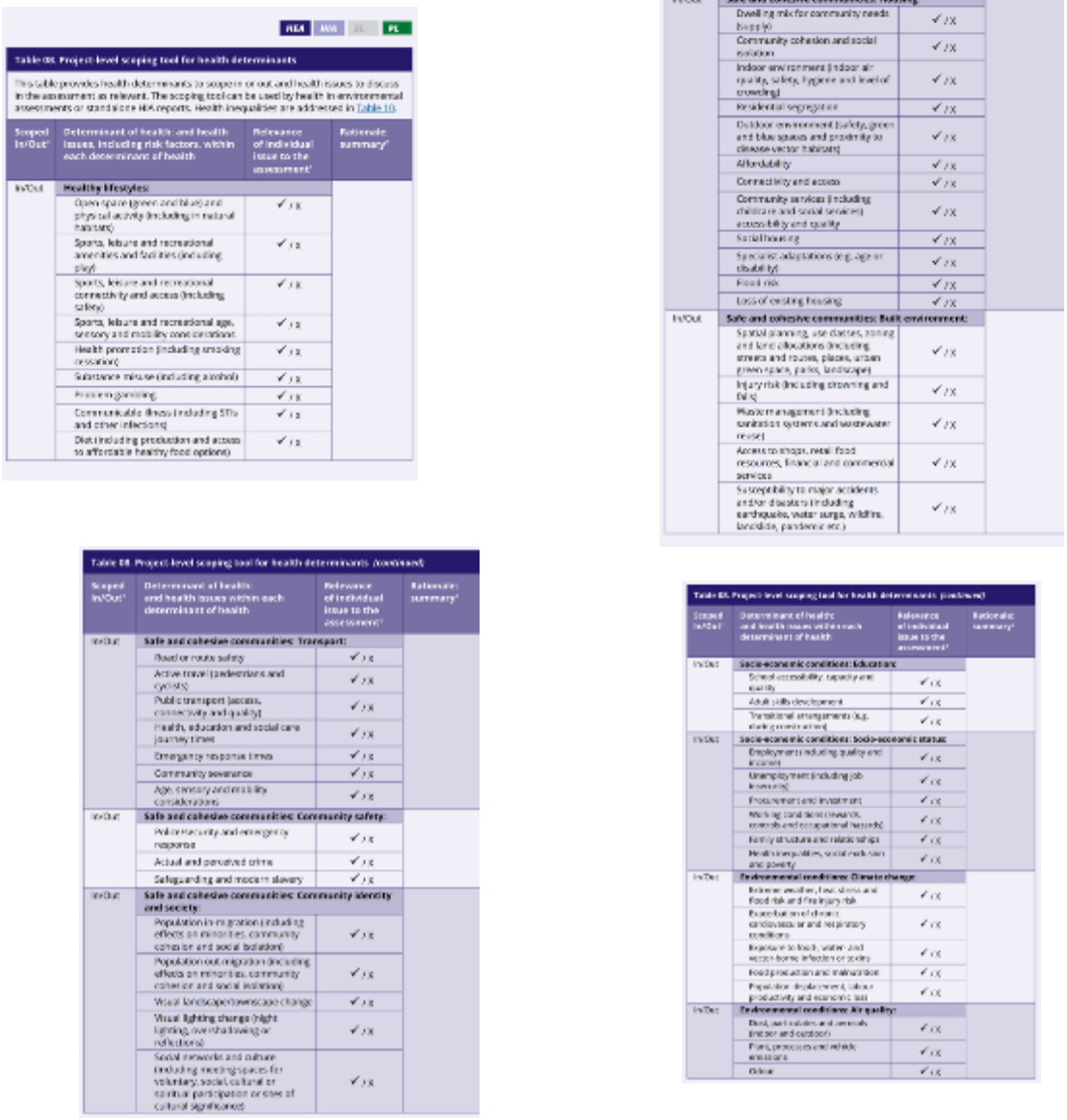
Table 07. Strategic-level scoping tool for health determinants			
Scoped In/Out[1]	Determinant of health and specific issues, including risk factors	Relevance of individual issue to the assessment[1]	Rationale: summary[2]
In/Out	**Health inequalities:**		
	Health inequalities between population groups	✓ / x	
	Health inequalities between geographical areas	✓ / x	
In/Out	**Healthy lifestyles:**		
	Healthy lifestyles and leisure activity opportunities	✓ / x	
	Nutrition	✓ / x	
In/Out	**Safe and cohesive communities:**		
	Housing, buildings and connecting routes	✓ / x	
	Poverty, social exclusion and crime	✓ / x	
In/Out	**Socio-economic conditions:**		
	Education	✓ / x	
	Employment (including quality)	✓ / x	
In/Out	**Environmental conditions:**		
	Air quality	✓ / x	
	Water	✓ / x	
	Soil	✓ / x	
	Noise and vibration	✓ / x	
In/Out	**Health and social care services:**		
	Access to health and social care activities/services	✓ / x	
	Occupational safety and health	✓ / x	

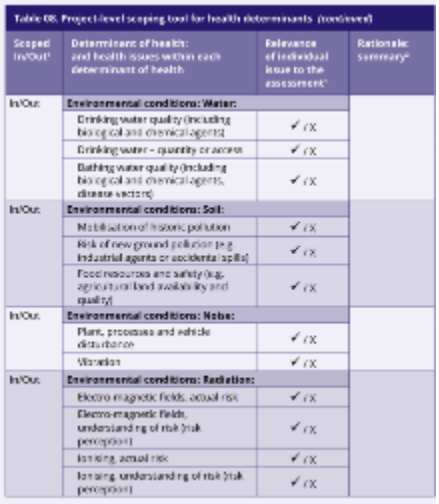
The guide explains that tables are good practice to include the justification for major decisions on scope. They encourage a proportional approach to maintain the focus of the assessment and conclusions: first, it is recommended to consider the issues relevant to the proposal and then draw an overall conclusion about the health determinant. Thus, health determinants as a whole, including environmental topics, are included or excluded and the relevance of specific issues is indicated with a tick mark.

E.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

Health and well-being topics are not explored in detail. They are mentioned as health determinants to be considered in the scoping stage. The table shown in Figure E4 serves as a reference for defining health determinants both when scoping a project and for a more detailed analysis of strategic proposals.

Figure E4: Table 08 from the Irish Guideline: Health determinants for Consideration and Evaluation in project-level scoping phase





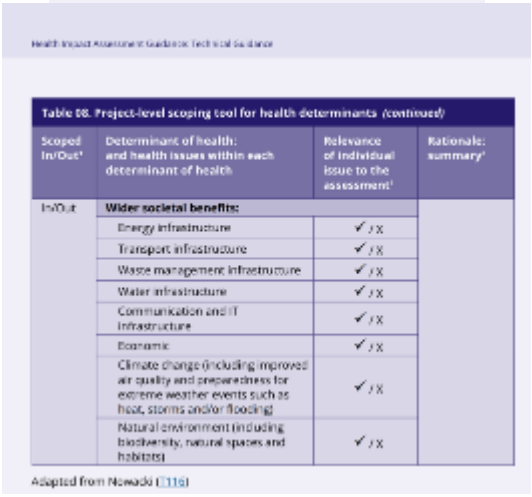


Table 08. Project-level scoping tool for health determinants (continued)

Scoped In/Out[1]	Determinant of health: and health issues within each determinant of health	Relevance of individual issue to the assessment[2]	Rationale: summary[3]
In/Out	**Wider societal benefits:**		
	Energy infrastructure	✓ / x	
	Transport infrastructure	✓ / x	
	Waste management infrastructure	✓ / x	
	Water infrastructure	✓ / x	
	Communication and IT infrastructure	✓ / x	
	Economic	✓ / x	
	Climate change (including improved air quality and preparedness for extreme weather events such as heat, storms and/or flooding)	✓ / x	
	Natural environment (including biodiversity, natural spaces and habitats)	✓ / x	

Adapted from Nowacki [119]

E.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

There are no recommendations on the topics throughout the use of indicators.

However, sources of data and information are recommended in the guidelines for the monitoring stage. Official sources in Ireland and Northern Ireland are presented, for example:

The Ireland indicators sets:

- Healthy Ireland Outcomes Framework
- The Central Statistics Office in Ireland
- Ireland deprivation mapping, Pobal Maps

E.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?

The guide provides several examples of how health determinants can be used in the stage and scope, and for that purpose, examples of issues to be detailed in these determinants are provided,

as shown in Fig. D4 above. Although these questions are aimed at the project scale, they can be used as a starting point, as inspiration or reference, to identify themes, sub-themes, data and information that can be used as indicators to monitor changes in health.

Figure E5 shows examples of themes that can inspire the use of indicators/information/data - for example "water and soil quality, food production and areas with high electromagnetic fields".

Figure E5: Example of issues presented in the Irish guide that can be used or inspire the use of indicators to monitor health changes.

Table 08. Project-level scoping tool for health determinants *(continued)*

Scoped In/Out[1]	Determinant of health: and health issues within each determinant of health	Relevance of individual issue to the assessment[1]	Rationale: summary[1]
In/Out	**Environmental conditions: Water:**		
	Drinking water quality (including biological and chemical agents)	✓ / x	
	Drinking water – quantity or access	✓ / x	
	Bathing water quality (including biological and chemical agents, disease vectors)	✓ / x	
In/Out	**Environmental conditions: Soil:**		
	Mobilisation of historic pollution	✓ / x	
	Risk of new ground pollution (e.g. industrial agents or accidental spills)	✓ / x	
	Food resources and safety (e.g. agricultural land availability and quality)	✓ / x	
In/Out	**Environmental conditions: Noise:**		
	Plant, processes and vehicle disturbance	✓ / x	
	Vibration	✓ / x	
In/Out	**Environmental conditions: Radiation:**		
	Electro-magnetic fields, actual risk	✓ / x	
	Electro-magnetic fields, understanding of risk (risk perception)	✓ / x	
	Ionising, actual risk	✓ / x	
	Ionising, understanding of risk (risk perception)	✓ / x	

E.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

There is no clear and detailed recommendation on the relations between the environmental impacts on health with communicable and non-communicable diseases. However, they are presented from examples and templates - see figures X and Y which are suggested in the scoping stage, but not as a consequence of environmental impacts.

E.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

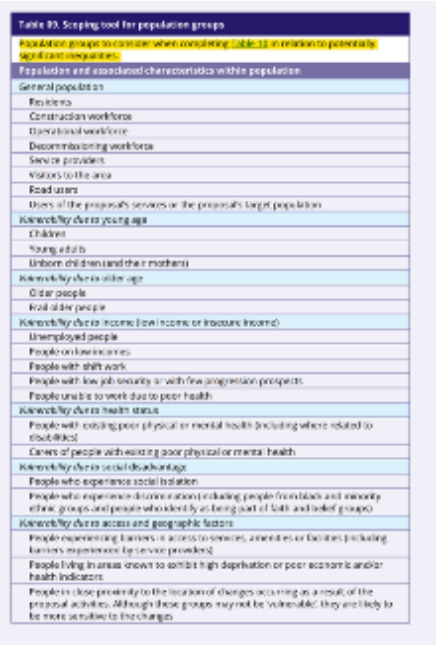
There are recommendations on the importance of considering inequalities within populations or communities. The guidance uses the term 'population groups' to refer to the vulnerability of populations and indicates that consideration of these individuals should take place during the scoping phase. Figure E6 (Table 09 below) is then presented as a reference for identifying groups

of individuals who could ensure the development of an appropriate scope, and who would therefore ensure the pluralistic participation of society in decision-making.

According to the guide, during the scoping phase, the first step is to identify broad population groups, including population groups that might be vulnerable. The next step is then to consider the relevant characteristics within each of these groups, because it avoids scoping each characteristic in as a separate population. It was also pointed out that this form of categorization makes it possible to identify a short and consistent list of population groups that can be considered during an assessment of cumulative inequalities or equity.

For example, they exemplify a situation where this stratification could shows all effects that could be linked to 'young age' can be shown and an overall conclusion drawn for this population group. They also reinforce, that the broad population group, for example, vulnerability due to age or income – may be most appropriate for strategic assessments. In this sense, using a template, the guide tells readers, especially health experts, how important the identification of population groups is for the evaluation process, and in some way, how the knowledge they have can be put to use.

Figure E6: Example of how the Irish guideline recommend the consideration of vulnerable groups.



E.11. Is the participation of health/expert actors encouraged?

Health professionals and/or experts are strongly encouraged to participate. The guidance devotes an entire technical guide to organizations developing legislation, policies, plans or programmes. However, beyond planning authorities and developers, the guidance has two primary audiences: I. Technical health stakeholders to such assessments, for example, public health teams, and II. Practitioners undertaking standalone HIAs and/or health in environmental assessments. The Technical Guidance, therefore, provides a set of basic information on various environmental,

health and environmental impact assessment concepts. It also presents several examples, case studies and templates on how to consider health and health determinants in environmental assessment. The material complements the main document and establishes links with various information, examples and details shared between the two documents.

Appendix F – Scotland - Guidance on consideration of human health in Strategic Environmental Assessment[16]

F.1 Introduction

The Scotland "Guidance on consideration of human health in Strategic Environmental Assessment" was published in 2019 by the Scottish Environment Protection Agency (SEPA). This is one of several guidances published by SEPA with the aim to support specific themes in the country's SEA decision-making process.

F.2 What is the scope of the guidance?

The guidance has been produced in response to the need for providing support to responsible authorities on how to integrate human health considerations into SEA practice, in the face of the statutory recommendations of the SEA Directive and the Scottish Environment Protection Agency's (SEPA) And SEPA's statutory guidance "Purpose of the Scottish Environment Protection Agency and its contribution to sustainable development[17]".

F.3 Who is the guidance directed at?

The guidance aims at providing support for responsible authorities. There is no direct mention of the target audience.

F.4 How does it define the concept of health? (Insert the exact quote here)

This guidance is based on the World Health Organisation (WHO) definition of health i.e. health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Health is influenced by a range of factors that are 'fixed' (e.g. age, ethnicity and genetics). But there are other external factors which influence health e.g. wider socio-economic and cultural conditions as well as the physical and social environments in which people live, learn and work. These factors all affect our health; the unequal distribution of health-creating and health-harming environments can lead to health inequalities. This guidance is concerned with those health effects which are related to environmental factors (e.g. air, soil, water, climatic factors and material assets) which fall within SEPA's remit.

F.5. Is this close to one of the following conceptualizations of health?

●			●	●		
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

[16] Scottish Environment Protection Agency. (2019). *Guidance on consideration of human health in Strategic Environmental Assessment* (LUPS-SEA-GU5, Version 3). https://www.sepa.org.uk/media/219433/lups-sea-gu5-consideration-of-human-health-in-sea.pdf

[17] More information at: https://www.gov.scot/publications/statutory-guidance-general-purpose-scottish-environment-protection-agency-contribution-towards/

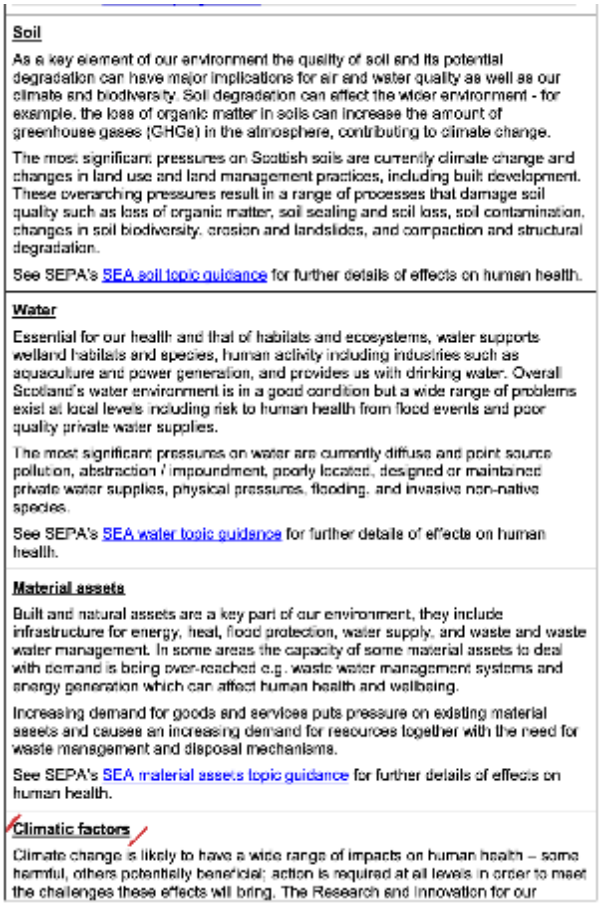
Although it is based on the WHO definition of health, it also addresses aspects of environmental health and environmental health inequalities by exploring how external factors such as environmental conditions affect health and contribute to inequalities. However, the focus remains on the WHO definition, emphasizing how environmental factors are integrated within this broader framework.

F.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

The guidance assumes that plans, programmes and strategies can affect environmental topics that in turn influence/impact on health. Thus, a set of examples of how human health interacts with other SEA topics that fall within SEPA's remit (i.e. air, soil, water, material assets, and climatic factors), are presented (Figure F.1).

Examples are provided in tables that initially describe the state of each topic in the country, the causes of existing environmental problems and their potential effects on human health. Using examples, the guidance illustrates how problems affect human health. In addition, it explains that each topics has specific guidelines on how they should be addressed in SEA and that they include detailed guidance on their relationship with health.

Figure F.1: Example of how the Scottish guide presents recommendations on environmental topics.



Soil

As a key element of our environment the quality of soil and its potential degradation can have major implications for air and water quality as well as our climate and biodiversity. Soil degradation can effect the wider environment - for example, the loss of organic matter in soils can increase the amount of greenhouse gases (GHGs) in the atmosphere, contributing to climate change.

The most significant pressures on Scottish soils are currently climate change and changes in land use and land management practices, including built development. These overarching pressures result in a range of processes that damage soil quality such as loss of organic matter, soil sealing and soil loss, soil contamination, changes in soil biodiversity, erosion and landslides, and compaction and structural degradation.

See SEPA's SEA soil topic guidance for further details of effects on human health.

Water

Essential for our health and that of habitats and ecosystems, water supports wetland habitats and species, human activity including industries such as aquaculture and power generation, and provides us with drinking water. Overall Scotland's water environment is in a good condition but a wide range of problems exist at local levels including risk to human health from flood events and poor quality private water supplies.

The most significant pressures on water are currently diffuse and point source pollution, abstraction / impoundment, poorly located, designed or maintained private water supplies, physical pressures, flooding, and invasive non-native species.

See SEPA's SEA water topic guidance for further details of effects on human health.

Material assets

Built and natural assets are a key part of our environment, they include infrastructure for energy, heat, flood protection, water supply, and waste and waste water management. In some areas the capacity of some material assets to deal with demand is being over-reached e.g. waste water management systems and energy generation which can affect human health and wellbeing.

Increasing demand for goods and services puts pressure on existing material assets and causes an increasing demand for resources together with the need for waste management and disposal mechanisms.

See SEPA's SEA material assets topic guidance for further details of effects on human health.

Climatic factors

Climate change is likely to have a wide range of impacts on human health – some harmful, others potentially beneficial; action is required at all levels in order to meet the challenges these effects will bring. The Research and Innovation for our

The aspect 'population' is developed in a different way. It focuses on how health effects may occur in different groups of people and individuals exposed to a particular risk or hazard. In this sense, the guidance explains that different approaches can be used to identify potential vulnerability and gives examples of how a range of indices and strategies can help (Figure F.2).

There is no recommendations on noise, chemical pollution, land use, biodiversity, food, fauna, flora, soil, material assets, cultural heritage, landscape, and the Interrelationship between them

Figure F.2: Example of how the Scottish guide provides orientation for considering population aspects - Paragraphs 2.4 to 2.9

2.4 The advice set out in the Draft Guidance on Health in Strategic Environmental Assessment recommends (page 58) that significance of effects in relation to human health be attributed according to the characteristics of the population which will be affected i.e.:

> *Assessment of health within SEA should focus on identifying those who are particularly vulnerable through age, employment status, different cultures, language and disability.*

2.5 Different health effects will arise among different groups of people and individuals exposed to the same risk or hazard. This is because of differences in their exposure to the hazard, their sensitivity and their capacity to respond to events (i.e. their resilience) or to adapt in the long term. Consequently there are a number of different approaches which can be adopted in order to identify potential vulnerability including:

- The Scottish Index of Multiple Deprivation (SIMD) incorporates several different aspects of deprivation and combines them into a single index in order to provide a relative ranking for 6,505 data zones which cover the whole of Scotland. The SIMD can therefore be used as a means to spatially identify vulnerable populations.
- Plotting the location of schools or colleges, residential care, sheltered or supported housing may help to identify populations which may be deemed vulnerable in relation to age or disability.
- Plotting the location of regulated industry, heavily used transport routes and interchanges (road, rail, air) or Air Quality Management Areas in relation to proposed land allocations for uses such as housing may help to identify 'hot spots' of potential hazards and ensure that allocation decisions are made in the full knowledge of the potential interaction between the proposed land uses.
- Comparing the potential vulnerability to flooding in relation to different land use proposals / options; a classification of the relative vulnerability of land uses has been devised which groups a range of land uses into five categories (see LUPS-GU24 Land Use Vulnerability Guidance). The classification recognises that certain types of development and the people

  - *Major negative - -* An action very likely to lead to a severe increase, or a series of lesser increases, in one or more aspect of environmental pollution or flooding in the Plan area. *E.g. significant increase to air / soil / water contaminants or vulnerability to flooding in the majority of the most polluted or vulnerable areas / populations. For example allocating land for a major regulated industrial development adjacent to land zoned for housing.*

2.7 Such an approach to significance will help to ensure that a PPS does not result in shifting environmentally-related health issues from one part of the plan area to another or from one vulnerable population to another and will therefore also help to ensure that the PPS does not actively perpetuate health inequalities. Responsible Authorities may wish to use these criteria (and that set out in 2.9 below) as the basis of developing an assessment method that suits the PPS being assessed.

2.8 Neutral, mixed and uncertain effects of a PPS on human health

UNCONTROLLED DOCUMENT WHEN PRINTED OUT

SCOTTISH ENVIRONMENT PROTECTION AGENCY	Identifier	LUPS-SEA-GU5
Strategic Environmental Assessment SEPA Guidance Note 5	Page no	Page 7 of 16
	Issue No:	Version 2
	Issue date	05/04/2013
Guidance on consideration of human health in Strategic Environmental Assessment		

- Neutral effects – an action which is unlikely to have any beneficial or negative effects on any existing environmental determinant of health. Neutral scoring should only be used where it is very likely that the effect on the current baseline or trends will be neither positive nor negative. It is possible that a neutral effect may be enhanced through mitigation measures such as policy or project intervention.
- Mixed effects – an action which is likely to result in a combination of positive and negative effects, particularly where effects are considered on

SCOTTISH ENVIRONMENT PROTECTION AGENCY	Identifier	LUPS-SEA-GU5
Strategic Environmental Assessment SEPA Guidance Note 5	Page no	Page 6 of 16
	Issue No:	Version 2
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Guidance on consideration of human health in Strategic Environmental Assessment		

who use and live in them are more at risk from flooding than others. This classification helps to focus attention on the relative vulnerability of different developments for their users and is therefore helpful in the risk assessment of land allocations for development.

2.6 A scoring system which ranges from a "major positive" effect to a "major negative" effect in relation to human health could use the following significance criteria:

- *Major positive ++* An action very likely to lead to an overall reduction, or a series of smaller reductions, in one or more aspect of environmental pollution or flooding in the Plan area. *E.g. major sources of air / soil / water contamination will be removed or vulnerability to flooding will be decreased in the majority of the most polluted or vulnerable areas / populations. For example by re-locating all regulated industry to a non-residential area and re-allocating the existing site to residential development.*
- *Minor positive +* An action very likely to lead to a moderate reduction, or a series of smaller reductions, in one or more aspect of environmental pollution or flooding in the Plan area. *E.g. moderate or minor sources of air / soil / water contamination or vulnerability to flooding will be removed in some of the most polluted or vulnerable areas / populations. For example re-locating one of a number of regulated industries to a non-residential area.*
- *Minor negative -* An action very likely to lead to a moderate increase, or a series of minor increases, in one or more aspect of environmental pollution or vulnerability to flooding in the Plan area. *E.g. contaminants present in air / soil / water or vulnerability to flooding will increase on a small scale in some of the most polluted or vulnerable areas / populations. For example allocating land for future residential development adjacent to an existing regulated industry.*
- *Major negative - -* An action very likely to lead to a severe increase,

- Mixed effects – an action which is likely to result in a combination of positive and negative effects, particularly where effects are considered on sub-issues, areas or criterion. Such mixed effects will be hard to predict, but could be significant in the long-term, or when taken with other effects e.g. cumulative or synergistic.
- Uncertain effects - the effect of an action on any existing environmental determinant of health is not known, or is too unpredictable to assign a conclusive score. Uncertainty may arise where an action covers a range of issues, or where the manner in which the action is implemented is a material factor in the nature of the effects it may have.

2.9 Where a PPS has the potential to have significant environmental effects on another EU Member State these effects are known as Transboundary effects. For example, a PPS which influences air quality in one Member State may result in significant effects in a neighbouring Member State. Transboundary effects can be a particular problem for air and water pollutants which can be transported over long distances, and for climatic factors the effects of which can be experienced at distances far from the original emission source. All of these issues may affect human health.

3. **SEA objectives**

F.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

There are no clear examples or specific guidelines on any of these considerations.

F.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

There is a recommendation of indicator to be applied on the monitoring of significant effects of a plan, program or strategies on human health. This example, Figure F.3, shows that the verification of compliance on the topics of air, soil and water can presume an improvement health aspects.

Figure F.3: Example of how the Scottish guide provides orientation for the use of indicators to monitoring the effects of a plan, program or strategy on human health.

7. Monitoring

7.1 The information gathered as a result of monitoring the effects of the PPS enables the Responsible Authority to track the effects of the PPS, gauge the effectiveness of any mitigation measures employed, identify unforeseen effects and manage any uncertainty encountered in the assessment process.

7.2 Table 6 below provides an example of indicators relevant to monitoring significant effects of a PPS on human health. Other more contextual indicators should be identified by the Responsible Authority to monitor for unexpected effects and consider the effectiveness of mitigation and enhancement measures.

7.3 Where consideration of health is integrated into other SEA topics then monitoring indicators for these topics may provide a useful proxy indicator for human health e.g. number of Air Quality Management Areas (particularly if this can be related to the proportion of the plan population who live in AQMAs), bathing water quality, area of derelict or contaminated land within the PPS area, etc.

Table 6 – Examples of SEA indicators

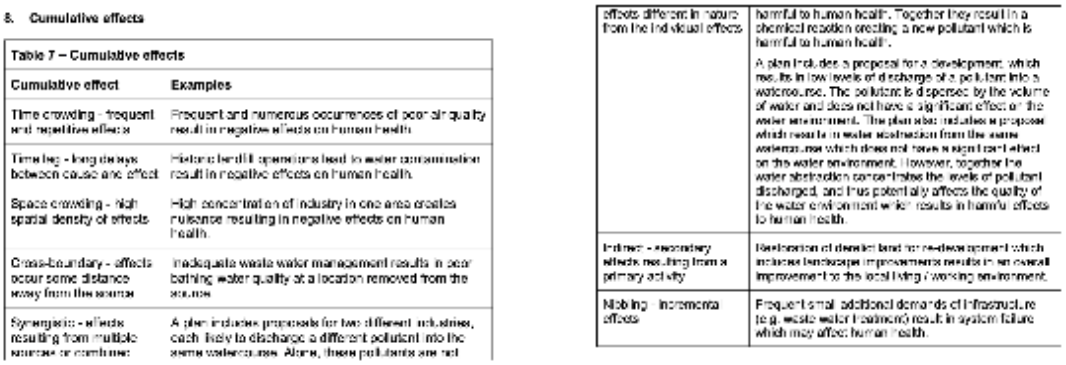
SEA health objective	Example of monitoring indicators
To protect and improve human health and wellbeing through improved environmental quality	• Compliance with criteria set to protect health e.g. air, soil and water regulation.

F.8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?

Figure F.3, mentioned above, that indicate a range of strategies on how to consider the populational aspects and they can be translated or inspire the suggestions of indicators.

Similarly, Figure F4, shows the unfinished section on Cumulative effects, which only present a table that gives a range of strategies on how to track the cumulative effects from a planning on human health, and they can also inspire the suggestions of indicators.

Figure F.3: Example of how the Scottish guide provides examples that can suggest or inspire the proposal of indicators.



8. Cumulative effects

Table 7 – Cumulative effects

Cumulative effect	Examples
Time crowding - frequent and repetitive effects	Frequent and numerous occurrences of poor air quality result in negative effects on human health
Time lag - long delays between cause and effect	Historic landfill operations lead to water contamination result in negative effects on human health.
Space crowding - high spatial density of effects	High concentration of industry in one area creates nuisance resulting in negative effects on human health.
Cross-boundary - effects occur some distance away from the source	Inadequate waste water management results in poor bathing water quality at a location removed from the source
Synergistic - effects resulting from multiple sources or combined	A plan includes proposals for two different industries, each likely to discharge a different pollutant into the same watercourse. Alone, these pollutants are not

effects different in nature from the individual effects	harmful to human health. Together they result in a chemical reaction creating a new pollutant which is harmful to human health. A plan includes a proposal for a development, which results in low levels of discharge of a pollutant into a watercourse. The pollutant is dispersed by the volume of water and does not have a significant effect on the water environment. The plan also includes a proposal which results in water abstraction from the same watercourse which does not have a significant effect on the water environment. However, together the water abstraction concentrates the levels of pollutant discharged, and thus potentially affects the quality of the water environment which results in harmful effects to human health.
Indirect - secondary effects resulting from a primary activity	Reclamation of derelict land for re-development which includes landscape improvements results in an overall improvement to the local living / working environment.
Nibbling - incremental effects	Frequent small additional demands of infrastructure (e.g. waste water treatment) result in system failure which may affect human health.

F.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

This topic is approached through some examples for how SEA objectives can be relevant for health issues and wellbeing and some examples are provided, showing the relationship between possible environmental impacts and health. Figure F.4 shows an example for how human health objectives and wellbeing can be affected. It also shows how SEA objectives relate to human health.

Figure F.4: Examples of how health objectives are connected with assessment questions.

Table 2 - Examples of SEA human health objectives and assessment questions

Headline objective	Sub-objectives	Example assessment questions
To protect and improve human health and wellbeing through improved environmental quality	• To reduce risks to human health arising from poor air quality. • To reduce the risks to human health arising from poor soil quality. • To reduce the risks to human health arising from poor water quality. • To reduce the risks to human health arising from flooding. • To reduce the risks to human health arising from the effects of climate change.	• Will the PPS affect any aspect of the environment which contributes to human health and wellbeing e.g. air, water or soil quality, greenhouse gas emissions or the risk of flooding? • Will the PPS affect an individual's ability to improve their own health and wellbeing e.g. through allocation of land for development?

F.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

The guidance explains that different groups and individuals can react in different ways to the same health risks, depending on their ability to adapt. It suggests approaches for identifying vulnerabilities, such as the Scottish Index of Multiple Deprivation and mapping schools, health

infrastructures and social housing. In this way, the guidance offers ways of analyzing the effects of these factors on health (See figure D.4 above).

F.11. Is the participation of health/expert actors encouraged?

There is no mentioning of encouraging health/expert actors.

Appendix G – United Kingdom - The UK's Draft Guidance on Health in Strategic Environmental Assessment[18]

G.1. Introduction

The UK's 2007 Draft Guidance on Health in Strategic Environmental Assessment represents an important initial government-led effort to bring health issues and public health considerations more meaningfully into the SEA process. This document supplements existing UK-wide guidance on SEA[19], by providing a good practice guide to including the population's health in SEA.

This document has been written by the UK's Department of Health in close collaboration with the Health Protection Agency and has been prepared in consultation with the Department for Communities and Local Government and the Environment Agency.

The guidance was an initial step in provides supports authorities assess the health effects of their plans and programmes more effectively. At that time, the Initiative asked the consultants to comment on the effectiveness of this guidance, but a final version of it was never developed. As a draft guide, it contains many parts that are unfinished or lack detail, but it was possible to analyze much of the content. The study by Posas (2011)[20] examined the relevance and appropriateness of this guidance against the literature and experts, and concluded that regardless of the final status of the draft guidance, it provides a solid starting point for the creation of further guidance, whether more tailored to specific health areas in SEA or written for other countries.

G.2. What is the scope of the guidance?

The UK's draft guidance on health in strategic environmental assessment aims to explain how the likely significant effects on the environment in relation to population and human health can be considered. The guidance covers health benefits, the requirements of the SEA Directive and the Sustainability Appraisal, and provides recommendations on what health covers, who to contact and how to integrate health into the SEA stages. The guidance provides recommendations to help authorities assess the health effects of their plans and programs more effectively and is based on good practice. In addition, it is designed to help health organizations understand the context of the SEA process, providing guidance on how to participate effectively. This support aims to enable these organizations to prevent health risks and promote well-being by influencing broader health determinants, such as transportation, housing, education, employment, community safety, and the built environment."

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[18] C. Williams, P. Fisher, Draft guidance on health in strategic environmental assessment: a consultation — response to consultation. Department of Health, London (2008). Available at: https://healthimpactassessment.pbworks.com/f/Draft+guidance+on+health+in+SEA+-+DH+England+-+2007.pdf

[19] A Practical Guide to the Strategic Environmental Assessment Directive. 2005. Available at: https://assets.publishing.service.gov.uk/media/5a78ec0740f0b62b22cbddd2/practicalguidesea.pdf

[20] Paula J. Posas, The UK's Draft Guidance for Health in SEA in light of HIA community priorities and the UNECE SEA Protocol, Environmental Impact Assessment Review, Volume 31, Issue 3, 2011, Pages 320-327, ISSN 0195-9255, https://doi.org/10.1016/j.eiar.2011.01.002.

G.3. Who is the guidance directed at?

This guidance has two main audiences:

- Health organizations, including Primary Care Trusts (PCTs), the HPA and Public Health Observatories, to help them engage in and respond to the SEA process to maximize public health benefits; and
- Organizations responsible for preparing plans and programs subject to the SEA Directive (known as Responsible Authorities or RAs) to identify the right people to contact in health organizations and where to obtain the most relevant information on the effects of plans and programs on the health of the population.

In addition, the guidance is relevant to SEAs that cover the UK level, as well as relevant contacts or RAs from Wales, Scotland and Northern Ireland. For examples, PCT, Directors of Public Health, Local Authority, Directors of Adult, Communications Leads, Directors of Children's, SEA Consultants, HIA Consultants.

G.4. How does it define the concept of health? (Inset the exactly quote here)

Two main definitions are presented, the first from the EU guidance on the implementation of the SEA Directive[21] that states: "The notion of human health should be considered in the context of the other issues mentioned (eg biodiversity, fauna, flora, soil, water, air and climatic factors) and thus environmentally related health issues such as exposure to traffic noise or air pollutants are obvious aspects to study" (paragraph 5.26)

And the WHO definition: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

G.5. Is this close to one of the following conceptualizations of health?

●			●	●		
WHO definition	One health	Planetary health	Environmental Health	Environmental Health Inequalities	Public Health	No Direction

The guide presents the concept of health as defined by the WHO and explores the relationship between environmental impacts and human health using the definition used in the SEA Directive Implementation Guide (see above). It also explores aspects related to environmental and health inequalities by presenting a key quote that addresses the influence of the environment on health (Figure G1). This quote highlights how genetic aspects of susceptibility to disease are linked to the environment and the way we live, and emphasizes that differences in the health status of different social groups in Europe are a result of differences in the health status of European countries.

[21] More details at : ec.europa.eu/environment/eia/pdf/030923_sea_guidance.pdf

Figure G1 : Highlight from the UK guide on the influence of the environment on health.

Key point box 5: The influence of the environment on health

"However important individual genetic susceptibilities to disease may be, the common causes of the ill health that affects populations are environmental: they come and go far more quickly than the slow pace of genetic change because they reflect the changes in the way we live. This is why life expectancy has improved so dramatically over recent generations: it is also why some European countries have improved their health while others have not, and its is why health differences between different social groups have widened or narrowed as social and economic conditions have changed." (Wilkinson and Marmot, 2003)

G.6. What environmental topics are discussed? For example, are the following mentioned: air, biodiversity, chemical pollution, climate change, cultural heritage (including architectural and archaeological heritage), fauna, flora, food, land-use, landscape, material assets, noise, population, soil, water, and the interrelationship between the above factors.

The guide explains that the health of the population is influenced by all the different aspects addressed by the SEA, and it is necessary to consider their interrelationships. For some topics, there is a significant amount of detailed evidence, as in the case of the effects of air quality on the health of the population. On the other hand, the guide reinforces that that there are also many gaps in the relationship between the environment and health that need to be investigated, for example through initiatives such as the EU research program on environment and health. In the guide, specifically in Annex D - SEA Topics and Health Evidence, environmental topics are highlighted with various examples of how the environment can affect health and its relationship with other environmental topics. Figure G2 presents a table of examples from the annex, illustrating questions about the effects of plans and programs on health. These examples are correlated with the SEA's environmental topic and the search for relevant evidence on the subject.

Questions related to topics such as water, air, soil, population, climatic factors, material assets, cultural heritage, landscape, biodiversity, flora and fauna are suggested. The topic of population is the most prominent and can be interpreted as cross-cutting, as it is associated with the effects of future planning on the environment, which can impact on various issues linked to human health.

Figure G2 : Examples of questions on the effects of plans and programmes on health – Annex D

Annex D: SEA topics and health evidence

Table 3: Examples of questions on the effects of plans and programmes on health (to be posed or adapted as relevant), together with notes on the relevance to health of the issues raised

These examples are drawn from a review of evidence taken from Healthy sustainable communities: what works? Cave, Molyneux and Coutts (2004) (CDPW funded) and other reviews listed in the Bibliography.

Questions	Related SEA topics	Government policies	Evidence base
Direct environmental effects on the population's health and well-being			
Could the plan or programme lead to impacts on people from **noise** or disruptive activities?	Population	Environmental Noise Directive 2002/49/EC PPG24 Planning and Noise (1994)	Environmental noise (road, rail, aircraft, construction and noise releases from products, eg tyres, cars) causes annoyance and sleep disturbance to many people. There is evidence of a causal relationship between it and hypertension and heart disease (Medical Research Council, *ISVR Report on the non-auditory effects of noise*. Report R10, ISBN 1 899910 14 3, 1997). The problems are worse in areas of high density housing, rented accommodation, areas of deprivation and areas of urban density
Will the plan or programme give rise to **emissions** to air or water?	Soil, water, air	*UK Air Quality Standards and Objectives* (Defra) *Air Quality Strategy 2000*	Air pollution has both short- and long-term damaging effects on health, can worsen the condition of those with lung or heart disease, and may reduce average life expectancy. Water pollution via surface run-off and leaching into groundwater can lead to contamination, such as through hydrocarbons, heavy metals, herbicides, pesticides, and chlorinated hydrocarbons and radioactive contamination, which can lead to adverse health effects.
Does the plan or programme improve **drinking and bathing water?**	Water	EC Bathing Water Directive (76/160/EEC) Water Framework Directive 2000	Water safety plans should identify potential contamination. Acid land contaminants lead to corrosion problems for metal pipes and plastic pipes are susceptible to physical degradation or permeation by organic and inorganic chemicals plus biological contamination (such as polycyclic aromatic hydrocarbons) which can lead to pollution.

Questions	Related SEA topics	Government policies	Evidence base
Direct environmental effects on the population's health and well-being (continued)			
Will the plan or programme contribute to **climate** change?	Climatic factors, air	UK 2006 Climate Change Programme PPS and Climate Change – supplement to PPS1	Climate instability and rising sea levels have major long-term health implications through extreme weather events (heatwaves, floods and cold). The elderly are more vulnerable to heat, as the body's regulatory systems change with age. Prolonged exposure to heat causes heat exhaustion and heatstroke. Children and infants are also especially susceptible. Avoidance or mitigation of adverse effects can make a difference.
Does the plan or programme affect the production and availability of fresh **food?**	Population	*Choosing Health? Choosing a Better Diet*, 2004	Fresh fruit and vegetables promote health. Low-income families are least able to eat well because cheaper foods are most likely to be high in fat and sugar, and poorer access to fresh fruit or vegetables outlets is a significant cause of health inequalities. Local authorities can influence healthy eating and improve access to healthier food, particularly in deprived areas through its own services and functions, such as planning, housing, education, transport and through a leadership role for its community.
Effects on people's lifestyles			
Does the plan or programme encourage the use of **public transport or alternative means of transport** other than private cars?	Air, climatic factors, population	DfT sustainable travel policies (see DfT website) DfT *Climate Change and Transport*, 2006	Reduced car use lowers direct exposure to exhaust pollutants. Reduction in traffic congestion and noise can be expected to improve quality of life and well-being. Any reduction in carbon emissions, however small, contributes to the achievement of climate change objectives.

Questions	Related SEA topics	Government policies	Evidence base
Direct environmental effects on the population's health and well-being (continued)			
Will the plan or programme contribute to **climate** change?	Climatic factors, air	UK 2006 Climate Change Programme PPS and Climate Change – supplement to PPS1	Climate instability and rising sea levels have major long-term health implications through extreme weather events (heatwaves, floods and cold). The elderly are more vulnerable to heat, as the body's regulatory systems change with age. Prolonged exposure to heat causes heat exhaustion and heatstroke. Children and infants are also especially susceptible. Avoidance or mitigation of adverse effects can make a difference.
Does the plan or programme affect the production and availability of fresh **food?**	Population	*Choosing Health? Choosing a Better Diet*, 2004	Fresh fruit and vegetables promote health. Low-income families are least able to eat well because cheaper foods are most likely to be high in fat and sugar, and poorer access to fresh fruit or vegetables outlets is a significant cause of health inequalities. Local authorities can influence healthy eating and improve access to healthier food, particularly in deprived areas through its own services and functions, such as planning, housing, education, transport and through a leadership role for its community.
Effects on people's lifestyles			
Does the plan or programme encourage the use of **public transport or alternative means of transport** other than private cars?	Air, climatic factors, population	DfT sustainable travel policies (see DfT website) DfT *Climate Change and Transport*, 2006	Reduced car use lowers direct exposure to exhaust pollutants. Reduction in traffic congestion and noise can be expected to improve quality of life and well-being. Any reduction in carbon emissions, however small, contributes to the achievement of climate change objectives.

Questions	Related SEA topics	Government policies	Evidence base
Effects on people's lifestyles (continued)			
Does the plan or programme encourage **walking and cycling?**	Air, population	DfT Walking and Cycling Action Plan *Walking in towns and cities*: Govt response to Select Cttee Report, 2001; DfT vulnerable travel policies (see DfT website); *Choosing Health*; Physical Activity Action Plan, 2005	Physical activity is one of the best ways of improving overall health and reducing obesity. Neighbourhoods with mixed land use, high population and employment density, street connectivity, pedestrian-oriented design and safety encourage more physical activity and have a lower obesity prevalence. These features are particularly helpful to older people, to reduce social isolation. The proportion of people engaging in physical activity declines with age and particularly after the age of 25. Participation in walking has been shown to decline from 45 per cent among men aged 16–24 to 8 per cent among men aged 75 or over. Among women, walking remained relatively stable among those aged 16–54 (29–37 per cent) but declined rapidly to 5 per cent for those aged 75 and over.
Effects on local communities			
Do plans and programmes contribute to regeneration and tackling **health inequalities?**	Population	*Tackling Health Inequalities: status report on Programme for Action*, 2003	Where you live influences the length of your life as it is a proxy for wealth, income, education, good environmental conditions and access to opportunities/ amenities/services. Some parts of the country have the same mortality rates now as the national average in the 1950s. Places that exclude or segregate certain groups will tend to increase health inequalities. Mixed communities are not characterised by the same problems often linked with low-income areas.
Could the plan/programme create a risk of **flooding?**	Water, soil	PPS25: Development and Flood Risk	The social environment affects how people behave, so preventing social isolation, supporting community engagement and creating a sense of belonging supports social capital. Community severance from physical barriers caused by transport infrastructure, and psychological barriers caused by road safety fears, limit travel horizons and affect people's ability to self-mitigate these barriers in order to reach key services such as employment, education and health facilities.

Questions	Related SEA topics	Government policies	Evidence base
Effects on local communities (continued)			
Does the plan or programme involve **provision of facilities**, eg general practitioner surgeries, health centres or hospitals, leisure/ sports centres, swimming facilities	Population, material assets	*Tackling Health Inequalities*, 2003; *Choosing Health*, 2004; *Our Health, Our Care, Our Say*, 2006; *Sustainable Communities: People, Places and Prosperity*, 2005	Higher rates of GP consultation are associated with greater social and economic deprivation, although those in greatest need are least likely or able to access it. Communities most at risk of ill health tend to experience the least satisfactory access to key cultural, social, recreational and leisure amenities and preventative health services. Community facilities accessible to all is a key message in the *Our health, our care, our say* White Paper 2006, which envisages care being provided closer to home through community hospitals, state-of-the-art diagnostic centres, day surgery and outpatient facilities closer to where people live and work.
Does the plan or programme encourage a sense of **community safety**, identity and social cohesion?	Population, cultural heritage, landscape, biodiversity	*Living Places: Cleaner, Safer, Greener*, October 2003 (now CLG lead); National Community Safety Plan 2006–09	Good design encourages greater community ownership of the environment and reduces negative effects such as vandalism and under use of facilities. A sense of community identity and belonging is known to foster health and the sense of well-being. Fear of crime reduces social solidarity, and has an adverse psychological impact. Fear of leaving their home exposes older people in particular to isolation and vulnerability. Good urban design can help to "design out crime" and enhance community safety.
Effects on the local economy			
Does the plan or programme have **employment** implications for all sections of society?	Population	European Employment Strategy 2005–08	Isolated developments can lead to exclusion of vulnerable groups. Local job opportunities enable walking and cycling as travel to work or commuting options. Unemployed people have a higher risk of poor physical and mental health and shorter life expectancy. Low-paid, insecure employment carries greater risks of accidents, infections and heart disease and increased health-damaging behaviour such as smoking.

Questions	Related SEA topics	Government policies	Evidence base
Effects on people's activities			
Does the plan or programme promote **easy and sustainable access to services** such as workplaces, shops, schools, healthcare facilities and social activities?	Population	Cabinet Office Social Exclusion Unit *Health and Transport*, June 2006	Poor transport contributes to social exclusion as it restricts access to activities that enhance people's life chances, such as work, learning, healthcare, food shopping and other key activities. Communities are severed by physical barriers (eg transport infrastructure) and psychological barriers (eg road safety fears) limit travel horizons and can affect access to services such as employment, education and health facilities. Lack of access to services (eg by foot or affordable transport) is experienced disproportionately by women, schoolchildren, the elderly and disabled people. Poor access to services is a significant factor in social exclusion, which is associated with health problems.
Does the plan or programme affect people's **access** to health facilities?	Population	Health policy documents as listed in section 3.2; Cabinet Office Social Exclusion Unit *Health and Transport*, 2006	Lack of access to services (eg by foot or affordable transport) is experienced disproportionately by women, schoolchildren, the elderly and disabled people. Poor access to services is a significant factor in social exclusion, which is associated with health problems.

Questions	Related SEA topics	Government policies	Evidence base
Effects of the built environment on people			
Does the plan or programme promote **exercise** as part of daily living?	Population	Obesity strategy	Modern inactive lifestyles possibly represent the dominant factor driving obesity. They are typified by high levels of car use, 24-hour food availability, abundant desk jobs and low levels of physical activity. Decreasing obesity may only be achieved if we adapt our built environment to make it easier for us to regularly be more active in our everyday activities. A challenge will be to ensure that personal and community health considerations are included as future infrastructure is designed and built.
Will plans or programmes for **housing** take into account sustainable provision, conservation of warmth, ventilation, flexibility?	Population, material assets (depending on definition), climatic factors	CLG *Making Homes Decent*; CLG *Draft Code for Sustainable Homes*	Cold, damp homes are associated with cardiovascular and circulatory diseases. Fuel poverty affects mental health and contributes to health inequalities. Housing needs to be suitable for people with disabilities, families and the ageing population.
Is the plan or programme concerned with contaminated **land or waste management or disposal?**	Soil, water, air	Defra Circular 1/2006 *Contaminated Land*	Contaminants such as polycyclic aromatic hydrocarbons (PAHs), heavy metals, oil, asbestos and landfill gases are injurious to health. Waste disposal can be a major generator of road transport, noise and dust, with potential adverse effects on safety and air quality.
Does the plan or programme promote a **healthy environment?**	Population	*Choosing Health*, 2004	Urban environments that are dense, mixed use, easily accessible on foot or bicycle with high-quality green infrastructure can deliver positive health outcomes and provide the right environment for promoting active lifestyles and good use of resources. In rural areas the interrelationship between home, work, leisure and mobility is key to healthier lives.

Questions	Related SEA topics	Government policies	Evidence base
Effects of the natural environment on people's health and well-being			
Does the plan or programme provide greater access to the **countryside and coast?**	Population, landscape, biodiversity	*Rural Strategy 2004* (Defra)	Greater opportunities for walking and cycling beneficial to physical health. Greater contact with nature is beneficial to mental health.
Will the plan or programme **promote health and well-being** in the natural environment?	Biodiversity, flora, fauna, population	*Health Concordat*, 2005	Contaminants such as PAHs, heavy metals, oil, asbestos and landfill gases are injurious to health. Waste disposal can be a major generator of road transport, noise and dust, with potential adverse effects on safety and air quality.
Will the plan or programme provide for **locally accessible green spaces?**	Population, biodiversity, fauna/flora, cultural heritage, landscape	*Living Places: Cleaner, Safer, Greener*, October 2002 (now CLG lead)	Green space encourages social contact and exercise, and is associated with lower crime rates and increased safety. People who can see trees or green space from their homes report higher levels of health and well-being.

G.7. What health and well-being topics are discussed? For example, is there mentioning of: economic security and equity, education, diseases or injuries, health care, healthy behaviors, infections and parasitic diseases, neonatal and nutritional diseases, non-communicable diseases, physical environment, social and community context, or other considerations.

Topics related to health and well-being are discussed on the basis of the examples presented in the table in Appendix D, as mentioned above. The set of questions to be considered during the SEA is grounded in health and well-being topics, while the evidence bases, shown in the third column, offer more detailed examples of the possible effects of hypothetical planning on people's health and well-being.

Health and well-being, although not named directly, appear broadly and are associated with effects on the population.

In this sense, more specific topics related to, for example, economic security and equity, education, physical environment, social and community context, healthy behaviors, health care and so on, are not mentioned or discussed in a clear and detailed manner.

G.8. Are there recommendations on the topics mentioned above for indicators (e.g. health, social, education, economic) to be used to monitor changes in health?

The guide presents how to consider health aspects at each stage of the SEA process, offering recommendations and examples for the use of indicators. In particular, in the Scoping stage (Figure G3), it is recommended to define objectives, sub-objectives, indicators and baseline data, indicating national sources of information on health indicators and emphasizing the importance of the participation of public health professionals in shaping these objectives.

It is also suggested to develop an information system that uses standardized indicators for evaluation, with data from the public system (such as the UK Public Health Desktop) or shared databases.

The guide makes it clear that the selection of these indicators should take into account various health impact factors from the SEA or the decision-making process. Thus, the choice of indicators should not be based solely on evidence of correlation, but on a transparent assessment of causality - for example, assessing whether the construction of a specific facility could affect the mental health of a community.

To illustrate, tables are presented detailing how objectives, indicators and targets can relate to human health (Figure G4)

Figure G3: Key insights from the UK guide on setting objectives and their relationship to health.

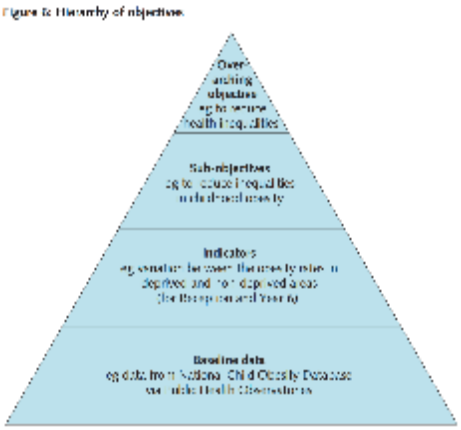


Figure G4: Examples of health indicators in the UK's draft guidance on health in strategic environmental assessment

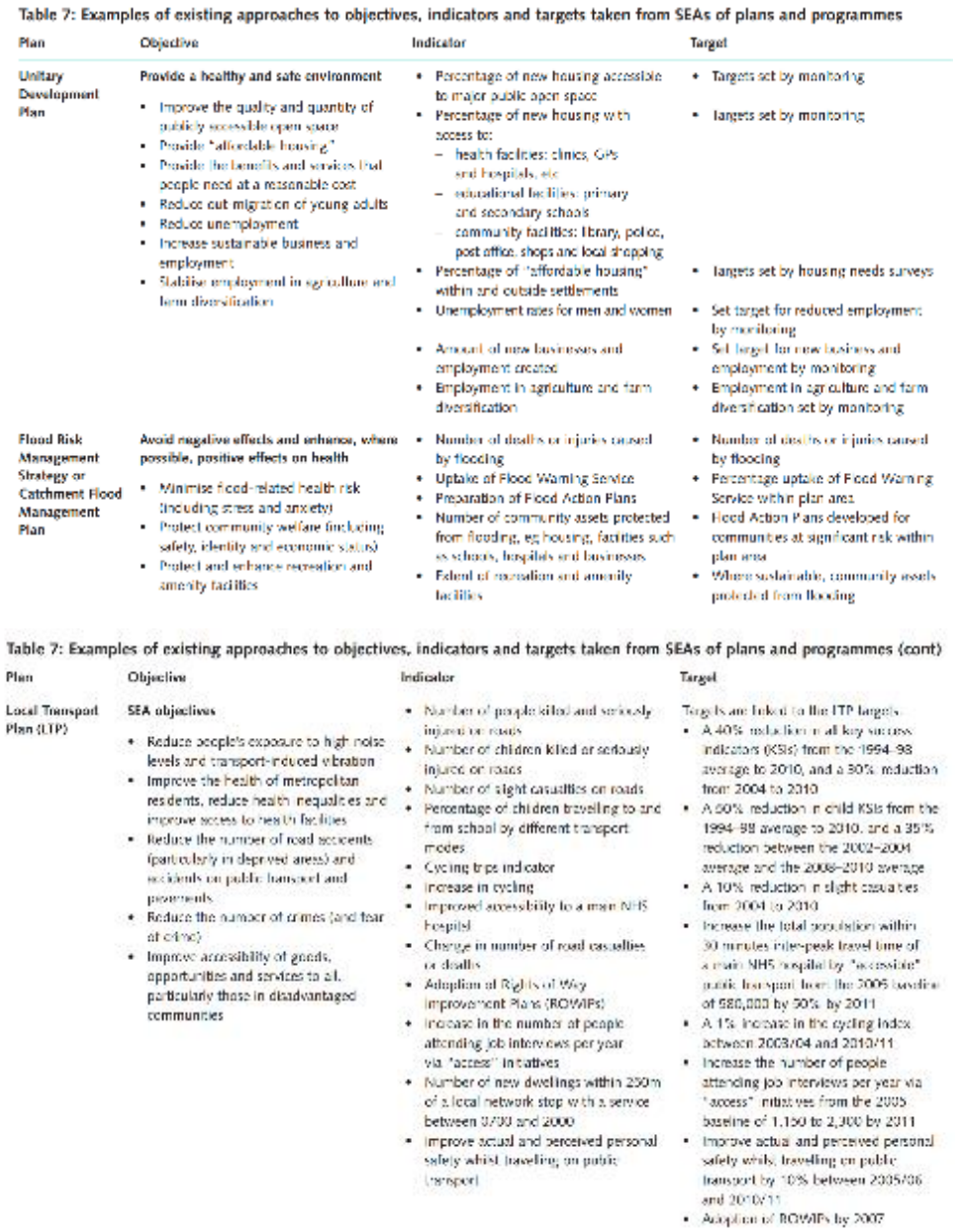


Table 7: Examples of existing approaches to objectives, indicators and targets taken from SEAs of plans and programmes

Plan	Objective	Indicator	Target
Unitary Development Plan	Provide a healthy and safe environment • Improve the quality and quantity of publicly accessible open space • Provide "affordable housing" • Provide the benefits and services that people need at a reasonable cost • Reduce out migration of young adults • Reduce unemployment • Increase sustainable business and employment • Stabilise employment in agriculture and farm diversification	• Percentage of new housing accessible to major public open space • Percentage of new housing with access to: – health facilities: clinics, GPs and hospitals, etc – educational facilities: primary and secondary schools – community facilities: library, police, post office, shops and local shopping • Percentage of "affordable housing" within and outside settlements • Unemployment rates for men and women • Amount of new businesses and employment created • Employment in agriculture and farm diversification	• Targets set by monitoring • Targets set by monitoring • Targets set by housing needs surveys • Set target for reduced employment by monitoring • Set target for new business and employment by monitoring • Employment in agriculture and farm diversification set by monitoring
Flood Risk Management Strategy or Catchment Flood Management Plan	Avoid negative effects and enhance, where possible, positive effects on health • Minimise flood-related health risk (including stress and anxiety) • Protect community welfare (including safety, identity and economic status) • Protect and enhance recreation and amenity facilities	• Number of deaths or injuries caused by flooding • Uptake of Flood Warning Service • Preparation of Flood Action Plans • Number of community assets protected from flooding, eg housing, facilities such as schools, hospitals and businesses • Extent of recreation and amenity facilities	• Number of deaths or injuries caused by flooding • Percentage uptake of Flood Warning Service within plan area • Flood Action Plans developed for communities at significant risk within plan area • Where sustainable, community assets protected from flooding

Table 7: Examples of existing approaches to objectives, indicators and targets taken from SEAs of plans and programmes (cont)

Plan	Objective	Indicator	Target
Local Transport Plan (LTP)	SEA objectives • Reduce people's exposure to high noise levels and transport-induced vibration • Improve the health of metropolitan residents, reduce health inequalities and improve access to health facilities • Reduce the number of road accidents (particularly in deprived areas) and accidents on public transport and pavements • Reduce the number of crimes (and fear of crime) • Improve accessibility of goods, opportunities and services to all, particularly those in disadvantaged communities	• Number of people killed and seriously injured on roads • Number of children killed or seriously injured on roads • Number of slight casualties on roads • Percentage of children travelling to and from school by different transport modes • Cycling trips indicator • Increase in cycling • Improved accessibility to a main NHS hospital • Change in number of road casualties or deaths • Adoption of Rights of Way Improvement Plans (ROWIPs) • Increase in the number of people attending job interviews per year via "access" initiatives • Number of new dwellings within 250m of a local network stop with a service between 0700 and 2000 • Improve actual and perceived personal safety whilst travelling on public transport	Targets are linked to the LTP targets • A 40% reduction in all key casualty indicators (KSIs) from the 1994–98 average to 2010, and a 50% reduction from 2004 to 2010 • A 50% reduction in child KSIs from the 1994–98 average to 2010, and a 35% reduction between the 2002–2004 average and the 2008–2010 average • A 10% reduction in slight casualties from 2004 to 2010 • Increase the total population within 30 minutes inter-peak travel time of a main NHS hospital by "accessible" public transport from the 2005 baseline of 680,000 by 50% by 2011 • A 1% increase in the cycling index between 2003/04 and 2010/11 • Increase the number of people attending job interviews per year via "access" initiatives from the 2005 baseline of 1,150 to 2,300 by 2011 • Improve actual and perceived personal safety while travelling on public transport by 10% between 2005/06 and 2010/11 • Adoption of ROWIPs by 2007

G 8.1 Are there any information sources, data sets, key questions, references, didactic examples, or other elements that could serve as potential references for recommending indicators or topics in the guide?

The guide already presents an exhaustive list of examples of health indicators to be considered in an SEA.

G.9. Are there clear recommendations on the importance of environmental impacts on health and relationships with communicable and non-communicable diseases resulting from environmental impacts?

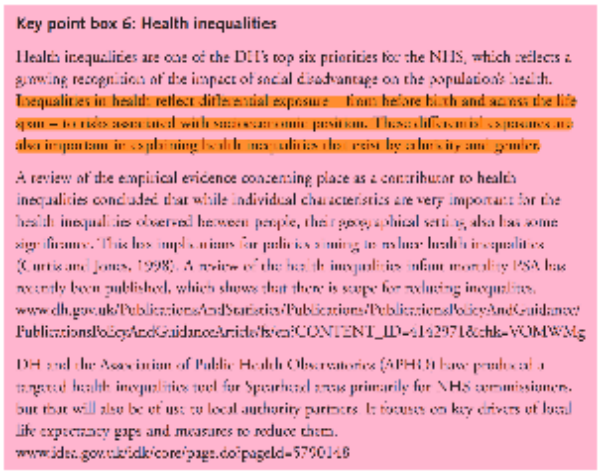
There are no clear recommendations on the importance of environmental effects on health and their relationship to communicable and non-communicable diseases. This is an underexplored issue and is related to the content of Annex D mentioned above, which only provides examples of relationships between SEA topics and health evidence.

The guide only suggests health information sources where information on communicable and noncommunicable diseases may be found, but does not go into detail.

G.10. Are there any recommendations, if applicable, on the importance of considering inequalities within populations or communities, with a special focus on vulnerable people?

The guidance advises that aspects of the population should be considered in terms of health determinants and therefore examines the potential impact of the natural and built environment on the health of the population. In this sense, the guidance incompletely presents a key box (Figure G5 below) which explains that health inequalities are a priority for the UK National Health System and that there is a need to recognize the impact of social disadvantage on people's health. It points out that although individual characteristics are very important for health inequalities between people, their geographical environment also plays a role. In this sense, the highlighted box, which unfortunately is not linked to any other point in the text, then provides recommendations on how to find relevant information on population and health issues in the United Kingdom.

Figure G5: Highlights from the UK guide on health inequalities.



Key point box 6: Health inequalities

Health inequalities are one of the DH's top six priorities for the NHS, which reflects a growing recognition of the impact of social disadvantage on the population's health. Inequalities in health reflect differential exposure ... from before birth and across the life span – to risks associated with socioeconomic position. These differential exposures are also important in explaining health inequalities that exist by ethnicity and gender.

A review of the empirical evidence concerning place as a contributor to health inequalities concluded that while individual characteristics are very important for the health inequalities observed between people, their geographical setting also has some significance. This has implications for policies aiming to reduce health inequalities (Curtis and Jones, 1998). A review of the health inequalities infant mortality PSA has recently been published, which shows that there is scope for reducing inequalities. www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fsw/CONTENT_ID=4142971&chk=VOMWMg

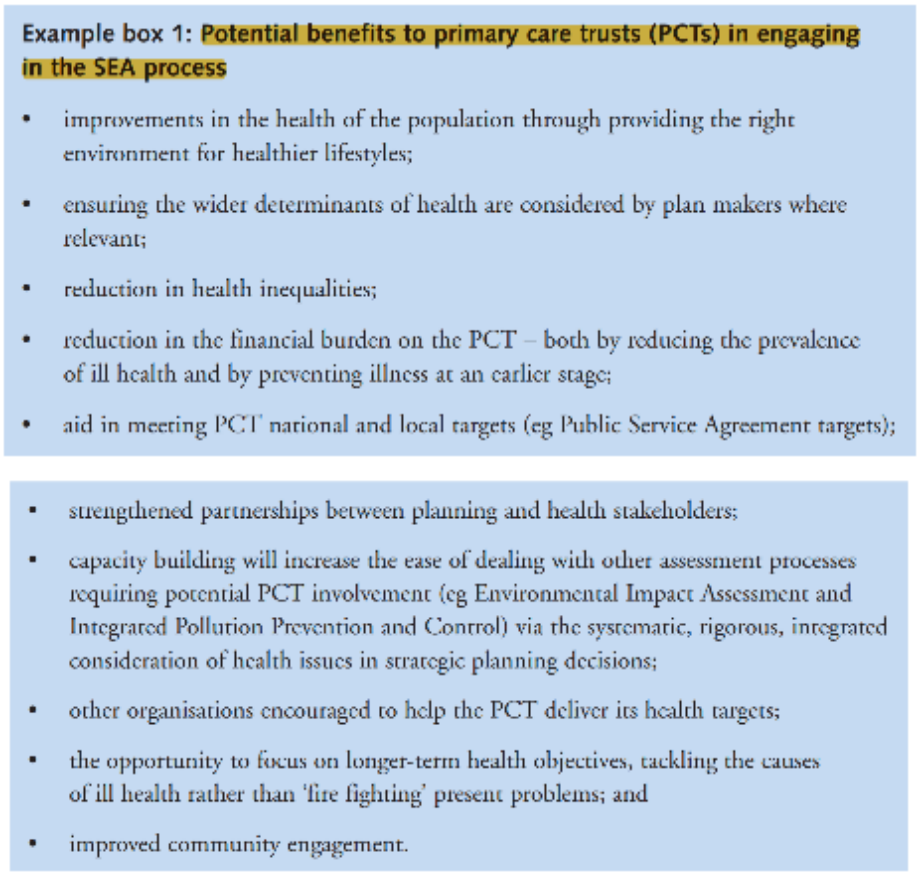
DH and the Association of Public Health Observatories (APHO) have produced a targeted health inequalities tool for Spearhead areas primarily for NHS commissioners, but that will also be of use to local authority partners. It focuses on key drivers of local life expectancy gaps and measures to reduce them. www.idea.gov.uk/idk/core/page.do?pageId=5790148

G.11. Is the participation of health/expert actors encouraged?

The guide is also intended primarily to guide the participation of health actors/experts.

According to the draft guide, the participation of health organizations in SEA processes has the effect, for example, of preventing disease and promoting good health by influencing the broader determinants of health (transport, housing, education, employment, community safety and the built environment). The guide also presents information (Figure G6) on how the participation of these actors is relevant and has the potential to promote important benefits on the effects of SEA on decision-making.

Figure G6: Highlights from the UK guide on the benefits of the participation of experts and health professionals.



Example box 1: Potential benefits to primary care trusts (PCTs) in engaging in the SEA process

- improvements in the health of the population through providing the right environment for healthier lifestyles;
- ensuring the wider determinants of health are considered by plan makers where relevant;
- reduction in health inequalities;
- reduction in the financial burden on the PCT – both by reducing the prevalence of ill health and by preventing illness at an earlier stage;
- aid in meeting PCT national and local targets (eg Public Service Agreement targets);
- strengthened partnerships between planning and health stakeholders;
- capacity building will increase the ease of dealing with other assessment processes requiring potential PCT involvement (eg Environmental Impact Assessment and Integrated Pollution Prevention and Control) via the systematic, rigorous, integrated consideration of health issues in strategic planning decisions;
- other organisations encouraged to help the PCT deliver its health targets;
- the opportunity to focus on longer-term health objectives, tackling the causes of ill health rather than 'fire fighting' present problems; and
- improved community engagement.