RECIPES

Precaution • Innovation • Science

Task 3.1: Needs Assessment

Presentation of Results from Task 3.1

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List of abbreviations

CA	Consortium Agreement
CC	Consortium Committee
DBT	The Danish Board of Technology
DOA	Description of Action
GA	Grant Agreement
IASS	Institute for Advanced Sustainability Studies
PCG	Project Coordination Group
PO	Project Office
WP	Work Package

Table of Content

1 Introduction

The DBT has conducted a needs assessment for the future implementation of the precautionary principle by drawing on your experiences and expertise. We would not have been able to achieve such useful results without the enthusiasm, patience, and knowledge of the involved stakeholders. This report presents the results that were developed through workshops conducted from May 2020 to January 2021. It has been developed specifically for you, who participated in our engagement process and does thus not go into detail about methodology or discussion. These topics will be covered in a deliverable, which covers more than these proceedings and therefore is yet to be produced. The structure of this report will begin with an executive overview, presenting the take-home messages that were made during the needs assessment. Following will be a chapter dedicated to the specific results. Last, the report concludes its presentation and provides information on the next steps in RECIPES.

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2 Executive Overview

In this chapter you will find an overview of the general lessons learned from the conducted needs assessment. As you will see, our process has led RECIPES to identify three overarching themes of the needs identified via workshops, webinars, and Decidim. These themes have been defined to give you, and us, an overall awareness of the topics that have been covered and discussed during this process. For each of the three themes, you will find a range of topics that were found by RECIPES on the basis of the needs that were discussed.

The executive overview has deliberately been formulated in general terms to focus on these overarching themes and underlying topics. This has been done to avoid favouritism, which may occur if specific needs are highlighted in an executive overview. This, however, means that you will not find any need as expressed directly a stakeholder, in this chapter. Rather, you should find yourself aware of all the topics that were covered in the needs assessment.

It is important to note that the executive overview does not cover the nuances of conflict that occurred in the discussion of the respective needs, topics, and themes. As you know, these conflicts certainly exist, and we have attempted to provide a detailed understanding in chapter three. In this regard, it is similarly important to be aware that some topics in the executive overview may seem to be in conflict with each other. That may be the case, however, in cases where topics seemingly are not in conflict with each other, it is not safe to assume that the topics have not been contested and criticised. In general, conflicts exist on the needs identified, even if these conflicts have not been fully explored. In essence, the executive overview presents common themes and topics in needs that were identified in the inclusion of stakeholders who have some relation with the application of the precautionary principle.

Once again, by reading this executive overview, you will find that the needs identified by RECIPES in this task generally deal with three themes.

1. Participation
    - This theme deals with participation matters in the areas of technology development, risk assessment, and risk management. Specifically, the needs identified here deal with clarity issues in terms of when to involve stakeholders, who to involve, and how to do so.

2. Organization and Production of Expertise
    - This theme contains the needs which revolved around scientific excellence and independence. Expertise and scientific research is the foundation for risk assessment and risk management. However, the needs identified here point to unclear and contested standards as to how the precautionary principle is related to assessment and management procedures.

3 Extent of Application of the Precautionary Principle

- This theme covers the needs that revolve around the overall application of the precautionary principle. The contents may easily be described through questions: When and where is the precautionary principle necessary to apply? When applying the precautionary principle, how intrusive should its application be? To what extent does that precautionary principle need to be supported or balanced by other principles?

With this report, RECIPES aims to have covered the needs expressed by you stakeholders, bearing in mind that a selection and prioritisation is necessary to stay within the scope or this project. The needs, topics, and themes identified and presented in this report should be seen as an input for the following task 3.2, in which guidelines and tools will be developed. It is, however, important to note that the needs assessment does not constitute the sole input for this development process, but rather be integrated with other data production efforts in RECIPES.

2.1 Participation

Table 1: Needs pertaining to participation

Descriptor	Content of Needs	Conflicting Views
Transparency	Clarity on expectations and standards pertaining to transparency in agenda setting, policy development, and innovation processes as a whole.	No stakeholders disputed the need for transparency, however disagreements arose on the type and extent of transparency.
Facilitation	Clarity on requirements for appropriate facilitation of participatory processes of risk assessment and risk management.	Various ideals were proposed as examples for good participation processes, some of which were conflicting.
Public involvement	Quantity and timing of public involvement and guidance as to how public involvement is promoted adequately for the development and assessment of technologies.	The point of departure for this topic was a need for increased inclusion of the public at more stages of technology development. However, the topic may be expanded to a general need for increased public involvement. This topic is contested, however, with some stakeholders pointing to negative effects of some aspects of public involvement.

Descriptor	Content of Needs	Conflicting Views
Asymmetries	Balancing the diversity of included stakeholders in technology development, as well as risk assessment and risk management.	While the importance of addressing asymmetries was generally agreed upon, disagreements arose on the level to which asymmetries existed and were problematic.
The Public Interest	Clarity pertaining to the constituting elements of the public interest to provide guidance for precautious, innovative processes.	Defining the public interest seemed to be of a general interest among stakeholders, however, conflicting views on how to define it were hinted at.

2.2 Organization and Development of Expertise

Table 2: Needs pertaining to the organization and development of expertise

Descriptor	Contents of Needs	Conflicting Views
Independence and Integrity	Maintaining regulatory independence of interested parties and ensure proper management of conflict of interests in regulatory science, as well as the agenda-setting of public research.	The topic of independence and integrity was heavily debated, as will be elaborated in chapter four. Some stakeholders highlighted a need for research to be independent from interests, while others stressed a need for an independence from precautionary approaches, which was seen as a hinderance for good science.
Scientific standards	Clarity as to what elements are required for conducting excellent science when assessing technologies and risk.	Stakeholders expressed a wide variety of exemplary standards for scientific excellence, some of which stood in contrast with each other. One subject of disagreement seemed to be qualitative data and its positioning related to quantitative data.

2.3 The Extent of Application

Table 3: Needs pertaining to the extent of application

Descriptor	Contents of Needs	Conflicting Views
Precaution in Innovation Governance	Clarity as to how the precautionary principle is expected to aid and guide innovative procedures, being mindful of the range and comparability of alternative technological development pathways.	While clarity in this area is generally needed, differences of opinion occur in the distinction and prioritisation of the various operators.
Systematic, Strong, and Quick Approach	Quicker and strengthened application of the precautionary principle when harm is suspected, both for developing and existing technologies.	Some stakeholders were concerned that this need would call for a legislative change, which could hamper innovation to an unacceptable degree.
Scope of Application	Considering the range of applications that the precautionary principle could be applied to, possibly broadening its use to more spheres based on political and societal values and goals.	While some stakeholders pointed to their experience of the precautionary principle being applied in a broadened context, others warned that a legal broadening would weaken the principle's effect on matters pertaining to human health and environment.
Relation to Other Principles	The influence, existence, and definition of a range of principles pertaining to the precautionary principle. For example, the innovation principle, the proportionality principle, and the polluter-pays principle.	Great disagreements arise in the discussion on whether innovation should be given the role of a principle or not. Similarly, disagreements occur in the methods of applying the prevention principle, the polluter-pays principle, and the proportionality principle.

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3 Results

The stakeholder engagement process facilitated from May 2020 until January 2021 may roughly be considered to have created three outputs: First, three scenarios for the future implementation of the precautionary principle. These were presented to you if you attended the early workshops. Second, a stakeholder vision based on the proceedings of the early workshops. Third, an exploration and mapping of stakeholder needs as identified by REC-IPES in the engagement process. This chapter presents these three outputs.

3.1 Scenarios

As outlined in section 3.1.1, scenario workshops are parted into three phases. The first phase required an assessment of three scenarios, which were developed by the DBT for that purpose. The scenarios were based on "The effect of the Precautionary Principle since 2000" and may roughly be described as:

- A continuation of the current practice.
- A focus on precaution.
- A focus on innovation.

3.2 Vision

Through a stakeholder discussion and critique of the three scenarios, facilitated mid-2020, a vision for the future implementation of the precautionary principle in the EU was developed. The vision was developed by the DBT and does not reflect the direct, and common opinion of the involved stakeholders. It should be understood as the fundament on which the need identification took place. By developing such a vision, the DBT was able to engage stakeholders further, playing on some of the elements that they had pointed out as important to them. The vision may be summarised as follows:

> *"Implementation of the precautionary principle shall ensure a high level of proactive protection of human health and the environment and stimulate socially desired innovation."*

This vision was to be achieved through the attention on three underpinning elements:

1. More consistency, effectiveness, and efficiency.
2. More comprehensive and foresight-based decision making.
3. Improved communication, transparency, and participation.

3.3 Needs Assessment

The vision document was used to create two workshop information documents, which you have received if you attended the workshops and webinars in late 2020 and early 2021. Following a process of online deliberation and a set of concluding webinars, the vision was merged with the ideas and thoughts of you and your co-participants and RECIPES was able to create a mapping of stakeholder needs, which is the final output of task 3.1.

The remainder of this chapter presents the stakeholder needs as identified and mapped by RECIPES. In order to gain clarity, the identified needs were mapped based on their perceived relation to each other. Through an iterative process, needs that coincided, were in conflict, or were out of the immediate scope of RECIPES were identified and clustered. This resulted in an organized, visual overview, covering the needs that were identified. By considering the occurring clusters, RECIPES identified appropriate descriptors for all clusters and sub-clusters. The process was characterised by an iterative workflow, involving several partners of the RECIPES consortium.

As stated in the second chapter, it is important to be mindful of the fact that some needs in a cluster conflict with each other. However, in clusters where needs seemingly do not conflict, in should not be concluded that all stakeholders agree on the given need. All sub-clusters are characterised by disagreements of some kind. It will be the responsibility and challenge of the following task 3.2 to select and prioritise the input for the development of guidelines and tools that are able to address these needs.

To ensure a better understanding of the topics of needs (e.g., transparency), a short description has been provided under each sub-cluster. These short introductions should let you know how the main discussion on the topic unfolded. Descriptions for the overarching themes (e.g., participation) has been provided in the executive overview.

3.3.1 Participation

Table 4: Transparency

Needs pertaining to transparency have been highlighted by some stakeholders, as they deem a precautionary approach to be one where reasoning and decision-making is made timely available to citizens. In this regard, the criteria for a transparent process were discussed among stakeholders.

Index	Need
3.3.1.1	Need for an increased transparency in the agenda-setting of public research.
3.3.1.2	Need for clarity regarding the extent and quality of transparency that is necessary.

Table 5: Facilitation

Stakeholders will naturally have varying understandings of the precautionary principle and a precautionary approach. Therefore, the facilitation of participatory processes holds a crucial power over the outcome of a given precautionary process, as well as the decision of whether to invoke the precautionary principle.

Index	Need
3.3.1.3	Need for clarity in terms of expectations to norms for participation processes when applying the precautionary principle. Especially pertaining to hosts, participants, and procedures.
3.3.1.4	Need for clear guidance as to how balanced interaction among stakeholders is achieved. Recognition of the nine major stakeholder groups as defined during the Rio Process.

Table 6: Involvement of the Public

Decision-making regarding the invocation of the precautionary principle, as well as decisions on risk management are to involve interested parties as early as possible according to the EC Communication. Interested parties would include citizens, however, uncertainty remains as to how citizens are included, how often they are to be included, and what it means to include them as early as possible.

Index	Need
3.3.1.5	Need for increased public participation in decision-making regarding all steps of the practical application of the precautionary principle.
3.3.1.6	Need for increased use of citizen's assemblies and other deliberative formats to aid decision-making, build public understanding, and ensure an engagement process, where asymmetries are addressed.
3.3.1.7	Need for an improved quality of engagement processes, meaning that included citizens should be knowledgeable on the given subject.

Table 7: Asymmetries

Some stakeholders pointed to their experience that participatory processes in the assessment and management of uncertain risk did not live up to the ideal of involving all interested parties. Specifically, they pointed to future generations, interdisciplinary expertise, and stakeholders with limited resources. This would then lead to a precautionary approach that did not take into account the full range of risk of harm experienced by people.

Index	Need
3.3.1.8	Need for earlier and more consistent involvement of stakeholders and transdisciplinary considerations in technology development.
3.3.1.9	Need for a prioritization of inclusion of stakeholders (citizens, both present and future) that are likely affected by an emerging technology.
3.3.1.10	Need for an inclusion of all nine major stakeholder groups as defined by the Rio process.

Table 8: The Public Interest

Disagreements occurred among stakeholders, when discussing the justification of certain regulatory and developmental decisions, both pointing to a vague concept of the public interest. It became clear that a justification based on the public interest can only be made if the public interest is clearly defined and secured.

Index	Need
3.3.1.11	Need for a clear definition of the public interest, related to transparency, participation, as well as the separation of economic interest and the production (and evaluation) of science.
3.3.1.12	Need for stricter conditions for funding policies to ensure the public interest.
3.3.1.13	Need for a clear legal definition of precaution in relation to societal values and norms.

3.3.2 Organization and Production of Expertise

Table 9: Independence and Integrity

Stakeholders highlighted their various experience with barriers from conducting what they considered to be good science. For some, such barriers were economic and intellectual interests, which were claimed to potentially muddle research output and scientific assessments. For others, a barrier was found in the precautionary approach itself, as they claimed the precautionary principle politicizes and limits scientific procedures and outcomes. The precautionary approach to scientific research was, however, seen as a positive by some stakeholders.

Index	Need
3.3.2.1	Need for a decreased influence of political interests when applying the precautionary principle.
3.3.2.2	Need to strengthen the integrity of science and technology appraisal, minimizing the influence of economic and intellectual interests.
3.3.2.3	Need to avoid politization and limitations to scientific research based on a precautionary approach.
3.3.2.4	Need to increase the use of the precautionary principle in the agenda-setting of public research to ensure sustainable outcomes.

Table 10: Scientific Standards

The precautionary principle is to be invoked based on an analysis of adverse effects on health and environment as well as a certain level of scientific uncertainty of these risks. Some stakeholders pointed to a lack of clarity as to how such scientific assessments were to be conducted and when reasonable grounds for concern have been reached.

Index	Need
3.3.2.5	Need for a clear definition of scientific evidence and reasonable grounds for concern when applying the precautionary principle.
3.3.2.6	Need for clear, systematic, institutionalized standards for the scientific excellence (pertaining to integrity, impartiality, and diversity in evidence, interdisciplinary expertise and expert opinions).

3.3.3 Extent in Application

Table 11: Precaution in Innovation Governance

RECIPES aims at reconciling precaution and innovation. Some stakeholders highlighted some elements of the application of the precautionary principle in which innovation could be stimulated further. In these needs, however, lay a variation in the understanding of innovation and its purpose.

Index	Need
3.3.3.1	Need for a stricter application of the precautionary principle as proposed by the EC to put focus on the innovation-encouraging characteristics of the precautionary principle.
3.3.3.2	Need for a formulation of the precautionary principle that allows for an application, which encourages sustainable competition as well as a sustainable economy.
3.3.3.3	Need for a formulation of the precautionary principle that encourages developers to research alternative technologies rather than focus on one.
3.3.3.4	Need for clarity in terms of correct assessment and comparison methods when considering different development options (including clear distinctions between various operators, such as economy, societal values, etc.).

Table 12: Systematic, Strong, and Quick Approach

Some stakeholders, especially those with expertise within chemical hazards, pointed to a lagging invocation of the precautionary principle when it comes to suspicion of potentially harmful chemicals. Along these lines, some stakeholders pointed to the need of a greater coherence between the precautionary principle and the prevention principle. The distinction between the two needed to be made clearer to ensure that sufficient risk of harm would ensure the prevention of further production.

Index	Need
3.3.3.5	Need for an increased, quickened and strengthened application of the precautionary principle, ensuring that the prevention principle may be applied to a higher degree.
3.3.3.6	Need for a clear and systematic approach to the strengthened application of precautionary principle in regards to technologies that are already on the market.

Table 13: Scope of Application

While the precautionary principle is defined by the EC to be a principle pertaining to risks to human health and the environment, some stakeholders noted an existing and potential extended application, reaching out to other spheres of technology and time. Similarly, some stakeholders criticised that the precautionary principle was increasingly being used for risk assessment, and not just risk management, as they maintained it is intended to.

Index	Need
3.3.3.7	Need for a broadened application of the precautionary principle, which covers spheres such as AI, space debris in LEO, and climate technologies, such as CDR or SRM.
3.3.3.8	Need for a tight definition of the precautionary principle, which only pertains to human health and the environment.
3.3.3.8	Need for a definition of the precautionary principle, which encourages a systemic application of the principle.
3.3.3.9	Need for a clear definition of the precautionary principle, which exclusively encourages the use in risk management.
3.3.3.10	Need for a precautionary principle that not only addresses a wide range of spheres, but also a range of time, considering future risks of technologies.

Table 14: Relation to other Principles

The precautionary principle operates in a regulatory framework among several other principles. Stakeholders pointed to their experience of a lacking clarity on the relationship between the precautionary principle and related principles. Specifically, whether some phenomena, such as innovation, should be considered a principle, and whether the precautionary principle should be strengthened or balanced by existing principles.

Index	Need
3.3.3.11	Need for a clearly defined innovation principle.
3.3.3.12	Need for innovation to be seen as a phenomenon, not a principle.
3.3.3.13	Need for the precautionary principle to be held as an independent principle, which is not to be integrated with competing principles, such as the innovation principle.
3.3.3.14	Need for a strengthening of the proportionality principle when applying the precautionary principle.

Index	Need
3.3.3.15	Need for a greater integration of the polluter-pays-principle in the means of application of the precautionary principle.
3.3.3.16	Need for an application of the proportionality principle in the sense that industry can only put technologies on the market if the benefit to their pollution/risks is proportional.
3.3.3.17	Need for a clearer link between the precautionary principle and its foundation within the EU and the Rio Process.
3.3.3.18	Need for clarity as to when the precautionary principle applies as opposed to when the prevention principle applies.
3.3.3.19	Need for a restored relation between the precautionary principle and principle 10 of the Rio Declaration.

4 Conclusion and Next Steps

This report should have provided you with a useful insight into the findings of RECIPES following the engagement process from May 2020 to January 2021. Hopefully, the needs assessment reflects some of your concerns regarding the precautionary principle. Your input has been of great value and we are very thankful for your contribution. The results from this process will feed into the proceedings of task 3.2, where RECIPES will develop guidelines and tools for the future application of the precautionary principle in the EU. Please keep in mind that these results will be integrated with our findings from WP2 and thus do not constitute the sole input for the future process of RECIPES. Nevertheless, they remain a very useful foundation on which we may continue our work in RECIPES.

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