Social–Ecological Transitions

It is now widely accepted that ecological transitions, in their different dimensions (mitigation, adaptation) and areas (climate-energy, biodiversity and ecosystems, resources), arise from social dynamics and entail social impacts (representations, social relations, trust, cooperation, inequalities, participation, resistance, etc.). This intersection between ecological transitions and social issues is now manifest in numerous academic works and public policy initiatives, but it is still far from producing consensual, operational and useful knowledge for public policies and citizens. The SET (Social-Ecological Transitions) initiative was launched in February 2024 at Sciences po with the aim of encouraging collaborations between researchers working at the frontier of social and environmental issues, beyond disciplinary or institutional boundaries to advance this knowledge.

SET PAPERS n°4

Building a social-ecological protection for Belgium

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Main contributions and recommendations

Our production and consumption patterns have been profoundly destabilising the biosphere for decades, exacerbating existing vulnerabilities and causing new risks that are increasingly threatening social and political stability across the globe. These "social-ecological" risks highlight the need to expand the boundaries of social protection and design appropriate collective protection schemes – in other words, construct "**social-ecological protection**".

This report aims to feed into the debate on the advent of social-ecological protection in Belgium through three main contributions:

- a "social-ecological risk matrix", an original tool for characterising these risks and supporting the development of social-ecological protection policies;
- prospects for transforming social security towards a social-ecological protection that meets the imperatives of a just transition;
- the definition of the guiding principles of governance and the concrete instruments needed to implement this social-ecological protection.

On this basis, we make **seven key recommendations** for institutionalising social-ecological protection in Belgium. These recommendations, summarised in the box below, are based on the idea that we need to move away from a reactive crisis management approach and embrace a proactive structural approach to preventing and adapting to social-ecological risks, as well as offsetting and restoring the losses and damage caused by these risks.

A NEW GENERATION OF SOCIAL-ECOLOGICAL PROTECTIONS TO ENSURE A JUST TRANSITION IN BELGIUM

DEMOCRATISE THE DESIGN AND IMPLEMENTATION OF SOCIAL-ECOLOGICAL PROTECTION

- Institutionalise **meaningful, ongoing participation by all stakeholders** to characterise social-ecological risks and propose collective protection policies to deal with them. This participation must:
  - be implemented **at all levels of governance**.
  - bring together, in close, dynamic cooperation and guided by the imperatives of a just transition, **those involved in political decision-making** (politicians, administrations, public statistical institutes), **in the field** (NGOs, representatives of the world of work and citizens) **and in research**.
  - pay **particular attention to the needs and skills of the most vulnerable groups**, which will serve as a reference point for building and generalising social-ecological protection (see, for example, commitment from experienced experts by the SPP Social Integration)

POOL COLLECTIVE PROTECTION FUNCTIONS TO COPE WITH SOCIAL-ECOLOGICAL RISKS

- **Guarantee the satisfaction of basic needs:**
  - democratically define a **pillar of basic human needs compatible with respect for planetary boundaries**, to be guaranteed for everyone in all circumstances, including in the event of ecological shocks (pandemics, floods, heatwaves, droughts, etc.) (see CERAC's work on adapting the planetary boundaries framework in Belgium).
  - establish **universal basic services (UBS)** offering everyone free or very affordable access to essential public services to guarantee these basic needs.

- **Maintain revenues in the face of shocks:**

  - extend the material scope of unemployment benefits to social-ecological risks (see, for example, the "climate permits" adopted in Spain in 2024)

- **Promote inclusion in activities and sectors of social-ecological interest**:

  - formally recognise a "**right to requalification and training**".
  - give priority to training for jobs in the ecological transition in all back-to-work **schemes**.
  - redirect **employment subsidies** towards supporting activities in sectors of social-ecological interest (e.g. renewable energies, energy renovation, organic farming, public health, combating social isolation, etc.), for example through reduced social security contributions.
  - introduce **a just transition income** to support workers wanting to retrain in occupations of social-ecological interest (see, for example, the ecological transition income pilot project in the canton of Vaud).
  - develop a **job guarantee** scheme to ensure that anyone able and willing to work has access to a job of social-ecological interest, paid by the State.
  - extend **parental leave** to include meaningful participatory activities for the just transition
  - enhance and support the **care professions for people and ecosystems** by improving working conditions and remuneration and setting up appropriate and accessible infrastructures.

- **Prevent social-ecological risks by promoting human and ecosystem health**

  - strengthen **physical and mental health prevention**, particularly in terms of promoting healthy behaviours, preventing those that are harmful to health and developing access to healthcare, in order to increase the resilience of populations in the face of social-ecological risks.

- strengthen the ambition of **ecological transition policies**, particularly in terms of reducing material footprints, waste and pollution, mitigating and adapting to climate change, and preserving and restoring ecosystems and biodiversity, in order to avoid severe, irreversible or large-scale social-ecological risks that social protection could not cover.

- **Institutionalise a "social-ecological vulnerabilities" branch in the social security system, bringing together the above functions as well as certain new benefits (e.g. crop insurance)** (see the French Senate's proposals to build a new branch dedicated to covering social-ecological risks)

Institutionalise the social-ecological risk matrix as part of an "Observatory of Just Transitions" in Belgium

- Integrate an **Observatory of Just Transitions in Belgium** function into existing institutions, similar to the one soon to be set up in the European Union (EU Fair Transition Observatory). This observatory should perform the following tasks:

  - based on the matrix, carry out **monitoring activities** to continuously enrich and update a knowledge base on social-ecological risks
  - link **data at different territorial scales** in Belgium
  - contribute to the **construction of new indicators** relating to social-ecological risks and to the collection of the data required to calculate these indicators
  - coordinate **ongoing consultative and deliberative processes** involving all environmental policy and social protection stakeholders at different levels of governance to characterise social-ecological risks and develop social-ecological protection policies
  - centralise and coordinate the **monitoring and use of European funds** linked to the just transition in Belgium

Review the actuarial bases that support the balance of social protection in the light of social-ecological risks

- Integrate **environmental and climate parameters** (e.g. heat waves, pandemics) into the actuarial and budgetary parameters of social protection (e.g. old age, sickness, industrial accidents) (see, for example, Actuaries Climate Index and Indice actuariel climatique).

- Consider integrating **criteria of responsibility and vulnerability** to social-ecological risks into the definition of personal scope, contributions and benefit entitlements

Make social protection benefits and organisations compatible with planetary boundaries

- Prioritise **in-kind and collective benefits**, rather than cash and individual benefits, to cover basic rights and needs, in order to avoid rebound effects.
- Generalise the **use of environmental, social and governance (ESG) criteria** in social protection organisations and services.
- Evaluate the **social protection system's dependence on economic growth and gradually liberate it** to guarantee the financial sustainability of the social-ecological protection system.

Lobby the European Union to establish a framework that facilitates the construction of social-ecological security systems

- Adopt the principle of a "**reinsurance EU**" that implements financial guarantees for certain social-ecological risks, for situations in which public systems intervene and private insurers withdraw.
- Reinforce, extend and perpetuate **European funds** to better respond to social-ecological risks.
- Set up an **appropriate operating framework for the establishment of universal basic services (UBS)**, in compliance with Art. 14 of the Treaty on the Functioning of the European Union.
- **Neutralise social-ecological protection expenditure** in the calculation of debt and deficit in the Stability Pact.
- Review the **institutional framework of fundamental rights** to integrate social and environmental rights in a participatory perspective (Pillar of Social Rights, European Semester, etc.).

Develop knowledge and skills to recognise and respond to social-ecological risks, multiple vulnerabilities and basic needs

- Promote **inter-regional, interdisciplinary, participatory, empirical, intersectional, prospective and cartographic research** on social-ecological risks and social-ecological protection policies to address them (see list of research avenues in the full report).

- Support social-ecological risk **education and training programmes** in all sectors of the education system.

Summary

Increased risks and collective mutualisation: are we ready?

This report proposes a framework for reflection and action to build a social protection system in Belgium that can handle the materialisation of the social risks caused by ecological challenges, known as "**social-ecological risks**", which are accelerating sharply. This social protection will need to address both the causes of social-ecological risk, including the damaging focus of current public policies on economic growth[1], and its consequences. This document focuses on the role that social protection, calibrated for the challenges of our century, must play in mitigating the consequences of social-ecological risk, which we refer to as "**social-ecological protection**". It is based on the interdisciplinary expertise of the authors, a targeted review of the literature, the results of a participatory workshop with the heads of federal institutions involved in social-ecological protection, and an international public seminar to discuss the preliminary findings.

In the first part, we develop a "social-ecological risk matrix" that shows why and how social-ecological risk differs from social risk as it has been understood since the industrial revolution. The second part outlines the conceptual changes that the transformation of social risk implies at the heart of the social protection system and assesses the revolutions it must undergo if it is to cope. The third and final section highlights the major projects to be undertaken in the coming years to achieve this, both from a strategic point of view and in terms of updating social protection instruments.

Social-ecological protection cannot simply cover these risks, as it would for probabilistic hazards such as traditional social risks. The report shows that social-ecological protection will require political and public institutions to adjust the foundations of their institutions and decision-making process to the complex nature of the risk we are already facing. According to classic research on paradigm shifts, this does not happen overnight. Initially, various paradigms and practices are superimposed and coexist, until deviations from the dominant paradigm eventually impose themselves as the norm, leading to the shift to the new paradigm (Galgóczi and Pochet, 2023). This report is intended to make a contribution.

1 On this point, see Laurent (2024)

It should also be noted that while the discussion here is specifically focused on Belgium, it is not the only one underway. Discussions and debates are starting to take place at European level, in certain Member States (France, Spain, etc.) and in multilateral international bodies (OECD, ILO, etc.). Momentum is building, and it is interesting that the Belgian discussion is among the first.

The social-ecological risk matrix

The first part of the report introduces an original social-ecological risk matrix and the conceptualisation of risk that underpins it.

Definition and dimensions of social-ecological risk

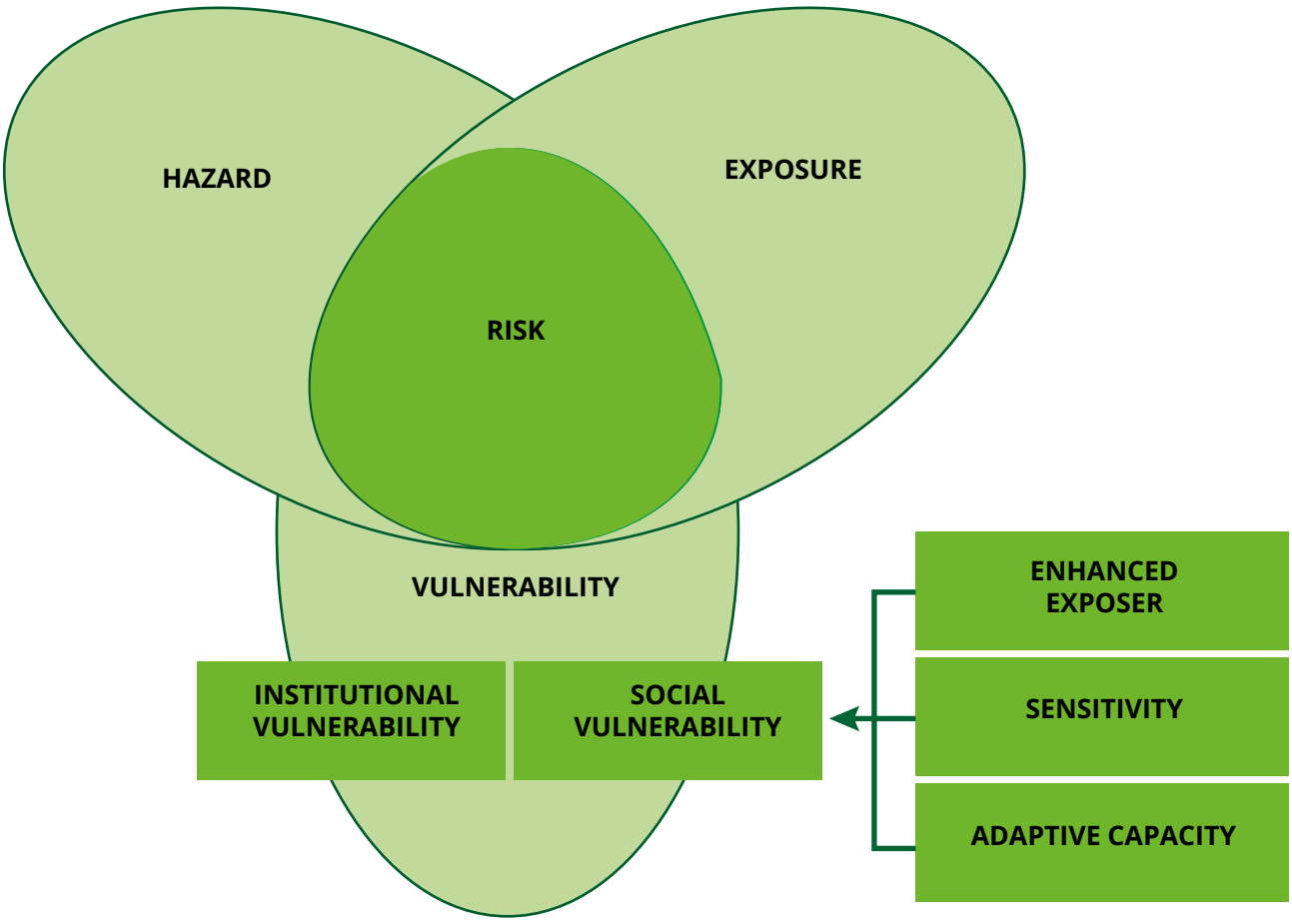
We distinguish **two types of social-ecological risks** associated with two fundamental changes underway: **the biophysical transformation risks** on the one hand, and the **socio-technical transition risks** on the other.

- **Biophysical transformation risks** are linked to the social effects of extreme events (e.g. floods, heatwaves, pandemics) and slow-onset events (e.g. rising sea levels) that result from the anthropogenic destabilisation of the biosphere.

- **Socio-technical transition risks** are linked to the social effects of responses to biophysical transformation risks. They cover not only the direct effects of environmental policies (e.g. introduction of low-emission zones, housing thermal renovation grants, energy or carbon taxes), but also the indirect effects of these policies (e.g. reconfiguration of the labour market, changes in the availability and cost of goods).

The social-ecological risk matrix proposes listing and characterising these two types of risk for the Belgian population, using a common analytical framework. This framework is based on a multidimensional conceptualisation of risk (see Figure 1), according to which a risk results from the dynamic interactions between a **hazard** (i.e. an uncertain event or trend whose occurrence is likely to cause loss or damage to social-ecological systems) and the **exposure** and **vulnerability** of human and ecological systems to this hazard. Exposure corresponds to presence in places or situations that could be adversely affected by the hazard. Vulnerability, on the other hand, refers to the propensity or predisposition to be adversely affected by the hazard.

FIGURE 1 DETERMINANTS OF SOCIAL-ECOLOGICAL RISKS



One original feature of the framework we propose is that it considers two forms of vulnerability: **social vulnerability** and **institutional vulnerability**.

The first concerns the **direct vulnerability of individuals or social groups**, resulting from a combination of the sensitivity, enhanced exposure and adaptability of these individuals or groups. Sensitivity and enhanced exposure respectively reflect personal characteristics (e.g. age, health) and the physical environment (e.g. housing, presence of permeable surfaces) that increase the propensity for people and the things to which they are attached to be adversely affected by the hazard, while adaptive capacity corresponds to people's ability to prepare for, respond to and recover from a hazard. Adaptive capacity is mainly linked to a social and material situation (e.g. income level, level of education and awareness, intensity of social ties).

The second form of vulnerability considered relates to the **vulnerability of the institutions** that support the efforts of individuals and social groups to prepare for, respond to or rebuild from hazards, and more generally that of the institutions that provide sustainable social cooperation. In this sense, the financial crisis and the fiduciary crisis of the social state, which stem respectively from the progressive impediment of the major functions of the social state (allocation, redistribution, stabilisation) under the effect of environmental crises and from the distrust of citizens in the face of what they perceive as unjust environmental policies (e.g. yellow vests), are two main factors of institutional vulnerability. On the one hand, traditional insurance systems may be weakened or deficient as a result of previous disasters, and, on the other, efforts to assist people may be constrained by distrust of public authorities or misinformation that pollutes public debate (as in the case of the FEMA agency in the USA faced with hurricanes Helene and Milton in the autumn of 2024).

Based on this conceptualisation of risk, social-ecological risk can be represented using the following equation:

Risk = Hazard × Exposure × (Social vulnerability + Institutional vulnerability)

where **Social vulnerability = (Enhanced exposure × Sensitivity) - Adaptive capacity**

It should be noted that this breakdown is for illustrative purposes only, and does not reduce the understanding of social-ecological risk to a simple quantitative aggregation. We are not working to develop an equation. In the report, we argue that the characterisation of social-ecological risks and the definition of social-ecological protection policies to deal with them can no longer be part of disembodied processes of "governance by numbers" (Supiot, 2015), and call for the development of transdisciplinary approaches that link quantitative and qualitative methods.

From a perspective of the democratic governance of social-ecological risk, collective protection against it, known as "**social-ecological protection**" (see Figure 2), must take charge of the result of this equation. The residual risk, which is not covered by social-ecological protection, will give rise to losses and damage which, by altering the capacity and well-being of certain social groups, is likely to lead to injustice.

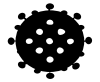
FIGURE 2 SOCIAL-ECOLOGICAL PROTECTION TO DEAL WITH THE BIOPHYSICAL TRANSFORMATION AND SOCIO-TECHNICAL TRANSITION RISKS (ADAPTED FROM FRANSOLET AND VANHILLE, 2023).

Introduction to the social-ecological risk matrix

The social-ecological risk matrix (see Table 1), a tool for guidance and decision-making to support a just transition, combines the development of two types of matrix: the biophysical transformation risk matrix and the **socio-technical transition risk matrix**, assessed according to four main components: hazards, exposure, social vulnerability and institutional vulnerability. We deduce the form and level of social protection required to minimise the social inequalities and economic inefficiencies caused by residual risk.

We conclude this first part of the report by illustrating the application of the matrix through the analysis of three serious social-ecological risks facing Belgium today and in the coming decades: flooding, heat waves and the transition to net-zero mobility emissions.

Table 1 Social-ecological risk matrix (incl. examples of biophysical transformation risks)

Risk determinants		Hazards (1)								
		Heat waves 	Droughts 	Floods 	Submersion 	Storms 	Fires 	Vector-borne diseases 	Zoonoses 	Pollution 
Exposure (2)		E.g. frequency, length and intensity of heat waves in Belgium								
Social vulnera-bility (3)	Enhanced exposure	E.g. percentage of population living in urban heat islands								
	Sensitivity	E.g. percentage of elderly persons in the population								
	Adaptive capacity	E.g. intensity of social ties								
Institutional vulnerability (4)		E.g. saturation of hospital capacity								
Social-ecological risk (5)		(1)*(2)*[(3)+(4)]								
Social-ecological protection (6)		E.g. home help during heatwaves for isolated elderly people at risk								
Impact on well-being (7)		(6)-(5)								

The Belgian path dependency or the need for a paradigm shift

Based on the matrix above, the second part of the report outlines some recent conceptual and theoretical developments that are helping to shape responses to social-ecological risk and the contours of social-ecological protection.

Towards a just transition? Transforming social security as a structural element of an institutionalised social order

We begin by recalling that social security is a **structural element of an institutionalised social order**, founded in the industrial era and consolidated after 1945. This order is based primarily on the exploitation of human labour, and secondly on three "enabling spheres" whose boundaries with the market sphere shift according to the forms of capitalism: 1) the sphere of "social reproduction" (health, education, etc.), 2) the sphere of "nature", 3) the sphere of "power" (State, public services). Social protection helps to maintain these three spheres. However, productivism tends to devour these foundations through a "cannibalistic" advance, endangering the very conditions of life on Earth. Our ability to make a success of the ecological transition depends on strengthening the spheres that enable us to do so, which underlines the fundamental role of social protection (Fraser, 2022).

To achieve this, Tronto (2009) proposes reversing the values that underpinned the industrial age, acknowledging our shared vulnerability and basing the "institutionalised social order" of the ecological transition **on the values and functions of "care"**, a moral, ethical and political notion, which she defines as, "a generic activity that includes everything we do to maintain, perpetuate and repair our "world", so that we can live in it as well as possible. This world includes our bodies, ourselves and our environment, all of which we seek to link into a complex network, in support of life" (Tronto, 2019). According to this approach, social protection must further develop its social-ecological risk prevention functions (Tronto, 2012), guaranteeing a participatory dimension to the system's stakeholders ("democratic care", 2023) and with constant attention to nature. By way of illustration, we outline the concept of **commons** (Gutwirth and Stengers, 2016) and its applications; this concept is well known in the Global South and is now spreading in the legal landscape of developed countries.

The idea of a **just transition**, to which social-ecological protection should respond, is a similar concern. The High Committee for Just Transition defines it as follows, "a sustainable transition whose guiding principle is social-ecological justice, placing social and participation rights at the heart of environmental policy." It focuses on four main dimensions:

- "ensuring the **transition towards a society that guarantees the fulfilment of social and environmental rights for all, within "safe" Earth system boundaries**;
- ensuring a f**air distribution of the efforts and benefits associated with the sustainability transition**;
- ensuring the **resilience to natural and transitional risks for all**;
- ensuring **meaningful and continual participation of all** in decision-making processes" (Fransolet and Vanhille, 2023).

What rights? Shifting the institutional conception of social security towards social-ecological protection

The report then looks at the normative and conceptual framework which builds the transnational framework of social protection around fundamental social and environmental rights. Frameworks such as the major international legal instruments play an essential role in consolidating a transnational epistemic community, both scientific and political, around key concepts such as social security, social protection, just transition or – one day perhaps – social-ecological protection. However, we demonstrate that, while the fundamental social rights framework has consolidated over time, the human right to a healthy environment remains fragile despite its importance, including in the context of the European Union. Moreover, the integration of civil and political rights, on the one hand, and environmental rights, on the other, has progressed mainly through case law. Yet this integration of civil, political and environmental rights extends only very indirectly to social rights.

The **conceptual and institutional development of international regulatory frameworks that integrate social and environmental rights from the perspective of a "just transition"** therefore appears to be a necessity. Belgium could play a leading role in this respect, notably by making a political contribution to "greening" certain European Union social instruments (i.e. making them compatible with respect for planetary boundaries). One example is the non-binding European Pillar of Social Rights (2017), which currently serves as a reference for European social policies (Schoukens et al. 2024).

Towards an Enabling State? Reinforcing the rights-based approach with a capabilities-based approach to meet basic needs

We then highlight the limits of government intervention in ecological crises, as demonstrated by recent pandemics and floods. This observation highlights the need to **reinforce the rights-based approach with a capabilities-based approach for citizens** (Sen, 1999; Nussbaum, 2000; Bonvin and Larufa, 2024) **to meet basic needs** (Max-Neef, 2017; Fransolet and Laurent, 2025) **affected by the materialisation of social-ecological risk**.

We argue that the model that best enables the development of social-ecological protection from this perspective, in light of the concepts developed in this section, is that of the **enabling social-ecological State**, which integrates the notions of the Enabling State (Wallace et al., 2019) and the social-ecological State (Laurent, 2024). It calls for a profound transformation of governance, including in the field of social protection.

Figure 3 The transition from welfare State to Enabling State (Wallace et al., 2019)

What kind of democratic control? Moving beyond social security as part of an institutionalised corporatist social order to ensure meaningful participation for all

Finally, using a neo-institutional approach, we address the evolution of Belgian social security from the point of view of its economic, social, political and institutional context. Belgium was built on a "consociative" model (Lijphart, 1977), as illustrated by the social security architecture introduced in 1945 with the Projet d'accord de solidarité sociale (Draft Accord for Social Unity). At the time, this social security organisation was perfectly suited to a Belgium that was still national in scope, with a strongly pillarised political landscape, and based on an industrial production model and an extremely conservative "gender-based system[1]".

While this model has ensured the robustness of the social security system for decades, it is now reaching its limits. The "path dependency" or "legacy of origins" is undoubtedly the most significant institutional obstacle to the implementation of an in-depth reform of Belgian social protection that is likely to provide a consistent response to the social-ecological risk. The transformation of social security institutions ultimately depends on the ability of the social partners to unconditionally adopt a social-ecological approach to the governance of social security and economic and social consultation bodies, and/or on the ability of the public authorities to impose broader and deeper participation in the structures designed to respond to social-ecological risk, as called for by the Aarhus Convention (UNECE, 1998).

While workers' representatives are genuinely concerned about the biophysical transformation risks and their mitigation, their positions become blurred when they have to address the of socio-technical transition risks, such as restructuring linked to environmental policies. As far as employers are concerned, the issues expressed in relation to social-ecological risks most often boil down to considerations of cost and competitiveness (Fransolet et al., 2024). Furthermore, both employers and workers are reluctant to open up socio-economic governance structures to the participation of other actors, no doubt due to the consociative roots of Belgian social democracy. Lastly, as far as political decision-makers are concerned, the democratisation of responses to social-ecological risks is unfolding in a context marked by tensions between consociative federalism and democratic innovation. And although Belgium's parliamentary

1 Men were conceived as full-time workers whose wives, as home-makers, received derived rights.

assemblies are gradually taking an interest in democratic renewal, the current constitutional framework represents an obstacle to the institutionalisation of participatory democracy tools in the decision-making process.

To ensure meaningful participation for all, it is therefore important to **move beyond social security as part of an institutionalised corporatist social order** (Armeni, 2023).

The building blocks of social-ecological protection for a just transition

Based on the social-ecological risk matrix (Part I) and the prospects for transforming social security into social-ecological protection that meets the requirements of a just transition (Part II), the third and final part of the report puts forward the guiding principles of governance that we feel should be applied to social-ecological protection, along with concrete instruments that could be deployed for its implementation.

Starting with fundamental rights and basic needs to define strategies for responding to social-ecological risk

At the end of the matrix presentation, we postulate that every social-ecological risk threatens one or more basic needs and fundamental rights of certain individuals and social groups. As a result, the socio-technical transition risks generally affect employment and income, and undermine the right to decent work. When we look at the biophysical transformation risks, such as heavy flooding, we see that they jeopardise access to drinking water or food, to decent housing, or to employment and income for farmers, all of which are fundamental needs and rights – even though agriculture is a sector that must make a major transition towards environmentally sustainable forms of production. The challenge for social-ecological protection is therefore to **meet these needs and guarantee these rights, in ways that promote the transition to an economy that respects planetary boundaries**. This way of framing the question requires the development of **"integral" strategies** (such as the One Health strategy) that take a set of cross-cutting criteria into account.

From this viewpoint, the first revolution required by social-ecological protection is a renewal of public action in terms of **civic participation in social protection**, which is essential for strengthening social and institutional resilience in the face of social-ecological risk. While expertise and science can attempt to pinpoint the uncertainties linked to exposure and vulnerability, they cannot ignore the field if they want to understand society's capacity to react to and address future risks, measure the degrees of understanding and apprehension within the population, and collect the lessons of situated experience.

The report begins by distinguishing, based on the social-ecological risk matrix, different **decision-making situations that call for democratisation**, particularly when, in a dynamic context, value conflicts prevail within society. When ignorance prevails, both in terms of knowledge of exposure and vulnerability and of the values to be applied, the **precautionary principle** must always preponderate (Petit et al., 2022).

The report then sets out the **criteria for "meaningful" participation**, drawn from international law and in particular the Aarhus Convention ratified by Belgium: inclusiveness, popular control, considered judgment, transparency of procedures, and transferability of innovative solutions. By way of example, we describe the inspiring practice of **experts by experience** in federal administrations, as well as the workshop held as part of the present project with representatives of social security organisations and FPSs (which notably led our team to complete the social-ecological risk matrix with the institutional vulnerability dimension).

But beyond the challenges of involving citizens in decision-making, what is required more radically is a reversal of the principles of top-down governance, in favour of **reflexive governance** that draws on and supports citizens' situated experience, to identify solutions to social-ecological risks. It is precisely this capacity that the welfare state has lacked in the face of pandemics and floods. In this respect, **legal experimentalism** (Lamine, 2018) provides avenues of action for public authorities that are fundamentally different from those that predominate in modern States: the development of collective solutions would thus be based on the involvement of actors on the ground who are in touch with reality and would be entrusted with defining the objectives to be achieved and then supervising an experimentation process to test and then adjust collective solutions to complex problems whose contours are constantly evolving. To embark on the path towards social-ecological protection, social protection must undergo a profound institutional transformation to deploy this type of governance, in line with the principles of an Enabling State.

The second revolution involves creating **more universal systems of protection, based on new forms of social-ecological vulnerability**. The materialisation of social-ecological risks is likely to affect, and even disrupt, everyone's life, so social-ecological protection will have to consider **new, more universal forms of cover**. However, the report also highlights the need to identify social vulnerabilities in new ways, based on new fault lines. The social-ecological risk matrix

has shown that the direct vulnerability of individuals or social groups results from a combination of the sensitivity, enhanced exposure and adaptability of these individuals or groups. The report develops the examples of the yellow vests, farmers, and the situation of undocumented migrants who are victims of both the effects of climate change in the Global South – climate change for which these countries are only marginally responsible – and exclusion phenomena in Belgium. Henceforth, the **identification of vulnerable groups** can no longer be based on a single dimension and limited to pre-determined categories such as demographic groups (e.g. the elderly, women, children) or socio-economic groups (e.g. low-income households, migrants, workers in sectors undergoing restructuring). This requires **intersectional approaches** involving a nuanced, contextualised and dynamic analysis of the many factors – including territorial factors – likely to combine and lead to increased vulnerability to social-ecological risks (Kuran et al., 2020). By way of illustration, the report sets out 18 vulnerability profiles that differ from the usual representations of "precariousness" within the framework of the classic welfare state (see examples in Figure 4). It recommends the **mapping tool** (see, e.g. De Muynck et al., 2023; 2022; De Muynck and Ragot, 2022), **ideally using participatory methods**, as a useful instrument for supporting this type of approach.

Figure 4 Heat wave vulnerability profiles in Belgium

Colette, a retiree on a meagre pension living alone in an old building in a densely populated district of Uccle, is worried about the impact of heat waves on her health and the decision by the Brussels-Capital Region Government that requires her to renovate her home by 2033.

Cédric, an artist evicted from his apartment in Namur during the COVID-19 crisis because he could no longer pay the rent, and who has been homeless ever since, dreads the heatwaves that make his living conditions even harsher every summer.

Charlie is a young asthmatic child living in a densely populated district of Liège. His parents are worried about the impact of air pollution and heat waves on his health.

Reinhard, a building contractor in the eastern cantons, is concerned about the new skills he and his workers must acquire to meet the growing demand for sustainable construction, and about the difficulties of carrying out his work during the heat waves that are becoming increasingly frequent, long and intense.

Isma, a young man living in central Brussels in 2050, worries about water, food and energy shortages caused by increasingly frequent and intense extreme weather events; he worries about the civil wars these problems cause and fears for his life and those of his loved ones in this violent environment, where zoonoses and deadly heat waves are becoming increasingly frequent.

Mytilus edulis, the blue mussel commonly known as the “common mussel”, a delicacy particularly enjoyed by Belgians, lives in a breeding plot on the Oosterschelde in the Netherlands. Health authorities are warning of an increase in the contamination of these molluscs by Vibrio bacteria, which are potentially dangerous to humans, due to warmer coasts and heat waves, but also of a rise in antimicrobial resistance among these bacteria.

The third revolution, and an important one in Belgium, concerns the need to respond to **institutional vulnerabilities** to social-ecological risks, which the aforementioned participatory workshop highlighted in light of the experiences of the COVID-19 pandemic and the 2021 floods (Lefèvre, 2024). The current division of competences between the different entities in Belgium was clearly perceived as a difficulty by the actors interviewed during the workshop, and calls for flexible and innovative solutions to respond to social-ecological risk, including a reorganisation of our institutional set-up. Institutional vulnerabilities demand adjustments in the scale of intervention, between the international, European, federal, regional and local levels, as well as better coordination, both vertical and horizontal, between policy sectors unaccustomed to working together. We present the example of **medical homes** in Belgium, which are helping to build resilience to social-ecological risk by organising front-line healthcare with and close to citizens, taking into account their immediate and concrete social and environmental conditions. The "preparedness" dimension of social-ecological governance requires this coordination to be organised before the risk occurs, to – in a forward-looking approach – raise awareness and train key actors, develop different scenarios and establish a habitus between stakeholders.

The definition of just transition brings together social and environmental policy issues. It finds concrete expression in one of the most original contributions of the report by the High Committee for Just Transition (Fransolet and Vanhille, 2023, p. 111) which, based on the respective functions of social and environmental policies, constructs a **double-entry matrix outlining the contours of social-ecological protection**. We advocate the systematic use of this matrix when developing social-ecological protection strategies, and briefly illustrate it using the example of the French Law of 2 March 2022 on crop insurance for farmers[2].

2 LAW n° 2022-298 of 2 March 2022 on guidelines for the improved distribution of crop insurance in agriculture and reforming the tools for managing climate risks in agriculture, JORF n°0052 of 3 March 2022

In conclusion, it is worth noting that, alongside citizen-based initiatives, the world of research has already looked at such global strategies in different fields. We describe several emblematic integral strategies: the "**transitional markets**" strategy (Gazier and Bruggeman, 2022), directly linked to the risks of socio-technical transitions and aimed at guaranteeing everyone the right to decent employment and sufficient income, then the idea of "**social security for food**" (De Schutter, 2023), which articulates responses to the risks of biophysical transformations affecting food production, and to the risks of socio-technical transitions affecting workers' incomes, by guaranteeing the right to sufficient and adequate food, while ensuring producers' income. These examples illustrate the different shifts that characterise the transition to an Enabling State. By involving civil society in the diagnosis and the solutions, they help to identify and recognise the impact of social-ecological risks on the fundamental rights and basic needs of individuals, discern vulnerable groups, and build integral strategies to guarantee them, in which social-ecological protection is required to play an essential role. These strategies closely link social and ecological issues. Key success factors include the appropriate choice of instrument level (distinguishing between action and funding frameworks, and the concrete level of implementation of initiatives), the ability of stakeholders to engage in new forms of dialogue and partnership with new actors, and the vertical and horizontal coordination of policies.

THE INSTRUMENTS OF SOCIAL-ECOLOGICAL PROTECTION

This final chapter highlights a range of public action instruments that can be used to support the strategies outlined in the previous chapter. It is accompanied by a table of responses to different social-ecological risks identified in the literature.

Based on the need to guarantee, through social-ecological protection, a pillar of basic needs while respecting planetary boundaries (Fransolet and Laurent, 2025), we first call for the development of a **social-ecological pact, defining, based on the social-ecological risk matrix, the needs that must be covered and the social organisation of solidarity required**. This societal project, which presupposes the determination, on the basis of a deliberative process, of a "basket of basic goods" to be provided for everyone in all circumstances (Vielle and Bonvin, 2010), must be governed by two principles: 1) the satisfaction of today's fundamental needs takes precedence over that of non-fundamental needs, and 2) future fundamental needs must prevail over present non-fundamental needs. The combination of these two principles implies that reducing current inequalities is essential to guarantee the fundamental needs of future generations (Després and Bouget, 2019).

We then define **three generic criteria for social-ecological protection instruments**. To meet the first criterion, according to which **benefits must not exacerbate inequalities**, we argue that it is based on the needs of the most vulnerable groups that social-ecological protection can be built and generalised (Service de Lutte contre la pauvreté, la précarité et l'exclusion sociale, 2023). With this in mind, we also call for collective investment in services and infrastructure to be preferred to individual subsidies, as the latter are likely to produce regressive social effects (e.g. windfall and non-use effects), as well as undesirable environmental impacts (e.g. rebound effects). We also stress the crucial importance of automating and universalising benefits (Dermine and Dumont, 2022), rather than reinforcing targeting and conditionality, to prevent the phenomenon of benefit non-take-up. We also draw attention to the need to consider the situation of groups who suffer from the digital divide on a daily basis.

The second generic criterion concerns the **adaptation of social security budgetary and actuarial parameters**. Considering the impacts of climate change on labour productivity and healthy life expectancy, and their repercussions on the future of the pension

system, we call for the integration of environmental and climatic parameters (e.g. temperature, pandemics) into the calculation of social protection benefits. Furthermore, in light of the many studies demonstrating the links between economic growth and the acceleration of ecological problems, and given the absence of a solid scientific basis demonstrating the possibility of an absolute, clear and sufficiently rapid decoupling of these two parameters, we question the hypothesis of strong and stable GDP growth, deemed the most favourable factor for financing the social protection system.

The third and final generic criterion relates to the **eco-compatibility of social protection benefits and organisations**. In this respect, we maintain that to cover basic rights and needs while respecting planetary boundaries, benefits in kind should, as far as possible, be preferred to cash benefits, as the latter tend to lead to an increase in consumption incompatible with the necessary reduction in economic metabolism. On the other hand, if the aim is to maintain income, cash benefits should be envisaged for a range of situations not currently covered by social security (e.g. "transition income" to support people in key sectors of the just transition; extension of unemployment benefits to social-ecological situations). To mainstream the ecological dimension into the overall governance of the social protection system, we also stress the importance of implementing Environmental, Social and Governance (ESG) criteria in social security organisations. Finally, the "Sustainable Administration Charter" and the "Federal Energy-Climate Task Force" are presented as significant steps towards anchoring the principles of environmental sustainability within the public sector.

In the final part of this chapter, we highlight a number of **social-ecological protection instruments based on their three main functions**: meeting basic needs based on fundamental rights, securing income, and inclusion in activities and sectors of social-ecological interest. In terms of **meeting basic needs**, we present the concept of "Universal Basic Services" (UBS), which is attracting growing interest in the scientific world and whose founding idea is to meet the needs of each individual while respecting planetary boundaries. With this in mind, we call for the consolidation of the "European Pillar of Social Rights" approach, whose Principle 20 states that everyone has the right to basic services.

With regard to the **income-security function**, we show through the examples of the COVID-19 pandemic and the devastating floods of July 2021, two crisis situations during which an unemployment

scheme was implemented, that Belgian social security law is already demonstrating a degree of flexibility with regard to social-ecological risks. We also highlight the further step recently taken by the Spanish government in creating "climate permits" to protect workers' income during natural disasters (Sanchez-Hidalgo 2024), thus guaranteeing their right to paid absence in extreme working conditions. While we underline the relevance of these schemes, we also recognise their limitations and argue that they should certainly not be seen as a miracle cure for all ills. The new scope and diversity of the consequences of social-ecological risk, their very high cost, including for traditional branches of social security, and the observation by private insurers that they are increasingly uninsurable following the withdrawal of reinsurers, have led several authors to propose the creation of a new branch of social security (Laurent, 2023) or a "tenth social risk" (De Schutter, 2024), whose translation can be found in an ambitious report to the French Senate (2022). This reform, which we call for in the report, would thus aim to meet the new issues posed by ecological challenges, while guaranteeing appropriate and sustainable social coverage.

Lastly, we argue that **employment inclusion and support for sectors of social-ecological interest**, two essential levers for fostering a just transition, require a comprehensive, systemic approach to labour markets. In a context where environmentally damaging sectors (e.g. fossil fuel industry, intensive agriculture) are set to decline, it is essential to provide workers with the tools to retrain for sectors of social-ecological interest (e.g. renewable energy production, energy renovation of buildings, organic farming, health, combating of social isolation). With this in mind, we call for the recognition of a "right to requalification and training", and the integration of training for jobs that contribute to a just transition into all activation policies. We also maintain that reductions in social security contributions are a powerful lever for encouraging hiring in sectors of social-ecological interest. Additionally, we propose extending existing social schemes, such as family leave or annual holiday, to civic or economic commitments in activities of social-ecological interest, to free up time for this type of activity. A more ambitious proposal put forward in the report is to create specific transition incomes, designed to support workers wanting to retrain in occupations that contribute to the just transition. Finally, we stress the need to enhance the value of care professions through improved working conditions, adequate remuneration and better social recognition, the provision of suitable and accessible infrastructures, and public policies that promote an inclusive and supportive model of society.

Only societies with reliable, democratic institutions – which protect their members and assume their responsibility for ecological sustainability – can be considered truly viable, both socially and economically. At a time when the advent of an inclusive, empowering social-ecological State, based on social investment strategies, is becoming a cornerstone of the continuation of our democracies, authoritarian populist movements, at national, European and global levels, are currently threatening the democratic institutions likely to carry the project forward. Policies aimed at ensuring a sustainable world for the planet's ecology must be firmly rooted in the rule of law. In the face of social-ecological risk, instead of restricting the rights of social-environmental citizenship, governments must consolidate the institutions that enable everyone to develop their full capacities, and promote autonomy and freedom while preventing the dependency and exploitation of vulnerable populations.

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