



## SUSPENS

### Reconciling environmental and social goals in the transition towards a low-carbon society

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Axis 5: Major societal challenges

## **Summary in English**

The transition to a low carbon society will generate major economic and social consequences. While environmental, social and economic objectives are traditionally pursued separately and with distinct policy instruments, the concept of sustainable development (as developed by the “Brundtland Commission”) provides a useful framework to characterize the inherent interrelations at the junctures of these three dimensions, and specifically between redistributive challenges (the social dimension) and low carbon aims (environmental dimension), within an explicitly long-term, intergenerational frame of reference. The SUSPENS project zooms in on this social-ecological axis, starting from the observation that the costs and benefits from policy responses to climate change are far from neutrally distributed between households. The overall aim of the SUSPENS project is **to gain a proper understanding of the interrelationships and potential trade-offs between environmental and social goals in the transition to a low-carbon society in Belgium**. This general aim is split up in specific objectives along theoretical, methodological and empirical tracks.

On the **theoretical** level, the SUSPENS project (1) brought together and discussed the diverse literature strands dealing with socio-environmental inequalities and aimed to develop a coherent multi-dimensional conceptualisation of the interrelationships between these inequalities; (2) discussed the implications of the role of the households for environmental policy as understood in practice theory (3) elaborated an understanding of how to look at household consumption; (4) contributed to the development of a new policy paradigm that integrates social and environmental objectives in policy design. **Methodologically**, the project improved the existing research infrastructure by (1) building the PEACH2AIR database that allows for studying the interrelationships between income, consumption and greenhouse gas emissions (and other types of air pollution i.e. emission of particulate matter, photochemical and acidifying gases) at the micro-level of the household in order to jointly assess distributive and environmental impacts of a range of socio-environmental policy packages (2) employing multiple case studies analyzing if and how various energy foresight studies carried out for Belgium address justice issues. **Empirically**, the SUSPENS project investigated the potential trade-off between the social and environmental dimensions of the transition to a low-carbon society by: (1) Assessing the Belgian governance context against principles of justice; (2) mapping the relation between income and other household characteristics, consumption and greenhouse gas emissions across the Belgian population; (3) analyzing social and ecological outcomes of case studies in the domain of food, housing and carbon taxation. In the following, we report on the main results.

The review of the energy foresight studies carried out for Belgium reveals that **justice issues** are hardly addressed in the analyses of low-carbon transition pathways. The potential conflicts and synergies between low-carbon strategies and social justice objectives are actually not taken into consideration, or only in a very limited way, in the scenario analyses reviewed. In the cases where these interactions are considered, we note that the analysis is often limited to distributive justice issues, while recognition and procedural justice are missing in almost all the analyses. A huge body of scientific literature has developed around issues of social, climate, environmental and energy justice. But the knowledge produced today in various scientific disciplines is not sufficiently confronted and interrelated. Measures for a low-carbon transition too often remain solely under the seal of innovation, that mix of technology and market. If we want policies that better reflect all aspects of reality, it is essential to draw on the full range of available knowledge. In terms of distributive justice, it seems natural to assess the impact of programmes by paying attention to the poorest 10 or 20% of the population. A good method is to listen to and strengthen the actors and

associations that represent people who are confronted with various social problems, particularly poverty, when it is difficult to mobilise these populations directly.

However, an increased focus on the poorest should not obscure the fact that the wealth gaps are especially large in the last decile and especially the last percentile. Insofar as a more egalitarian society is a more sustainable society, it therefore seems normal to also develop policies towards the richest so that the "environmental ceiling" is not pierced. A policy based on "consumption corridors" aims to determine basic needs but also absolute (non-tradable) ceilings.

Our analysis quantifying the **household carbon footprint** of consumption by Belgian households confirms the patterns in the international literature: average greenhouse gas emissions per capita are strongly driven by the standard of living. After controlling for other socioeconomic factors (household size, educational attainment, professional status, dwelling type, region, age of the household head and tenancy status), it appears that there is a relative decoupling between income and emissions. Greenhouse gas emissions still increase with income, but less than proportionally because the share of the most polluting consumption categories, i.e. 'Energy and housing' and 'Food' in total expenditures decreases with income. Mapping (and continuing to monitor) the extent to which different groups in society contribute differently to greenhouse gas emissions not only helps to understand how unequally the contribution to climate change is distributed. It is also important to understand the redistributive effect of climate change mitigation policy. We now look at three policy domains, for which we did an exploratory analysis, notably the case of housing, food and a carbon tax.

In the domain of **housing and residential energy use**, we focused on energy efficiency and renovation schemes in dwellings inhabited by vulnerable households. From both an ecological and social point of view, it is essential that also households with limited financial means can decrease their fossil fuel dependence by shifting to energy-efficient housing. The dominant strategy of ex-post subsidies and premiums for owner-driven renovations is not enough to achieve this. Targeted and coordinated policy measures are needed to make energy renovation accessible to low-income families, as they face specific barriers to energy renovation. These barriers differ in part between tenants on the private housing market, social housing tenants and owners with too limited financial means. Meanwhile, various pilot projects show that it is possible to overcome these barriers, especially when creativity and motivation are enabled. Yet, these projects show that specific barriers require specific action, and that good results are possible when pre-financing models are developed, social and technical assistance are provided, and neighbourhood scaling effects are made use of. The big question remains how these mostly small-scale initiatives can be expanded and scaled up to the required regional levels.

To investigate the impact of a healthier and more **sustainable diet** on total greenhouse gas emissions and social distribution, we used the PEACH2AIR data set, which contains product-based emissions per euro of expenditure, calculated through a single region environmental input-output model, for Belgium for the year 2014. We found the aggregation level of greenhouse gas emission source data for the CIAPs (coefficients of indirect air pollution) of food products is quite large, which limits the possibilities of a fine-grained scenario analysis. In order to investigate the effect of a change in diet on greenhouse gas emissions, we would ideally use a multi-regional input-output model that takes account of differences in production technology at home and abroad. Further research will have to show whether it is possible to further develop multiregional input-output models with an even more detailed product-level diversification than our current single-region model, given that multi-region models tend to aggregate data at a higher level than single region models do.

Although limited in setup when realizing the multiple second-round effects that a carbon tax can instigate, our empirical analysis on the first round effects of implementing a **carbon tax** on energy & transport fuels in Belgium shows that the strong heterogeneity in the low-income population in terms of their energy consumption and income situation is a critical factor to take into account for designing an effective and fair carbon tax and dividend scheme. Even when a large part of the raised revenue is recycled, there is still a very strong heterogeneity in the low-income population in terms of their gains or losses. This implies that other policies should accompany such a scheme, prioritizing measures that reduce energy consumption of the most vulnerable households, by increasing housing quality and energy efficiency of dwellings and heating systems. Also, this analysis shows that it is possible to use the PEACH2AIR database for better understanding this heterogeneity and thus could be helpful for designing not just the tax-dividend scheme but also for better targeting the aforementioned essential accompanying policies. Finally, the analysis shows that the distributive impact of a small carbon tax of 10EUR/tCO<sub>2</sub>equivalent. would be very limited, implying that this is a scheme that could be implemented as a test case, with a relatively low risk of jeopardizing the already vulnerable income position many households have to cope with. This could help to finetune the scheme before the tax is raised to a more substantial level to achieve the desired carbon reduction effects.

Finally, an important instrument for a socially just climate policy is the **'traditional' social policy**. Adequate benefits, a progressive income tax and efficient public services are essential ingredients for this, which can help reduce income inequality and poverty. With a more equal initial income distribution, the distributive effects of climate measures will be less heterogeneous. This typically goes hand in hand with greater support for (government) intervention. Similar mechanisms have also been explored between individuals in the very extensive literature on experiments related to public goods. A robust finding is that the collaboration between participants decreases as inequality increases in the resources allocated to different participants. Inequality makes it more difficult to agree on contributions to and management of public goods. Also historical analysis reveals that strong institutions for redistribution and strong institutions for tackling environmental challenges are not independent of each other. A strong welfare state is not a sufficient condition for an adequate climate policy, but the avoidance of increasing inequality does seem to be a necessary condition if we are to have any chance of limiting global warming to well below 2°C.

Concluding, we find that the climate problem is entrenched with social inequality. There is a huge inequality in contributions to climate change and in vulnerability to its effects both at a global level and within nation states. This "double injustice" becomes "triple injustice" when climate policy outweighs the disposable income of poor households over that of rich households. However, the apparent trade-off between social and environmental objectives does not happen automatically, but depends to a large extent on the design choices in policy measures. Nor can this be an argument for tempering the climate ambition: due to their higher vulnerability, poor families are also the most exposed to the intensifying climate risks. The challenge that policy faces is therefore to shape a bold climate policy in such a way that it will be able to meet the challenges without increasing inequality. In fact, the multiple synergies between the social and environmental dimension of sustainability indicate that the transition to a carbon neutral society can even be a powerful lever to reduce social inequalities and strengthen inclusion.

More information can be found on the SUSPENS-website:

<http://suspens.net>