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Transition pathways in land use in the Netherlands and Portugal

In the PATHWAYS project, *empirical* transition pathways have been compared to *ideal-type* transition pathways. All analyses use the multi-level perspective (MLP) to explain similarities and differences between the different countries. One of the domains considered is land use, with empirical transition pathways from the Netherlands and Portugal.

The **Domain report 5: Transition pathways for the land use domain in the Netherlands and Portugal** has been prepared by Bárbara Gonçalves and Henrique M. Pereira (German Centre for Integrative Biodiversity Research, Germany), Joyce Zwartkruis, Henk Westhoek and Marcel Kok (PBL, Netherlands). The report (part of Deliverable D2.4) can be downloaded from the PATHWAYS project website: [Deliverables](#) page.

Transition pathways

The report compares the transition pathways in the land use domain in different countries, namely in the Netherlands and Portugal. The assessment analysis builds on work developed on previous reports on the land use domain for the Netherlands and Portugal separately: identification and analysis of niche innovations, regime stability and feasibility of a niche innovation breakthrough. This report aims to combine previous analyses of the land use domain for both countries, taking into account the displayed differences and similarities between them with regards to actors, policy, governance and geographical and political context of the countries under scrutiny. The report concludes with a discussion and interpretive analysis on what general lessons can be pulled from the analysis of the above countries.

The land use domain is the realm that analyses land systems and the changes within it and typically involves the analysis of land cover and land use. In the context of the Pathways project, in the land use domain, dominant pattern of use of the land were identified for the Netherlands and Portugal and these were called regimes. Both in the Netherlands and in Portugal four main regimes were identified, three of which, are common to both countries: agriculture, nature and urban, and one which is different. In the Netherlands the water regime is studied, while in Portugal forestry is taken into account as a separate regime. [Table 1](#) Comparative table of regime trends for the land use domain in the Netherlands and in Portugal.

Table 1. Comparative table of regime trends for the land use domain in the Netherlands and in Portugal.

In the PATHWAYS project, changes are indicated as either “pathway type A” (**technical component substitution**) or “pathway type B” (**broader regime transformation**). The land use regimes are stable in the Netherlands and in Portugal. There are opportunities to break through the regime established patterns, but these are limited and will most likely happen as small incremental changes (Pathway B).

Niche innovations

Niche innovations are essentially movements whose action counters the existing mainstream way, and which may influence and shape a regime. Niche innovations can originate a regime re-configuration brought about by small pool of actors, which nurture a realignment of processes. The actors push for a re-configuration of a domain by addressing the cracks and tensions within it while trying to implement a modus operandus that “works”.

Seven niche innovations were identified for the land use domain. An important characteristic of these niche innovations is their multifunctional use of the land but also, that all of them address points of tension within the dominant land use regimes identified in the Netherlands (agriculture, nature, urban and water) and in Portugal (agriculture, urban, nature and forest). All niche innovations are classified to belong to pathway B, with few niches showing elements of pathway A.

All the niche innovations for the land use domain in Portugal and the Netherlands, present a low to medium momentum, except for the fire resilient landscape niche innovation in (PT) and the resilient landscapes (NL). The ‘resilient landscape’ (NL) niche innovation and the ‘fire resilient landscape’ (PT) show the highest momentum. In the Netherlands, this niche has become part of current policy and in a way it may be argued that it has become part of a regime. In the case of Portugal, it may already be en route to breakthrough however, since the benefits will only be visible on the long run, for example broadleaved species take about 50 years to grow. Hence the perception is that no transition is happening. Moreover, public interest and debate has lost importance. This niche suffers from a time-perception constraint.

The Dutch and Portuguese niches under study are all examples of regime transformation niches (characterised as pathway B in the PATHWAYS project) and have a medium to low momentum. The regimes have a strong lock in, except for the nature regime (NL). The cracks and tensions vary among the different regimes in the two countries. The cracks and tensions are mainly caused by changes in subsidies, i.e. decrease of available subsidies impelling the need for other solutions and business models to be found, e.g. to pay for example for nature. In the Dutch and Portuguese land use domain there is no transition unfolding yet. The niches described are in the early market niche phase, except for resilient landscapes (NL) and the fire resilient landscapes (PT).

Conclusions

Overall the land use domain in the Netherlands and in Portugal share more similarities than differences. Both countries share three main land use regimes and have only one different. Such difference can be explained by their ecological context as well as by historically the way their economy developed. In the Netherlands, water is a dominant land use regime because the country is surrounded by water, located in the estuary of important rivers and has conquered land from the sea, therefore flooding and water issues play an important role for national security but also for the economy, being Rotterdam the largest port in Europe. In Portugal, forestry is one of the regimes that occupies the greatest area nationally. This is a result of the significant role, forestry represents to the national economy. The niche innovations identified as important within each of the country national contexts, present similarities between them: at the socio-economic, policy and actor levels, being possible to pair almost one-to-one the niches of one country to the niches of the other country.

Similarities also show when comparing the momentum of the niche innovations that could be mapped together. In the Netherlands as well as in Portugal, the regimes are moderately stable. Nonetheless, this stability is not synonymous to blocking niche innovations from emerging. On the contrary, in both cases, niche innovations are aligned with the tensions within the regimes and are expected to continue to emerge and dissipate leading to incremental changes in the dominant regimes. A sustainable transition pathway in the land use domain is a time lengthy process. Nevertheless, the incumbent actors denote an open attitude to change. The role of government support in backing the niches appeared to be in both countries important and influencing the momentum of the niche. Government plays however probably a greater role in the Netherlands than in Portugal. In Portugal, government plays a more regulatory role. Another aspect that differs between the two countries is the awareness of society to environmental issues and how good it is able to voice its demands to government. In the Netherlands society appears to be more aware and demanding than in Portugal.

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