The role of law in shaping sustainability transformations in urban mobility and stormwater management

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1 Policy brief background and context

This policy brief outlines **key implementation challenges** and **potential solutions** for achieving the **climate change mitigation** and **adaptation** goals set in current legislation, with a particular focus on **urban transportation** and **stormwater management**. It is based on research conducted within the **Transformative Cities project**, funded by the EU's Recovery and Resilience Facility and administered by the Research Council of Finland.

Climate change mitigation and adaptation requires swift and decisive action from cities, companies, and state authorities. **Finland's Climate Change Act** (Ilmastolaki, 423/2022) establishes a **legal framework** that sets key goals and planning instruments to support such action. Implementation should be integrated across sectors to ensure that the objectives of the Act are reflected in **urban planning, transportation,** and **the built environment.**

An overarching challenge in implementing such climate mitigation and adaptation measures is that **sectors often continue to operate in silos** with their respective goals and rationales. Legal frameworks concerning, for instance, land ownership, transportation, land-use planning and stormwater are **not fully aligned with the urgent demands of climate action.** There are, however, legal and other mechanisms to remedy the situation.

2 Legal challenges and solutions in mitigation

Climate objectives are not prioritized in land-use planning

Challenge

In planning processes, **climate objectives** must **compete with other content** requirements **of the plans** that often take priority.

Potential solution

Land-use planning system that **respects the established national climate change mitigation targets** would require prioritisation and choices between different objectives at the legislative level, as it is often not possible to achieve all objectives at the same time.

Background

At present, the **Land Use Act** (Alueidenkäyttölaki 132/1999) does not explicitly **include climate change mitigation** or **adaptation** among its objectives, nor are these objectives reflected in the content requirements of the plans that give concrete form to the Act's goals **despite the significant role land use plays** in addressing climate change.

The draft of the new Land Use Act proposes **adding a section on climate change mitigation** and **adaptation** to the list of land-use planning objectives. In addition, sections on climate change mitigation and adaptation, as well as biodiversity conservation, are to be added to the content requirements of the regional plan. The draft also proposes adding to the content requirements of the local master plan, including **preparedness for increasing extreme weather events** and **flood risks**, as well as conditions for a **municipal stormwater management** system. Additionally, it is proposed that the content requirements of the local detailed plan address increasing extreme weather events and flooding.

If climate aspects become part of the content requirements of the new Land Use Act, the regulation will promote **climate change considerations in land use planning** to some extent. However, the land use planning system remains highly flexible regarding substantive guidance. **Policymakers have enough room** to decide which objectives to emphasize in their planning. Consequently, climate objectives must compete with other planning goals and content requirements of the plans, which often take precedence. Therefore, a land-use planning system that respects planetary boundaries—including climate change mitigation and adaptation—would require the legislature to prioritize and **make clear choices between objectives,** as it is not feasible to promote all goals simultaneously.

In practice, **economic considerations** often outweigh other objectives in land use planning, so prioritization between the general objectives of the law and the substantive requirements of plans should be **determined at the legislative level.**

Road operator responsibilities and transport service level requirements take precedence over climate objectives in transport planning

Challenge

The objectives of the **Act on the Transport System and Highways** (laki liikennejärjestelmästä ja maanteistä 503/2005) do not explicitly include the promotion of climate change objectives. In addition, **transport needs** (the need to develop the transport network and the objective of service levels, which are more concrete objectives than the objective of sustainable development) tend to take precedence in decision-making.

Potential solution

The **National Land Use Objectives** guide both land use planning at all levels of planning and the planning of roads based on plans. The national land use objectives should be taken into account more comprehensively and systematically in the activities of state authorities. The objectives should also be made more concrete and coordinated in the new Land Use Act to **reduce differences of interpretation** and improve their effectiveness.

Background

The purpose of the **Act on the Transport System and Highways** is to organise transport system planning in such a way that it **reconciles national** and **regional objectives** and creates the conditions for a functioning transport system and its development.

The Act also seeks to maintain and develop **functional, safe,** and **sustainable road connections** within the transport system, responding to mobility and transport demands while ensuring the road network's national coherence and service quality. However, these objectives, like the content requirements of the plans, can sometimes conflict. For instance, improving transport service levels may encourage people to live farther from workplaces and leisure activities, enabling longer trips within the same travel time. In contrast, **sustainability calls for reducing the overall need for transport.**

The national land use objectives form **a nexus between land use and transport planning,** and between the different levels of planning. The National Land Use Objectives aim to give concrete form to the objectives of the Land Use Act, and their main function is to convey international, national and region-wide interests in both regional and local planning.

In addition to the steering effect on the land use planning system, the national land use objectives also have a **so-called 'regulatory effect'** on the state authorities, i.e., in their activities, such as transport system planning, the state authorities must **take account of the national land use objectives,** promote their implementation and assess the impact of their measures on land use and development. However, from a legal perspective, the influence of national land use objectives on authorities is unclear if sectoral legislation does not explicitly require their consideration. In such cases, the regulatory impact of national land use objectives is **subordinate to more specific sectoral laws,** which take precedence over them.

3 Legal challenges and solutions in adaptation

Lack of clear legal obligations to promote natural stormwater management

Challenge

Storm Water Management (SWM) **through nature-based solutions** (NBSs) is **not adequately taken into consideration** in the land use planning legal framework. This slows down the implementation of urban natural SWM and favours traditional approaches, ultimately **reducing cities' resilience** to climate change impacts.

Potential solutions

1. More **substantive guidance in land use planning,** prioritising preparedness for intensified weather events in the contents of local master and detailed plans – **introducing a SWM planning principle** in new Land Use Act.
2. Explicitly stating in **the new Urban Development Act** (currently in preparation) that municipalities **shall prioritise natural means** to manage stormwater at the municipal level.
3. More **articulated** and **specific allocation of cities' responsibilities** in line with natural SWM needs.
4. **Regulatory approach to NBSs** – identifying instances where natural SWM is mandated.

Background

Climate change will increase the intensity of precipitation events. Stormwater pipeline networks **lack adaptive capacity;** only a **complete redesign** can enable them to handle increased stormwater volumes. Therefore, with intensified precipitations, they represent a **source of flood risk.** In contrast, **Nature-based storm-water management,** such as bioswales, rain gardens, retention and detention basins, support adaptation to changing precipitation patterns, **increasing urban resilience.**

Nature-based solutions are **not explicitly mentioned in the Land Use Act** (LUA), although several LUA provisions implicitly support adaptation. A planning principle should be introduced into the LUA to ensure that, when drafting new master and detailed plans, **areas best suited for natural stormwater management are identified, allocated sufficient space, and prioritized accordingly.** Introducing such a legal principle would help counteract the common tendency to prioritize economically more profitable land uses over nature-based stormwater management, which provides both public and private benefits in the long term.

Lack of integration between municipal SWM regimes and water services provisions

Challenge

Dual SWM regime – the ownership of municipal SWM system and the stormwater drainage network is **shared between the municipality** and **the Water Services Provider** (WSP). When stormwater hits the ground, it is regulated by LUA. When it enters the stormwater drainage system, it falls under the Water Services Act (WSA, Vesihuoltolaki 119/2001) and the responsible actor is the WSP. If stormwater is eventually conveyed back to the surface, it falls once again under the regulation of the LUA. This framework complicates efforts to adapt the entire stormwater management infrastructure to increased precipitation.

Potential solutions

1. Municipalities acquire **ownership of the stormwater drainage network** which would enable integrated stormwater management.
2. Establish **dedicated municipal departments** or units dealing with SWM and tasked with promoting natural SWM.
3. Integrate SWM expertise **into municipal green infrastructure** or green spaces unit to stimulate natural SWM implementation.
4. Require SWM experts or a dedicated water services unit to **participate in the drafting of all municipal plans.**

Background

Municipalities are responsible for organising SWM in public areas. The municipal SWM system comprises all the infrastructures intended for SWM except for the local WSP's stormwater drainage network. The reason is that municipalities can decide to assign SWM to the WSP in certain areas. The WSP's stormwater pipelines are regulated by the WSA. Therefore, stormwater is **regulated by either the WSA or LUA based on who owns the infrastructure** through which it is running at any given moment.

Diversifying the SWM system through NBSs is effectively discouraged, as it would further complicate infrastructure management and worsen the existing problems. Therefore, the entire SWM infrastructure stiffens and accommodating more rain becomes harder, decreasing urban resilience. A dual SWM regime fragments the infrastructure and responsibilities.

The law provides the opportunity for **municipalities to take direct responsibility for the stormwater pipelines,** eliminating the dual regime. Expansion of natural SWM, and thus improved urban adaptation, were reported in cities that opted for the single regime. Alternatives to the single regime include reorganizing municipal internal structures to **increase the influence of stormwater management expertise** in planning processes.

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