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Effects of multilevel governance on the design and implementation of sustainable mobility plans

Efectos de la gobernanza multinivel en el diseño e implementación de planes de movilidad sostenible

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NOTA BIOGRÁFICA

Doctorando[1] en el Departamento de Política y Administración Pública de la Universidad de Limerick. Sus intereses de investigación incluyen políticas públicas comparadas, gobernanza del clima y transiciones sostenibles. Actualmente trabaja en el proyecto "Gobierno local y movilidad urbana sostenible"[2], que se centra en la relación entre la autonomía local y las transiciones de movilidad urbana sostenible a través de estudios de casos transnacionales en Europa.

ABSTRACT

Objectives: The polycentric nature of multilevel governance structures with multiple actors interacting at different levels can facilitate sustainability transitions. This study aims to explore the impact of multilevel governance on the design and implementation of sustainable urban mobility plans within the two-tiered government structure of Sweden. **Methodology:** The study is based on qualitative review of the academic literature, secondary sources including review of national policy documents and empirical insights drawn from the case study of Umeå, a medium-sized Swedish city which takes part in several national, local, and transnational initiatives to accelerate sustainability transitions. The empirical data is collected through semi-structured interviews with policy experts, policymakers, transport, and urban planners who are responsible for formulation and implementation of transport policies within national and local institutions. **Results:** The multilevel governance of transport and sustainable urban mobility policies in Sweden produces several positive effects for design and implementation of policies. These include clear division of responsibilities among public authorities at national, regional, and local government level which helps to overcome the problems such as lack of accountability and responsibility. **Conclusions:** Multilevel governance of sustainable urban mobility policies in Sweden enables local authorities to have access additional resources and knowledge exchange through networks consisting of various public and private actors.

KEYWORDS

Multilevel governance; sustainability transitions; sustainable urban mobility; subnational government.

RESUMEN

Objetivos: la naturaleza policéntrica de las estructuras de gobernanza multinivel con múltiples actores que interactúan en diferentes niveles puede facilitar las transiciones sostenibles. Este estudio tiene

[1] I thank the anonymous reviewers for their comments.
[2] This publication is part of the PhD research project "Local Government and Sustainable Urban Mobility".

como objetivo explorar el impacto de la gobernanza multinivel en el diseño y la implementación de planes de movilidad urbana sostenible dentro de la estructura gubernamental de dos niveles de Suecia. **Metodología:** el estudio se basa en una revisión cualitativa de la literatura académica, fuentes secundarias que incluyen una revisión de documentos de políticas nacionales y conocimientos empíricos extraídos del estudio de caso de Umeå, una ciudad sueca de tamaño mediano que participa en varios programas nacionales, locales e iniciativas transnacionales para acelerar las transiciones hacia la sostenibilidad. Los datos empíricos se recopilan a través de entrevistas semiestructuradas con expertos en políticas, formuladores de políticas, transporte y planificadores urbanos que son responsables de la formulación e implementación de políticas de transporte dentro de las instituciones nacionales y locales. **Resultados:** la gobernanza multinivel de las políticas de transporte y movilidad urbana sostenible en Suecia produce varios efectos positivos para el diseño y la implementación de políticas. Estos incluyen una clara división de responsabilidades entre las autoridades públicas a nivel de gobierno nacional, regional y local, lo que ayuda a superar problemas como la falta de rendición de cuentas y responsabilidad. **Conclusiones:** la gobernanza multinivel de las políticas de movilidad urbana sostenible en Suecia permite a las autoridades locales tener acceso a recursos adicionales e intercambio de conocimientos a través de redes compuestas por varios actores públicos y privados.

PALABRAS CLAVE

Gobierno multinivel; transiciones sostenibles; movilidad urbana sostenible; gobierno subnacional.

SUMARIO

1. INTRODUCTION

Sustainable urban mobility has long been included in policy discourses as a solution to curb GHG (greenhouse gas) emissions in cities; however, there are persistent disparities in what it means and how it should be achieved (Brůhová *et al.*, 2020). Sustainability requires integration of environmental, economic, social and governance goals in human activities to protect the future of our earth and achieve liveability (Litman, 2023). Based on the famous Brundtland Report[3] widely acknowledged definition of sustainable mobility is "transportation that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Loo & Chow, 2006). Köhler *et al.* (2009) describes transition to sustainable mobility as "developing alternative social, behavioural, and technological niches to the current car dependent regime". Sustainable urban mobility upholds the vision of a city, which encourages its inhabitants to alter their travel habits to reduce emissions as well as detrimental impacts on the environment, health, and wellbeing (Brůhová *et al.*, 2020).

The complex challenges for climate change adaptation and mitigation cut across various spatial and jurisdictional realms. Governance of public goods encompasses externalities that traverse boundaries. These issues are addressed in multilevel governance structures through reallocation of power between different tiers and novel modes of public policymaking (Benz, 2021). There is a trend toward greater polycentricity which alters the existing climate governance structures and links multiple governing authorities across various sectors and scales (Jordan *et al.*, 2018). According to Hooghe (1995) "multilevel governance structures embody multi-layered polity across international, national and subnational collaborations without the existence of centrally concentrated authority". However, scholarly debates emerge around the most effective governance frameworks and mechanisms for implementation of transformative solutions to address the sustainability challenges that include environmental, social, and economic objectives.

[3] WCED (1987). Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly Document A/42/427.

Considering that there are multiple benefits and challenges associated with the governance of public common goods in multilevel settings, its impact on delivering sustainable urban mobility policy objectives is not widely explored in the literature (Nykvist & Whitmarsh, 2008). Against this backdrop, this study is built on the following question: "What are the effects of multilevel governance on the design and implementation of sustainable mobility plans?". The main objective is to analyse the impact of design and implementation of sustainable urban mobility projects in a multilevel governance setting.

The empirical analysis is based on the review of secondary sources and semi-structured interviews to complement it. The secondary sources include key national and local policy documents for climate change action and sustainable urban mobility in Sweden as well as in Umeå. The interview data is incorporated in a way to ensure the that interviewees and provided information are not identifiable. To account for the role of different actors in transport and sustainable mobility planning at national and local government level, the interviewees include policy experts, policymakers, transport, and urban planners working at the Departments of Traffic, Planning, Mobility and City Development at Umeå Municipality, and working at the Department of Central Function and Strategic Development at Trafikverket/Swedish Transport Administration.

The sample size of the interviewees is small which constitutes one of the limitations of this study. As this research paper aims to unpack the effects of multilevel governance on the design and implementation of sustainable mobility plans, the questions asked to the interviewees include:

> What is the level of collaboration between different tiers of governance (national, regional, and local) for transport policies?, What is the role of Swedish Transport Administration in local transport policy provision?, How are transport policies formulated and implemented?, Which government organizations are responsible?, Are there any sustainability targets for transport sector?, Are they set by the national government?, What is the level of local autonomy in deciding sustainable urban mobility policies?, Are there any lock-in mechanisms in local government policymaking cycles?, What are the local policies that aim to promote sustainable urban mobility in Umeå?

The article is organized as follows. Section 2 includes a synopsis of the literature on multilevel climate governance and decentralized policymaking. Section 3 explores the multilevel governance of sustainable urban mobility in Sweden together with the national policy objectives. In section 4, the case study of Umeå is presented to empirically analyse the policymaking processes for transport planning and with specific focus on sustainable urban mobility transitions in a multilevel governance framework. Local authorities are given extensive powers and transport policies are formulated through cooperation among various actors in Sweden. Thus, Umeå provides an interesting case study to explore the design and implementation of sustainable urban mobility projects through a web of interactions across national, regional, and local level. The empirical results are discussed in section 5 to readdress the question posited and to account for a critical assessment of the main findings. Lastly, the concluding remarks are made to highlight the most important findings, their relevance within the multilevel governance literature, and recommendations for further research.

2. MULTILEVEL CLIMATE GOVERNANCE

Climate change is a political phenomenon as its governance is increasingly characterized by polycentricity with linkages between multiple governing authorities (Ostrom, 2010a). Achieving the target of limiting global temperature increases to 1.5 °C necessitates integrated climate change initiatives among cities and through upscaling across multiple levels of climate governance (Fuhr *et al.*, 2018). These initiatives are mostly emphasized within international frameworks and under the supervision of the United Nations. National, regional, and local governments implement the necessary mechanisms to achieve internationally set targets. Climate action across large, medium- sized and small cities is important for effective climate governance (Kern, 2019). Polycentric governance structures involve public and private actors at multiple levels, in which local governments and community organizations are key to reducing carbon emissions at the local level (Ostrom, 2010a; 2010b).

A large body of research has investigated the benefits and challenges of multilevel governance of public goods. Multiple independent governing units can bring practical value as different public goods can

be provided more efficiently at various scales (McGinnis & Ostrom, 2012; Jordan *et al.*, 2018). However, policy areas such as the environment contain a basket of policies that may be efficiently provided at different scales of government (Hooghe & Marks, 2009). The evaluation of the most efficient and optimal structure of governance depends on the policy field. According to Stigler (1957), "certain government functions such as transport are more efficiently provided through national coordination and local consideration". Shifting the attention from global to "multiple governance scales that include actors across polycentric systems" has been regarded as more effective to reduce the negative externalities of climate change (Ostrom, 2010a).

Another benefit of multilevel governance structure is that it perpetuates the establishment of vertical and horizontal policy diffusion across jurisdictions and among a variety of actors (Schoenefeld *et al.*, 2023, pp. 4-5). Vertical links are the interactions between international, national, and local levels. Horizontal links refer to interactions within the same level of governance. Additionally, horizontal links are established through collaboration in national and transnational municipal networks (Bulkeley, 2010). Ostrom (2010a) underlines the benefits of the polycentric systems as they accelerate learning, adaptation, innovation, and cooperation with the potential to generate more effective outcomes at multiple levels of governance against a collective-action problem with global effects. For instance, involvement of cities in transnational networks endorses the knowledge transfer and policy mobilization that foster local climate action.

In contrast to the evidence which presents the view that multilevel governance frameworks can lead to effective outcomes in certain policy fields, an alternative perspective illustrates that it can produce overlap and redundancies in government functions. The top-down delegation of responsibilities from national to local levels can produce "accountability vacuums" within the complex structures of multilevel climate governance (Bache *et al.*, 2015). In addition to that, environmental protection of public goods in decentralized settings can lead to suboptimal outcomes such as the inability to control spill overs and increased resource depletion in the absence of strict regulation (De Mello & Jalles, 2022). Ebinger and Richter (2016) asserts that social policies may benefit from decentralization when horizontal communication and cooperation increases; however, it may lead to decrease in service quality.

3. MULTILEVEL GOVERNANCE OF SUSTAINABLE URBAN MOBILITY IN SWEDEN

Sweden is ranked among the top countries in Climate Change Performance Index (2023)[4] with low per capita emissions. Domestic transport and industrial sectors have the biggest share of GHG emissions as each accounted for 32% of total GHG emissions in 2018[5]. However, the emissions originating from road transport have been decreasing since 2010 and are projected to decline because of energy efficiency gains and increased biofuel use[6]. The two-tiered structure which centres around self-government in Sweden means that subnational authorities are regarded as important actors in climate change governance (Kristianssen & Granberg, 2021). Municipalities and regions have a crucial role in climate transition, particularly concerning urban planning and transport[7].

The tradition of strong self-government is an important characteristic of central-local relations in the Nordic countries. For instance, the European Commission's Self-rule Index 1.0 comparatively measures the level of autonomy obtained by local authorities across Europe in 1990-2014. According to this classification scheme, the countries that have significantly high level of self-government are the Nordic countries -Sweden, Denmark, Norway, Finland, Iceland-, Switzerland, Germany, and Poland. On the other hand, the list of countries with the lowest level of local government autonomy include Cyprus, Ireland, Malta, Moldova, Georgia, and Turkey (European Commission *et al.*, 2016).

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[4] CCPI Climate Change Performance Index (2023) available: https://ccpi.org/download/climate-change-performance-index-2023/ Accessed on 30/11/2022.

[5] Government Offices of Sweden (2018). Swedish Climate Act. Ministry of the Environment and Energy. the-swedish-climate-act.pdf (government.se), Accessed on 12/08/2022 Naturvårdsverket/ Swedish Environmental Protection Agency (2021). Report for Sweden on climate policies and measures and on projections. https://www.naturvardsverket.se/contentassets/caf14fb0008a41d29b-9d51228f874fcb/report-sweden-march-2021.pdf

[6] Naturvårdsverket/ Swedish Environmental Protection Agency (2021). Latest Emissions Data. https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/latest-emissions-data/ Accessed on 27/11/2022.

[7] Swedish Climate Policy Council (2022). Report of the Swedish Climate Policy Council. https://www.klimatpolitiskaradet.se/rapport-2022/ Accessed on 15/08/2022.

Sweden has three levels of government with the national, regional, and local level[8]. The significance of the European level has been increasing following its accession to the European Union in 1995. Its sub-national governance structure is made up of 21 county councils and 290 municipalities that have access to constitutional, political, and financial resources in a non-hierarchical two-tier system (Elander & Montin, 1990; Baldersheim & Ståhlberg, 2002). Decentralization has traditionally been important in Sweden as more responsibilities progressively devolved from the national to the local level that increased the range of municipal activities (Hudson, 1993, p. 43; Elander & Montin, 1990, p. 166; Mukhtar-Landgren *et al.*, 2019). The consolidation of local self-government has signalled a shift towards multilevel governance in Sweden as "the central local relations promote non-hierarchical negotiations among institutions across different levels" (Feltenius, 2015). Municipalities have key functions in delivery of public services ranging from housing, education, childcare, public welfare, and road management. On the other hand, the county councils oversee healthcare and transport policies.

An important feature of policy making within the two-tiered government structure in Sweden is the complex interactions between local and regional governments. Regional authorities provide detailed inspection and oversight in many areas including environmental protection and social welfare policies (Baldersheim & Ståhlberg, 2002, p. 85). In certain policy fields, local governments coordinate tasks with regional administrations and county administrative boards, which are national state agencies. For instance, despite existence of comprehensive local climate adaption plans, county administrative boards provide guidance and support to municipalities (Kristianssen & Granberg, 2021). The umbrella institution, SALAR-Swedish Association of Local Authorities and Regions, which represents all the municipalities and county councils provides an influential role in multiple policy areas as a mediator between different government levels (Feltenius, 2015, pp. 307-308). Hence, the multilevel governance of sustainable urban mobility transitions in Sweden comprises of multiple public actors interacting across different levels. The next section includes the national policy agenda for transport and sustainable urban mobility to account for the overarching policy objectives and division of responsibilities among different government actors.

3.1. National Transport Policy Objectives

Transport is responsible for 33% of national greenhouse gas emissions in Sweden and 95% of it comes from road transport which depends on fossil fuels (Fenton & Gustafsson, 2015). According to the 2022 Report of the Swedish Climate Policy Council, greenhouse gas emissions from the transport sector have decreased by 21% between 1990 and 2020. Swedish Climate Policy Council (2019)[9] underlines the importance of accelerated efficiency through electrification and automation, increased service-based approaches, and integration of biofuels to reach 70% reductions in domestic transport emissions until 2030, compared to 2010 levels. A range of policy instruments including fuel taxes, road tolls, and incentives for low emission vehicles, are applied to meet the national transport policy objectives of reducing carbon emissions generated from urban transport in Sweden (Kyriakopoulou *et al.*, 2021).

Transport policies in Sweden are formulated at various governance levels through interplay among national, regional, and local frameworks. It reflects a functional approach that puts accessibility, transport mode, efficient use of infrastructure, and investments at the centre of policy planning (Johansson *et al.*, 2018). Swedish Transport Administration is the principal public body that is responsible for the implementation of national transport policies (Johansson *et al.*, 2018). Public transport functions fall under the mutual responsibility of regional and local governments in Sweden. National road and rail services are overseen by central government agencies, whereas local and regional governments are responsible for traffic planning and management of local infrastructure such as roads, pedestrian ways, cycling paths, and parking (Elander & Montin, 1990; Hysing *et al.*, 2014; Fenton, 2017; Mukhtar-Landgren, 2021).

Local land planning is the exclusive responsibility of municipalities (Fenton, 2017, p. 1662; Mukhtar-Landgren *et al.*, 2019, p. 722). However, Antonson *et al.* (2016) contend that decentralized spatial planning in Sweden leads to tensions between local and regional government levels, particularly concerning sustainable transport. For instance, alternative modes of transport are highlighted in the municipal comprehensive plan

[8] Government Offices of Sweden. (2015). The Swedish model of government administration. https://www.government.se/how-sweden-is-governed/the-swedish-model-of-government-administration/ Accessed on 04/07/2022.

[9] Swedish Climate Policy Council (2019). Report of the Swedish Climate Policy Council. https://www.klimatpolitiskaradet.se/wp-content/uploads/2019/09/climatepolicycouncilreport2.pdf Accessed on 12/08/2022.

of Vellinge; yet divergences are observed between the positions of local and regional authorities on spatial management issues including public transport capacity and road expansion (Antonson *et al.*, 2016, p. 301). It demonstrates potential bottlenecks in highly decentralized governance structures.

Niche innovations for radical transitions that will promote a modal shift to sustainable mobility are highlighted in Swedish transport policy objectives. These include technologies such as hybridization of new service models for communal transport including car sharing and carpooling; demand management policies to promote active travel and restrict cars in urban centres through the integration of ICT solutions (Nykvist & Whitmarsh, 2008, p. 1379). For instance, Åkerman and Höjer (2006) envisages future scenarios for sustainable transport in Sweden based on increased energy efficiency measures and stabilized CO2 concentration levels by 2050. The results predict reduced fuel intensity and increased use of renewable energy for passenger travel, where fewer short-distance trips are made by car because of technological advancements that enable remote working and the use of non-motorized urban mobility options (Åkerman & Höjer, 2006, pp. 1951-1953).

Swedish Climate Policy Council[10] acknowledges the vital role of local and regional authorities for climate action in urban transport and infrastructure. It highlights the importance of strengthening coordination between local governments and the national state agency Swedish Transport Administration for infrastructure planning (Swedish Climate Policy Council, 2022, p. 88)[11]. The followings are suggested to encourage fossil-fuel-free transport[12]: a reformed road traffic tax in line with increased electrification and use of autonomous vehicles; total elimination of all subsidies on car use and fossil fuel car sales; introduction of policy incentives for use of environmentally friendly vehicles; providing an encompassing policy framework that approaches all regions equally; empowering municipalities to advance decarbonized transport.

"Transport for An Attractive City" (TRAST)[13] was introduced in 2014 to provide guidelines for the implementation of Sustainable Urban Mobility Plans (SUMP) by the Swedish Transport Administration, Swedish Association of Local Authorities and Regions, Swedish Board of Housings, Building and Planning to promote sustainable urban mobility and integrated land planning. It guides municipalities in the local development and implementation of sustainable mobility plans (Robertson, 2015). The overarching objective is to transition to a sustainable transport system with an emphasis on the role of local authorities in accelerating the multi-modal transport shift. It aims to develop sustainable transport systems based on the unique characteristics of individual cities and by considering accessibility, perceived safety, environmental footprint, and health impact[14]. Accordingly, active travel and greater use of public transport are prioritized to adapt to the local conditions and objectives.

A more recent policy framework called the "Traffic Strategic Work/ Handbok för trafikstrategiskt arbete" has recently been introduced by the Sweden's Municipalities and Regions (Sveriges Kommuner och Regioner/ SKR), The Housing Agency and Swedish Transport Administration to replace "Transport for An Attractive City" (TRAST). The handbook addresses issues around land use and transport integration, digital accessibility to promote sustainable transport systems. The unique feature of the Traffic Strategic Work Handbook is that it promotes a transport strategy through close collaboration and division of tasks between municipalities, regional authorities, and national state agencies. Acknowledging that the sustainable transport goals cannot be planned solely within the boundaries of local governments, the Traffic Strategic Work Handbook recommends the consolidation of national, regional, and local targets under a joint governance framework. Its main objectives are centred around creation of a sustainable society through integrated planning of housing, workplaces, and local amenities to alter travel needs of the inhabitants (Sandberg *et al.*, 2022)[15]. To provide empirical insights on multilevel governance of sustainable urban mobility transitions in Sweden, I include a city level case study.

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[10] Swedish Climate Policy Council (2020). Report of the Swedish Climate Policy Council https://www.klimatpolitiskaradet.se/rapport-2020/

[11] Swedish Climate Policy Council (2022). Report of the Swedish Climate Policy Council. https://www.klimatpolitiskaradet.se/rapport-2022/ Accessed on 15/08/2022.

[12] Swedish Climate Policy Council (2019). Report of the Swedish Climate Policy Council. https://www.klimatpolitiskaradet.se/wp-content/uploads/2019/09/climatepolicycouncilreport2.pdf Accessed on 12/08/2022.

[13] Swedish Transport Administration / Trafikverket (2014). Transport for an Attractive City. An Introduction to TRAST. https://bransch.trafikverket.se/contentassets/347f069e6d684bfd85b85e3a3593920f/transport_for_an_attractive_city_introduction.pdf Accessed on 08/08/2022.

[14] Swedish Transport Administration / Trafikverket (2014). Transport for an Attractive City. An Introduction to TRAST. Transport for an attractive city. An introduction to TRAST (https://skr.se/skr.25.html) Accessed on 08/08/2022.

[15] Sandberg, L., Wärnhjelm, M., and Swedish Transport Administration. (2022). Handbok för trafikstrategiskt arbete (No. 978-91-8045-094-2). https://skr.se/skr/tjanster/rapporterochskrifter/publikationer/handbokfortrafikstrategisktarbete.68409.html

4. THE POLICYMAKING PROCESSES FOR TRANSPORT PLANNING IN UMEÅ

Located within the two-tiered government structure, Umeå provides an interesting case study to analyse the formulation and implementation of sustainable urban mobility policies within a multilevel governance setting. This medium-sized Swedish city constitutes the largest city of Northern Sweden and the eleventh largest municipality with an ambitious local climate action agenda[16] (Statistics Sweden, 2022). It is located within the Västerbotten County in Upper Norrland, which is the northernmost region of Sweden. The region of Västerbotten is governed by a council, which is an elected institution and consists of elected representative[17]. Political organization of Umeå Municipality consists of several administrative bodies, and municipal companies[18].

The Swedish Transport Administration (Trafikverket), County Council of Västerbotten, County Administrative Board and Umeå Municipality, are key actors that are responsible for transport planning. The national authorities (Swedish Transport Administration) are responsible for long term planning of national roads and railways. Transport policies are implemented through collaboration between Swedish Transport Administration, regional and local authorities.

> There is cooperation between Swedish Transport Administration and the regional level as Swedish Transport Administration has regional offices. Municipalities in the North of Sweden often interact with these branches in Luleå and Umeå. They have common goals around national interests. For instance, if it is declared that it is of national interest, Swedish Transport Administration can intervene in municipalities' road planning. The ordinary way to decide on the national interests is through an institution at regional government level (Interviewee 5).

At regional level, political, administrative, and fiscal responsibilities are divided between the County Council of Västerbotten and Umeå Municipality (Umeå Kommun). As underlined by an interviewee who works at the Swedish National Road and Transport Research Institute, "the regional level is not hierarchically above the local level and has formal powers for public transport planning in regions; but they have to cooperate closely with the municipalities" (Interviewee 3). The national guidelines on climate action provide goals that are implemented through local governments' power to self-govern (Interviewee 3). However, there are certain limits to local government autonomy in Sweden. County Administrative Boards are "a parliamentary organisation which function as a national supervisory authority in each region and can put sanctions on municipalities if they don't follow certain rules" (Interviewee 3).

A local councillor explained the level of cooperation between different tiers of government and the role of Municipal Councils in local transport policymaking processes:

> There is collaboration between different levels. National funding is available for infrastructure, road, and railways. The state provides the overall ambition for infrastructure for roads etc. Then these targets come to the regional level, and they get some funding which is spread out in the region. Then municipalities get some funding from the regional level as well. Local government is responsible for local roads and infrastructure. Local governments cannot decide on their own on national roads but can provide funding only for local roads and for maintenance. Local government tries to get local objectives prioritized at the regional level and they can send a letter to the regional level to address for their needs every four year (Interviewee 1).

This indicates an effective policymaking process with clear division of responsibilities and allocation of multiple funding streams across national, regional, and local level.

As the local authority, Umeå Municipality has extensive autonomy in land use planning, maintenance of local roads, including cycling and walking infrastructure. One of the interviewees who work as a transport planner at Umeå Municipality expressed that "There are significant levels of interaction between three tiers. For public transport, decisions are made at regional level, but through close cooperation with local level. Everything is decided at city level, but then regional level must approve. The regional authorities agree

[16] Statistics Sweden (2022, December 31). *50 largest municipalities, by population*. Retrieved April 3, 2023, from https://www.scb.se/en/finding-statistics/statistics-by-subject-area/population/population-composition/population-statistics/pong/tables-and-graphs/population-statistics---year/swedens-50-largest-municipalities-2022/

[17] Regionvasterbotten (2023, May 8). *This is what the region does*. Retrieved December 15, 2022, from https://www.regionvasterbotten.se/det-har-gor-regionen

[18] The Municipal Council is the main decision-making body that rule over the Municipal Board together with the Business and Labour Committee, Sustainability Committee and Planning Committee (Umeå Kommun, 2023).

most of the time because the local government has the fiscal resources" (Interviewee 4). However, a concern regarding the impact of policy priorities at national level was expressed by an interviewee; "Change in government have changed the national plan and the money allocated for roads, railways, cycling lanes. The money has been directed to the road transport. The change in national level has impacted the policy priorities at regional and local level too" (Interviewee 1).

Having clarified the political and administrative functions of Umeå Municipality in implementing transport policies, I will provide further details on the local climate agenda and sustainable urban mobility policies in Umeå.

4.1. Local Governance for Climate Action and Sustainable Urban Mobility

4.1.1. *Umeå Climate Roadmap - Agenda 2030*

Umeå Municipality has local sustainability goals under its "Agenda 2030" which was formulated in 2021. Agenda 2030 serves as a locally planned roadmap to implement the 17 SDGs set by the United Nations[19]. It provides an overview of the sustainability goals and ways to meet them in line with the nationally set objectives. Following on these promises, Umeå has an ambitious action plan under Climate Neutral Umeå 2030 to achieve net zero greenhouse gas emissions until 2040 the latest. Umeå Climate Roadmap has key milestones, which identifies short-to-long term targets in different sectoral fields including mobility, energy, circular economy, food, and agriculture. The municipality itself aims to become climate neutral until 2025[20]. It aspires to promote ecological sustainability, biodiversity, and wellbeing of Umeå's residents.

A distinct feature of local climate agenda in Umeå is the elevated level of cooperation among different stakeholders for co-creation of solutions. Umeå as a medium-sized university city has resources, however the local funding alone cannot meet the investment needs for climate change (Interviewee 2). Umeå also participates in strategic innovation programmes that allow for policy diffusion and exchange of best practices. For instance, Climate Neutral Umeå 2030 is a collaborative project managed by Umeå Municipality in partnership with several stakeholders; and it is financed by Vinnova, the Swedish Energy Agency and Formas[21]. Climate Neutral Umeå 2030 aims to foster a network consisting of organizations, companies, thematic groups, and local community to address sustainability transitions. Besides the local authority other partners involved in the project are Umeå University, Swedish University of Agricultural Sciences, Umeå Energy, RISE Research Institute of Sweden and Coompanion Västerbotten, which is an economic association with regional operations.

Additionally, Umeå Municipality has signed the Climate Contract 2030, which serves as a long-term commitment to ensure collaboration among Swedish cities across local, regional, and national level for accelerated climate action. It also enables active participation to the European Union's mission of 100 climate-neutral and smart cities by 2030.Another important climate action network that Umeå Municipality partakes is the Viable Cities Climate Neutral Cities 2030 which consists of 23 municipalities working together to accelerate sustainability transitions in cities[22]. Hence, Umeå closely interreacts with various actors through multiple vertical and horizontal links for climate change action.

Transport is among the sectors that Umeå emphasizes to reduce its negative environmental impacts and shift to fossil free fuels[23]. Local government has the discretion to set local sustainability policy objectives at a level closer to the citizens. For instance, the Municipality is trying to reduce car traffic in the city and doing surveys on people's travel behaviour for infrastructural investments (Interviewee 1). A set of ambitious targets are put forward to advance sustainable urban mobility under Agenda 2030. These include promoting multimodal transport with increased share of public transport, walking, and cycling. The remarks made by a staff member of the Umeå Municipality reveals the persistent challenges in meeting sustainable urban mobility objectives: "The goal is to increase the share of urban trips done by public transport, bikes or on foot from

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[19] United Nations (2022). The Sustainable Development Goals Report 2022. In https://unstats.un.org/sdgs/report/2022/ Accessed on 14/04/2023.

[20] Umeå Kommun (2021, December 2). *Environmental goals and action programs*. Retrieved June 6, 2023, from https://www.umea.se/kommunochpolitik/kommunfakta/kommunensmal/miljomal.106.6fe98f0817d74839dbf5cb.html#Definition

[21] Umeå Kommun (2022, January 13). AGENDA 2030 IN UMEÅ. Umeå. Retrieved June 10, 2023, from https://www.umea.se/hallbaraumea/saarbetarvi/agenda2030iumea.4.408bf0f717442258a88c50.html

[22] Vinnova (n.d.). *Together towards climate-neutral cities*. Viable Cities. https://en.viablecities.se/hem

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55% to 65% until 2025, which is an overly ambitious target. Cycling schemes are provided by municipality, and cycling has a good modal share in Umeå. But the problem is that there are no restrictions on cars" (Interviewee 4). An important obstacle in achieving sustainable urban mobility goals in Umeå, and in the rest of the country is car dependence (Interviewee 6; Interviewee 4).

4.1.2. *Urban Transformation for Sustainable Mobility*

Umeå Municipality puts great emphasis on smart and sustainable urban mobility through several initiatives that promotes behavioural change.According to the results of most recent travel habits survey[24] in Umeå the modal share of urban trips are as follows: cars are the most popular means of transport with 40% followed by 33% walking, 20% cycling and 5% bus. Participants of the survey affirmed their preferences for prioritizing planning for expanded cycling paths and bus traffic at the expense of cars.The interviewees working at the Umeå Municipality stated that "There has been a small decrease in car use over time, but it is no sufficient. There is also gender split as women tend to use more sustainable transport options. Decreasing the car use and making the city centre more lively requires attitude changes" (Interviewee 1; Interviewee 2). Separating the cars, bikes and pedestrians remains to be a challenge in Umeå; but the issue involves political contestation (Interviewee 2).

Umeå Municipality aims to transform its urban centre with the ultimate objective of reducing car traffic. In Umeå, there is a great focus on increasing the share of trips made by active modes of travel and public transport as Umeå's populations keeps growing. Umeå has already an extensive network of cycling lanes with 83.7% of its residents having access to primary cycling paths in urban areas[25].The municipal attempts are concentrated on decreasing the share of car journeys, congestion, poor air quality and accessibility of different forms of transport. The streets of Umeå are being redesigned to create safe spaces for cyclists and pedestrians. Local cycle planning policy prioritizes urban growth within five kilometres radius of the city centre in line with the travel behaviour surveys that indicate residents' distance preferences to cycle[26].Two local projects are currently in progress to develop new infrastructure for active travel and create greener street spaces in the city centre under the Framtidsgatan project.

The Framtidsgatan is a country wide project that aims to transform streets of Umeå into multi-functional places to turn city streets into inclusive and climate resilient living spaces in post-COVID world. As part of the national initiative, Framtidsgatan consists of small street-scale projects in Swedish cities of Gothenburg, Stockholm and Umeå. It is funded by Vinnova, Swedish State Agency for Innovation, in connection to 'Smarta Gator/ Smart Streets' research project. The Framtidsgatan is executed in collaboration between local governments of Umeå, Gothenburg, Stockholm, and private companies. The project is coordinated at national level because it builds on the experiences from the pandemic as it has highlighted the urgent need to transform urban streets. Hence, the Framtidsgatan gathers experiences from the pandemic in Sweden and across other countries to investigate best practices for smart design solutions. The national government agencies collaborate with multiple private and public stakeholders encompassing the municipalities at local level to facilitate local transformation potential through site analyses and redesign of street spaces[27].

The current focus of the project in Umeå involves redevelopment of two streets, Västra Esplanaden and Storgatan under the national Framtidsgatan project. Västra Esplanaden is going through a reconstruction with proposals for its redesign submitted by Umeå's residents[28]. Västra Esplanaden will turn into greener streets with more pleasant and lively spaces. It includes providing alternative mobility options, such as cycling and walking ways. The stretch of Storgatan will also be rebuilt as part of the municipal plan to create greener and more pleasant streets. The transformation project includes a cycling lane running from Renmarkstorget to Västra Esplanaden and new pedestrian ways.

Another important municipal urban development initiative is rebuilding Teg's Center[29] with a focus on integrating land use and transport planning to create more spaces for cycling, walking and public transport[30].

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[28] Umeå Kommun (2023, April 3). *Framtidsgatan Västra Esplanaden*. Retrieved June 10, 2023, from https://www.umea.se/sharingcity

[29] Teg is the name of the residential area in Umeå, which connects to its city center through two bridges.

[30] Umeå Kommun (2023, April 18). *Inside the Ring Road*. Retrieved June 6, 2023, from https://www.umea.se/innanforringleden

The redesign of Teg's Centre aims to promote accessibility for travellers through reconstruction of a motorway into a city street that accommodates less cars and more alternative modes of transport. In addition to that, it will convert old blocks into new houses for 4,000 residents. The concept study addresses the problems of increased congestion and prospective population growth. It will create a safe living space that is easily accessed by alternative modes of transport as opposed to its current car-dominated status. Building on the idea of 15-minute[31] city, the ultimate objective of redeveloping Teg's Center includes creating urban areas, in which all essential amenities are within proximity from residences and workplaces.

Evidently, Umeå Municipality emerges as a key actor in sustainable urban mobility transitions with sustainable urban mobility targets set under the Climate Roadmap 2030 and urban transformation projects that aim to promote shift to alternative modes of transport. Local government in Umeå is an enabler of sustainable urban mobility transitions; however, there is great support and funding provided by the central government agencies. In addition, the local government takes part in multistakeholder partnerships which enable co-creation of innovative solutions with access to increased funding streams. Next, local bottom-up initiatives in Umeå are included to factor in the role of civil society and transnational networks within multilevel governance of sustainable urban mobility transitions.

4.1.3. *Bottom-Up Initiatives*

In addition to national and municipal projects for sustainable urban mobility transitions, there are multiple collaborative initiatives with focus on citizen engagement in Umeå. Car free travel initiative took place to investigate ten households' mobility behaviour without car use for three months; and aimed analyse mechanisms that facilitate sustainable urban mobility (C40 Cities Climate Leadership Group and Nordic Sustainability, 2019)[32]. Families were offered electric bikes, or travel cards instead of cars to promote shift to sustainable mobility. The initiative was successful and created Living Labs that promoted long term behavioural change. Also, Swedish Cycling Cities (Svenska Cykelstäder) is a nationwide association that brings together Swedish local, regional governments and interest groups to promote cycling in urban areas[33]. Its objectives include stimulating collaboration and knowledge exchange of best practices among the frontrunner Swedish municipalities.

Umeå is also among the Cultivating Cities of the GoGreenRoutes project[34]. It is a multidisciplinary H2020 project funded by the European Union which involves co-creation of solutions based on citizen science. The project aims to take small scale nature-based interventions in the form of greenways or pocket parks to enhance urban wellbeing and health. As part of GoGreenRoutes initiative, streets of Bölevägen that encompass houses, businesses, and schools are being transformed into a safe public space. It aims to encourage its residents to use active modes of travel during dark and long winter months[35]. Such small interventions consolidate the objective of increasing the share of urban trips made by cycling, and on foot.

Another influential network that promotes innovation and behavioural change for sustainable urban mobility in Umeå is the Ruggedised project, which is funded by the EU's Horizon 2020 programme[36]. It is collaborative initiative between the Umeå Municipality, Västerbotten County Council, Umeå Energy, Upab, and Akademiska Hus. Umeå is among the Lighthouse Cities that are in the Ruggedised project and has joined the EU (European Union) Mission of 100 Climate-Neutral and Smart Cities by 2030. Multiple ideas are being tested to promote e-mobility, such as introducing smart bus stops and installation of e-charging hubs. Green Parking Pay-off scheme is being implemented together with the local authority through restriction of workplace parking spaces and efficient land use. Ruggedised project introduced an open data platform that provides real time and static data to keep track of the progress of smart city initiatives and facilitate local decision-making processes.

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[31] The concept of comapact city contests car dependency with reduced travel demand and lower travel costs (Williams, 1999 as cited in Westerink *et al*., 2013). Similarly, this idea is engrained in the concept of 'eco-cities,' in which urban areas are developed in line with transit nodes to prevent low density settlements (Joss, 2015, p. 20).

[32] C40 Cities Climate Leadership Group, Nordic Sustainability (2019). *Cities100: Umeå is creatively engaging citizens to adopt low-carbon lifestyles*. C40 Knowledge Hub.
https://www.c40knowledgehub.org/s/article/Cities100-Umea-is-creatively-engaging-citizens-to-adopt-low-carbon-lifestyles?language=en_US

[33] Svenska Cykelstäder (n.d.). *A common quest to create the cycling cities of tomorrow*. Svenska Cykelstäder. https://svenska-cykelstader.se/eng/

[34] GoGreenRoutes https://gogreenroutes.eu/cities/umeaa

[35] GoGreenRoutes (n.d.). *'Green lungs' to tackle air pollution and encourage active travel all year round*. Retrieved May 10, 2023, from https://gogreenroutes.eu/cities/umeaa

[36] Ruggedised (n.d.). *UMEÅ*. Retrieved June 17, 2023, Retrieved from https://ruggedised.eu/cities/umeaa/

5. DISCUSSION

The policymaking processes for transport and sustainable urban mobility planning in Umeå are the outcome of various vertical and horizontal interactions within the multilevel governance structure of Sweden. The authority and policy responsibilities are allocated between the national, regional, and local tiers with central control over the policymaking processes. It was reaffirmed during the interviews that there is close collaboration between the three levels of government (Interviewee 4; Interviewee 5).

Swedish Transport Administration provides long-term policy priorities according to the national interests and interacts with the regional level through regional offices (Interviewee 5). Public transport across the region is overseen by the regional level; however, land planning, local roads and infrastructure are under the responsibility of municipal councils. It is important to note that "Swedish Transport Administration can intervene in municipalities' road planning if it conflicts with the national interests; and there is no hierarchy between the regional and local level, which ensures their close cooperation" (Interviewee 3; Interviewee 5). These insights contradict with the empirical findings of Antonson *et al.* (2016) which concludes that decentralized planning of sustainable transport in Sweden results in conflict among the local and regional level. Moreover, the empirical findings from Vellinge Municipality points to the divergences in the policy positions of local and regional level regarding the impact of increased road capacity (Antonson *et al.* 2016, p. 301). However, it is not clear how these divergences impact policymaking processes.

At subnational level, the policy responsibilities are divided between the County Council of Västerbotten and Umeå Municipality. It is stated that the strong self-government tradition of Swedish municipalities renders local authorities influential actors in steering climate action (Interviewee 4). The empirical insights from Umeå Municipality reaffirm the important role of local governments for climate action as well as design and implementation of sustainable urban mobility projects in Sweden. Umeå Municipality has policy discretion in land use and traffic planning, local roads, urban infrastructure for cycling and walking. The proactive role of Umeå Municipality with an ambitious local agenda and legislative political, fiscal powers to enact change creates room for policymaking at a level closer to the citizens. However, in Sweden, there are limits to local autonomy despite their strong tradition of self-governance. For instance, "County Administrative Boards are national supervisory authorities in each region and can implement sanctions on local authorities" (Interviewee 3).

The local climate change targets of the city are enshrined in the Umeå Climate Roadmap - Agenda 2030. The existence of urban transformation projects to reduce car use and increase the share of urban trips made by sustainable modes of mobility is a clear sign of the importance given to not only reducing the greenhouse emissions, but also addressing urban problems to turn cities into living spaces. These projects serve multiple functions to create greener spaces in urban areas, improve air quality, reduce congestion, increase safety, promote accessibility, and mitigate prospective problems related to population growth. Additionally, local governance framework for climate action and sustainable urban mobility is made of several collaborative initiatives. Umeå Municipality is involved in multiple national and international networks such as Framtidsgatan, Viable Cities, and the EU funded projects GoGreenRoutes, Ruggedised. These projects provide funding and knowledge exchange for small interventions which contribute to the municipality's objective of decreasing car use, increasing the share of cycling, and walking in urban mobility. Nevertheless, it is highlighted by the interviewees that car-dependence is a major challenge in achieving sustainability urban mobility targets in Umeå, and in the rest of the country (Interviewee 4; Interviewee 6). Car dependence, and segregation of cycling and walking ways is described as a political issue that involves contestation (Interviewee 2).

6. CONCLUSION

This study assessed the effects of multilevel governance structures on the design and implementation of sustainable urban mobility plans through an empirical case study. Multilevel governance frameworks are regarded conducive for accelerated climate action with multiple actors interacting in polycentric systems (Ostrom, 2010b). It implies dispersion of power and responsibilities across different actors rather than a centralized approach to governance (Hooghe, 1995). However, it is acknowledged that decentralization can also generate redundancies and ineffective policymaking without strict regulation (De Mello & Jalles, 2022). Another important shortcoming of multilevel climate governance structures is the accountability problem (Bache *et al.*, 2015). As the main objective of this study was to examine the effects of multilevel governance within the context of sustainable urban mobility policies, the political landscape in Sweden which is characterised by a range

of interactions among different actors at multiple tiers provided substantial insights. The empirical findings will contribute to the literature on multilevel climate governance of common goods. The empirical analysis is based on a single case study and a limited number of interviews; however, it reveals important insights to identify the enabling political and administrative conditions in multilevel governance frameworks.

The empirical findings indicate that the close level of collaboration between national, regional, and local authorities for transport policymaking with distinct set of responsibilities undertaken by different authorities can facilitate the implementation of sustainable urban mobility policies in Umeå, Sweden. The positive impacts of the multilevel governance of transport and sustainable urban mobility policies in Sweden are as follows: First, it sets clear division of responsibilities among different public authorities for coordinated transport policymaking at national, regional, and local level. The national authority, Trafikverket/Swedish Transport Administration, is responsible for long term planning of national roads and railways. At regional and local level, transport planning responsibilities are divided between the County Council of Västerbotten and Umeå Municipality. As it was explained in the interviews the overall policy directions are provided by the national government and these targets are addressed at the lower levels. The regional level oversees public transport policies, whereas the local authorities are responsible for local roads and infrastructure; however, in Sweden there are mechanisms for checks and balances. Therefore, it addresses the problems related to multilevel governance such as lack of accountability and responsibility. Second, it enhances the access of local authorities to resources from national, regional, and local level. It was explained by a local Councillor that "there is national funding for transport infrastructure including roads and railways; but the municipal funding is available through local taxes for local roads and their maintenance. Then the municipalities can get additional funding from the regional level" (Interviewee 1). Third, multilevel governance of sustainable urban mobility policies enables interactions with various public and private actors through access to vertical and horizontal networks. As shown in the case of Umeå's involvement in projects such as Cultivating Cities- GoGreenRoutes, Ruggedised, 100 Climate-Neutral and Smart Cities, local authorities' access to multinational networks enables external funding opportunities for climate action.

In conclusion, multilevel governance can contribute to effective design and implementation of sustainable urban mobility projects. The enabling political and administrative conditions that consolidate the impact of multilevel governance of sustainable urban mobility policies in Sweden are clear division of responsibilities among government bodies with strict regulatory mechanisms, strong role of local government in steering the transition at a level closer to the citizens, local governments' access to substantial financial resources and knowledge exchange as a result of vertical and horizontal links. The case of Umeå demonstrates the positive effects of multilevel governance of sustainable urban mobility projects through inter-administrative cooperation, resource allocation across multiple levels, tradition of local self-government, and commitment to an ambitious local agenda. Multilevel governance frameworks can facilitate sustainable urban mobility transitions through increased cooperation among different stakeholders, mobilization of additional funding opportunities, and exchange of best practices through governance networks. The bottom-up and top-down interactions among state and non-state actors in multilevel settings can accelerate implementation of local sustainable urban mobility plans. The impact of high local government autonomy in steering the urban transition process within the described multilevel governance framework cannot be overlooked. However, an important ambiguity in multilevel governance of sustainable urban mobility policies in Sweden is the impact of congruence among different levels. This has become particularly relevant with the recent change in the national government as a right-wing coalition government was formed in the aftermath of the 2022 general elections. Concerns about its repercussions for the national funding allocated to roads as opposed to sustainable mobility projects was expressed in an interview as well (Interviewee 1). There is need for extensive empirical research to analyse how party politics, and incongruent policy preferences across the national, regional, and local governments would impact sustainable urban mobility policies.

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