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A “giant furrow” or a “way to economic prosperity”?

A conflict in the meaning of environmental sustainability – the case of Rail Baltica mega-project

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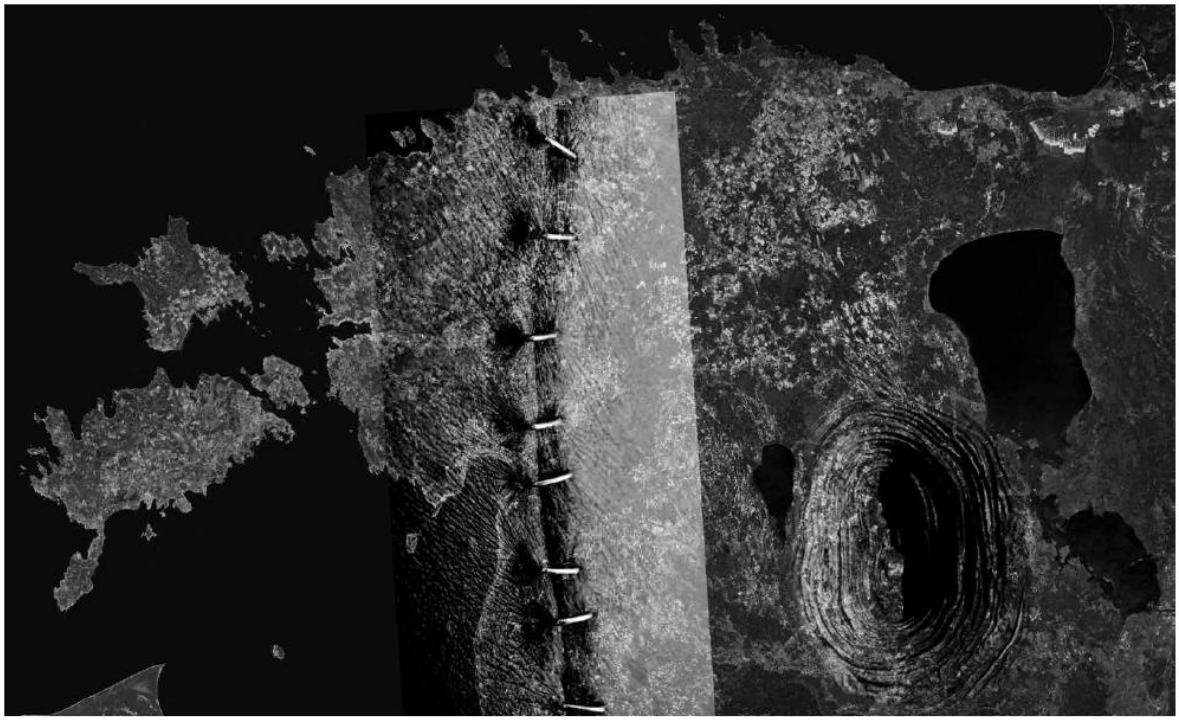

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Abstract

This thesis examines the conflict situation that has emerged around the environmental discourse in the planning process of a railway mega-project in Estonia. A discourse analysis is carried out on policy documents, publications, and interviews following Laclau and Mouffe's discourse theory and methodological guidelines, to examine the ways that the concept of sustainability conflicts between stakeholders. The politics of scale theoretical framework is used to examine the stakeholders' spatial thinking inherent to environmental sustainability concept. The results show that in the case of Rail Baltica mega-project, on the one side, the developers construct the meaning of environmental sustainability on a large EU-scale and argue for a new direct railway, while on the other side, the citizens depart on a local scale as they frame environmental sustainability to follow the local context and argue for the reconstruction of an existing railway. This shows that the stakeholders frame the environmental sustainability on a particular scale to fix specific spatial thinking in environmental discourse, and thus, legitimise particular spatial changes, and hierarchisation of scales in the planning process. Therefore, the sustainability discourse in mega-project development entails a specific scalar understanding, which is highly struggled over and serves a political function.

Key words: environmental sustainability, scale, politics of scale, discourse, mega-project, planning process

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1. Introduction

The issue of improving transportation services has become increasingly important yet challenging in public development agendas in times of climate crisis, globalisation, and the global pandemic. The mobilities of people, goods and services are essential for the working of our society and economy, yet the transportation sector is a major contributor to the increasing greenhouse gas emissions (Banister, 2007). The ever-growing distances and the frequency of travel only highlights this issue. However, transportation is also seen as one of the key themes to contribute to reducing the CO_2 emissions. This is tackled through measures like environmentally sensitive planning, implementing pedestrian and cycle paths into urban areas, improving the access to public transportation, and technological change in transportation such as changing to using renewable energy (Tiwari et al., 2011). Therefore, infrastructure development projects that respond to the urgency to tackle the climate crisis, among other environmental issues, are implemented around the world.

On a grand scale of these endeavours, we can find large capital-intensive mega-projects such as railroads, highways, dams, and waterfront improvements that are publicly funded and directed through public-private partnerships (Gellert & Lynch, 2003; Antonson, 2011; Tarazona Vento, 2016). These projects have shifted from single-purpose endeavours that focus on creating new ways of travel and trade to large multi-purpose projects that entail more extensive regional development purposes, revitalisation of city centres, regional development, but also tackling issues around climate change (Lehrer & Laidley, 2008). As the name suggests, these are complex endeavours which impact the surrounding spaces, and the environment in myriad and somewhat unpredictable ways (Flyvbjerg et al., 2003). The context of its spatial impacts is multi-faceted, as the projects affect local, regional, national, and international spaces in a direct and indirect ways. The uncertainties over the cost and time in mega-projects are thoroughly studied by various scholars (Wachs, 1989; Pickrell, 1992, Flyvbjerg et al. 2003), who have found that all mega-projects include cost overruns and overestimation of benefits. Moreover, Flyvbjerg (2014: 9) argues that "… misinformation about costs, schedules, benefits, and risks is the norm throughout project development and the decision-making process." Moreover, mega-projects entail multiple conflicting understandings: on one hand, the underlying assumptions of generating such a project serve the public interests and lead to economic benefits, increased accessibility, and the deployment of sustainable solutions, while on the other hand, the project entails uncertainties around the impact of the project, potentially heavy economic burdens, threats of displacement, environmental degradation, and questions about one's power to shape their living environments (Gellert & Lynch, 2003).

Therefore, regardless of the aim of the mega-projects to bring specific "environmentally sustainable" changes to the environment, not all actors agree on the nature of such transformations. As it is known from the literature and the discourse theory, the use of environmental sustainability in projects is ambiguous; it is often used without any

substantial meaning, but to indicate a “good” project or policy or assure a good will of project managers (Kuhlman & Farrington, 2010). This is because the concept of environmental sustainability entails certain environmental and ethical assumptions that are understood as self-evident norms for sustainability (Shiva, 2005). However, there is little agreement on what the concept means (Bartlett, 2012).

Sustainability is a value and scale-based concept as the constitution of an environmental problem always entails a certain unit of space, time, and a value-judgement over the acceptable level of disturbance (Fresco & Kroonenberg, 1992). Therefore, the use of the concept of environmental sustainability requires a particular scaling of the world (Sejersen, 2018). This is a practice that has political implications as a scaling produces particular representations of the world that result in certain understandings, identities, and power dynamics (Sejersen, 2018). In the case of an international mega-project that faces a tension between the challenge to reduce greenhouse gas emissions on the one side and entails the production of extensive transformations in landscapes on the other side, it becomes particularly interesting to see how such complex notion is conceptualised, and how the spatial issue is addressed, i.e., what spaces are included in the concept and brought into the project. Therefore, I am interested in how environmental sustainability and particularly the spatial thinking inherent sustainability has played a role in the contrasting understandings present in a development project that aims to be sustainable and offer sustainable solutions.

Thus, it is useful to examine the ways that different understandings of sustainability address environmental issues, and how they include, produce, and prioritise spatial scales in mega-projects. It can tell us more about the nature of the conflict situations, the power dynamics, and the uncertainties in mega-projects. Therefore, looking into the concept of environmental sustainability allows to critically examine the seemingly self-evident understanding of it. This is done to better understand the implications of particular meanings of environmental sustainability and the conflict it brings to a mega-project planning. Moreover, this provides an interesting way to see how meanings, discourse, truth, and knowledge are connected to the particular scalar lenses deployed in the planning process, and how it leads to specific changes in landscape.

1.1. Aim and research questions

To uncover these intricacies, the aim of this research is to explore the potential spatial conflict in the environmental discourse and the conceptualisation of environmental sustainability between various stakeholders in the planning process of the mega-project. This is done by examining the mega-project of Rail Baltica from the perspective of different actors in Estonia. The following research questions will guide the study:

(1) Do environmental issues constitute a spatial conflict between various actors in Estonia, regarding the development of Rail Baltica mega-project; and if so – how does the conflict manifest?
(2) How does the environmental sustainability concept conflict between stakeholders regarding the scaling of the concept? What kind of implications does it have on the mega-project development?

1.2. Contribution

This thesis contributes to the field of human geography, particularly to the political geography and environmental geography as the thesis is concerned with meanings, knowledges, and power dynamics in the shaping and control of spaces. The thesis does not elaborate on the implications of the mega-project regarding its level of impact to the environment as the planning process is still ongoing. Rather, it explores the ways that specific courses of actions are rationalised and legitimised in the mega-project planning process through a particular conceptualisation of sustainability and examines the ways it conflicts between stakeholders. In this way, this thesis contributes to critical discussion about importance of spatial thinking and scale-sensitive approach in the use and implications of environmental sustainability in political processes. Moreover, the study addresses the research gap in mega-project literature as it examines the uncertainties of mega-projects regarding its context. This can provide a way to design more informed, effective, and egalitarian planning and decision-making processes that prioritise a multi-scalar understanding of environmental sustainability.

1.3. Disposition

This thesis continues in a following way. Chapter 2 introduces the theoretical background of the thesis. This includes literature review on environmental sustainability and mega-project literature. It follows with the discourse and the politics of scale theory. Chapter 3 introduces the context of Rail Baltica mega-project in Estonia and connects it with the larger European transportation programmes. The methodological approach used in this thesis is elaborated in Chapter 4. This chapter gives an overview on the ontological and epistemological background, and elaborates on the methods and research process, including the Lacalau and Mouffe's discourse analysis framework. Results of the discourse analysis and the subsequent analysis in the politics of scale framework are presented in Chapter 5. This chapter outlines the themes that conflict in the various stakeholders' environmental discourses. It also shows the scalar construction of the meaning of environmental sustainability in the Rail Baltica mega-project. In Chapter 6 the results and analysis are discussed in the context of the theoretical and conceptual framework of the thesis. This is followed by Chapter 7 where the conclusion and proposed topics for further research are presented.

2. Theoretical and conceptual framework

2.1. Sustainability in public policies

The concept of sustainability has been used to bring the attention to the saving and sustainable use of the environment and the Earth's resources. According to Fresco and Kroonenberg (1992: 155) sustainability reflects the understanding that the Earth's resources are finite; they argue that "[t]he term 'sustainability' is generally used to indicate the limits placed on the use of ecosystem by humans, or more specifically to the way in which resources can be used to meet changing future needs without undermining the natural resource base." Sustainability as a concept has gained momentum since the 1970s, while it has its origin as a public policy concept in 1987, the Brundtland Report (Kuhlman & Farrington, 2010). Following the Paris Climate Agreement in 2015 the sustainability discourse is likely to be addressed in largely all urban and regional development strategies of various significance. However, sustainability has become a broader term with multiple simultaneously existing meanings as it is used freely across various spheres (Bartlett, 2012). Moreover, sustainability often interpreted through the three "pillars": environmental, economic, and social sustainability (Morelli, 2011). The division of sustainability into three pillars has received criticism from various scholars, who argue that it "risks diminishing the importance of the environmental dimension", among other reasons (Kuhlman & Farrington, 2010: 3436). This study uses the concept of environmental sustainability as it mainly focuses on the impacts that social actions have on the natural environment.

The sustainability and environmental discourse literature show that the concept is not as clear as it may seem as there is no consensus around its definition – there are many possible and even conflicting simultaneously existing sustainability discourses (Kuhlman & Farrington, 2010). This has become particularly controversial in planning processes, as well as in the context of "sustainable development" (Shiva, 2005). Sustainability is often used as a catchphrase, to fulfil specific interests, enhance the moral standards of a company, appeal to customers as environmentally cautious, gain support or legitimacy for a project, i.e. engage in the practice of "greening" (Coffman & Umemoto, 2010). However, the connection between the use of sustainability principles in planning and development processes and the subsequent environmental outcomes is found to be ambiguous (Coffman & Umemoto, 2010). Thus, research shows that sustainability discourses are often used in broad ways without clear directions of how such policies manifest in practice (Coffman & Umemoto, 2010).

Fresco and Kroonenberg (1992) discuss in length about the complexities of the sustainability concept due to its interwovenness to the natural cycles and processes that operate and can be analysed on multiple scales. They argue that sustainability is a value and scale-based concept, as it is defined through an acceptable level of "disturbance, damage, or loss" (Fresco & Kroonenberg, 1992: 156). They add that acceptable degree of loss, however, is

always defined in a specific temporal and spatial context. Similarly, Coffman and Umemoto (2010) show that sustainability concept can be based on trade-offs that created in the planning process prematurely, guided by specific interests or values. Moreover, Swyngedouw (2004) emphasises that these complex socio-natural processes that have a multi-scalar essence become complicated because they entail a specific organisation of space, as well as power-dynamics on multiple scales. These approaches emphasise the importance of examining the rationalisation and the value-placements in the particular use of sustainability.

2.2. Sustainability and mega-projects

As sustainability is used in many development strategies and projects and it can have myriad of possible meanings, it can become highly contentious concept (Devlin & Yap, 2008). This becomes particularly challenging in large mega-projects that have extensive spatial impacts yet entail high degree of uncertainties regarding these impacts. The concept “mega-project” is used to refer to large-scale capital-intensive infrastructure developments, such as railways, highways, or dam constructions, and waterfront renewals, which transform natural and socio-spatial configurations in very visible and profound ways (Dimitriou et al., 2013). They are often seen as “agents of change” as they can potentially affect the directions of spatial development on different scales and can thus become anchor points to subsequent development plans (Dimitriou et al., 2013: 10). As mega-projects bring extensive impacts that reach across multiple sectors and spheres, they are mostly strategically laid out and expressed through environmental discourse (OECD, 2021). However, this often entails a specific understanding and use of sustainability concept, which may not align with multiple stakeholders understanding of the expected meaning of “environmental benefits”, and thus create conflict.

However, as mega-projects are seen to have multiple concurrent roles, the discourse of sustainability has become highly pronounced in various spheres, which makes the concept highly ambiguous (Lehrer & Laidley, 2008). Because sustainability is simultaneously connected to various scales – it can reach to particular spatiality, to a landscape, to the global scale – it can entail multiple meanings (Sejersen, 2018). Moreover, it is important because mega-projects often become anchor points to other development plans, and therefore, the sustainability concept that is used in one project will shape the understandings and conditions for others (Dimitriou et al., 2013). Although such infrastructure mega-projects are linked or a part of broader spatial development strategies, the relationship between megaprojects and spatial planning frameworks in relation to contemporary issues such as climate change, sustainable development, are not completely understood or well-studied (Coffman & Umemoto, 2010).

For instance, sustainability discourse in infrastructure mega-projects often focuses on the issue of climate crisis and aims to reduce the environmental impacts of transportation

sector. In this matter, the questions about the mechanisms and technologies that provide the connection are highlighted through the environmental sustainability concept. Particularly, the urgency for developing alternative practices for the use of fossil fuels is often in focus, e.g., developing transportation that is fuelled by electricity, hydrogen, or biogas (García-Olivares et al., 2018). Thus, the sustainability discourse is likely to be around the issue of reducing greenhouse gas emissions. Moreover, sustainability discourse can refer to a mega-project as a sustainable way of transportation, and also as a driver for more sustainable economic relations (Litman & Burwell, 2006). Therefore, sustainability discourse can highlight the mega-project itself as "sustainably built" form of fixed material structure – a "spatial fix" (Harvey, 2001). Mega-projects can be seen as a form of a "spatial fix" which create new avenues for flows and circulation of capital as they connect multiple places or nodes of accumulation with already established web of mobilities, provide access to global markets and create conditions for enhanced trade and further accumulation of resources (Glassman, 2007; Salet et al., 2013). Thus, such use of sustainability discourse is linked to the meaning of a mega-project that drives sustainable economic relations. The latter comes from the mega-project's role as a driver for regional development – scholars have brought out that mega-projects are linked to post-Fordist and globalization trends that are part of "reorientation toward neoliberal forms of governance", where "local agendas for urban growth and competitiveness" are in the focus of such agendas (Novy & Peters, 2012: 140; emphasis removed).

Dimitriou et al. (2013) outline the issue that in planning processes the decision-makers often underestimate the impact that these projects can have to surrounding context. They argue that "megaprojects are frequently treated as 'closed-systems' separated from much of their contexts," as researchers often focus on the issues surrounding cost and time aspects in the planning process, and less with the particular context the project occurs in (Dimitriou et al., 2013: 3). They criticise measuring mega-projects' success based on fulfilling the expected economic and temporal requirements as they see that this approach falls short on the complete understanding of a successful mega-project. In this way, a railway can be built at the "wrong" place and the "wrong" time while still fulfilling its financial and temporal objectives can still turn out to be an unsuccessful project (Dimitriou et al., 2013: 5). Therefore, they call for more research to focus on how these mega-projects fit into their context. Gellert et al. (2003: 17) argue that the impacts of a mega-project can be very difficult to identify, because not all changes in nature can be predicted due to the projects' "secondary effects on the "natural" environment and far-reaching implications for human lives and livelihoods". Nevertheless, studying how mega-project as "agent of change" manifests in space with its specific characteristics and the use of sustainability is important to study its impacts in relation to its context, to improve the planning processes and reduce uncertainties.

2.3. Conflict in planning process

Conflict is often seen in planning processes, where environmental discourses such as sustainability address and frame various issues around social and spatial organisation of society in a specific manner. Social conflicts are likely to occur due to the conjunction of multiple and conflicting values between different stakeholders. Oberschall (1978: 291) defines social conflict as "a struggle over values or claims to status, power, and scarce resources, in which the aims of the conflict groups are not only to gain the desired values, but also to neutralize, injure, or eliminate rivals." However, conflicts are expected in democratic societies as no one solution can benefit or please all the actors in society (Flyvbjerg et al., 2002). They emerge because of the possibility for groups to define their opinions, perspectives, and ways of living, as well as present their interests and needs as legitimate even when they contrast the interest of another group (Flyvbjerg et al., 2002). Therefore, as a value and scale-based concept, different parties can attribute various interests, specific economic or political agenda to the meaning of sustainability.

Flyvbjerg et al. (2002) emphasise that the conflicts are expected, but they also must be recognised. This is particularly relevant for the concepts like environmental sustainability, which are generally considered "self-evident" or "objective" as they entail particular ethical assumptions (Shiva, 2005). In planning processes, they often become highlighted, conflicted, and struggled over (Sejersen, 2018). Conflicts over the rationalities of the planning can shed light to fundamental struggles in the planning process, such as power struggles, issues over participation and transformation of spaces, social and environmental justice, democracy, etc. (Sejersen, 2018). Flyvbjerg et al. (2002: 62) reflect a Foucauldian perspective that there is a sense of freedom in the presence of conflict, as "suppressing conflict is suppressing freedom, because the privilege to engage in conflict is part of freedom".

Moreover, ignoring conflicts may lead to processes that inhibit innovation and collaboration between stakeholders "and context-dependent search for problem resolution" (Coffman & Umemoto, 2010: 599). This is particularly important in the mega-project context, as these projects entail large number of stakeholders and have a profound impact on vast spaces. In this way, the scholars find that the multiplicity of values and the presence of conflict is important for enhancing the development of learning environment for continuous improvement (Flyvbjerg et al., 2002). This is possible through continuous dialogue and collaboration between decision-makers and the public. Regarding mega-projects, it provides a possibility to explore different approaches and to see cumulative implications on various spheres that certain actions may bring.

2.4. Discourse theory and the politics of scale

The politics of scale theory constitutes a theoretical framework through which to examine the potential spatial conflict in a mega-project development regarding the scalar approaches inherent the concept of environmental sustainability.

2.4.1. Discourse theory

First, it is important to define the meaning of discourse. Maarten Hajer (1995) defines discourse as "a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities" (quoted in Keil & Debbane, 2005: 258). His proposed definition of discourse analysis has become one of the fundamental in the field of environmental policy and regarding the discursive construction of the concept of "nature" (Feindt & Oels, 2005). This definition highlights the core in discourse analysis and social constructivism at large – everything we know is socially constructed. According to this understanding, environmental problems such as climate change cannot be simply taken or self-evident. Rather, it is through discourse that the environmental issues are constructed (Feindt & Oels, 2005). While there is no question about the reality or existing of nature and the environment, the understandings and related issues are socially constructed as knowledge. This is done through specific language, concepts, articulations, practices, technology, and power dynamics. Thus, the existing natural conditions are problematized in a specific way through knowledge, language, and power (Feindt & Oels, 2005: 161).

Discourse theory informs that different meaning of a particular phenomenon, such as sustainability, give power to specific changes and actors in social process. According to Foucault, discourse is a medium that creates and transmits power, but it is also "a hindrance, a stumbling-block, a point of resistance and a starting point for an opposing strategy" (Foucault, 1990: 101 in Flyvbjerg et al., 2002: 51). Therefore, on this basis, groups can use discursive practices to challenge the hegemonic power and knowledge, inform public, find supporters, and possibly "set up alliances in order to shift relations of forces and change structural constraints" (Dietz & Engels, 2017: 7). Thus, actors struggle to change dominant discourses by making their understandings fixed through the continuous contestation over the meanings. Foucauldian approach says that the actors who have power to shape discourses and produce knowledge have the power to change spaces (Flyvbjerg et al., 2002). This makes strategies, policies and action plans that entail, produce, and disseminate environmental discourse powerful frameworks for changing and mediating the spaces we live in.

2.4.2. The politics of scale

The struggles to change dominant discourses can be examined through the theory of politics of scale. In the centre of this theory is the concept of scale, which can be understood as power that a specific group of people have over space – it is the extent of social organisation (Jones, 1998). To a large extent, scholars agree that spatial scales are not fixed geographic entities or "standard" units of space have established importance and interrelations towards each other (Delaney & Leitner, 1997; Swyngedouw, 2004). Rather, these relations, as well as the substance and extent of the scales is constantly contested,

they are re-structured and redefined (Swyngedouw, 2004: 133). Scale serves a political purpose as it is a particular framing of reality (Jones, 1998; Delaney & Leitner, 1997). Thus, the politics of scale is interested in how such framing of scales, as well as construction, hierarchisation, and reshuffling of scales occurs in social processes (Swyngedouw, 2004). For instance, Richardson (2006) studies the "one-space" or monotopic rationality of the EU territory. He is looking at a particular way that social processes as well as identity is scaled on a large EU-scale. Leitner (2003: manuscript p.2 quoted in Kurtz, 2003: 894) argue that "[c]entral to the politics of scale is the manipulation of power and authority by actors and institutions operating and situating themselves at different spatial scales." This is done by discursive processes, such as through the construction of persuasive narratives, meanings, identities, but also calculative practices (Richardson, 2006), through which the power dynamics and the relation between scales are altered (Kurtz, 2003). This means that the politics of scale is focused on conflicts that occur in response to a specific scale holding transformative power over space while other actors on a different scale struggle to gain the control over the same spaces (Swyngedouw, 2004).

Therefore, scaling becomes relevant in conflicts between different stakeholders over the power to control changes in space (Delaney & Leitner, 1997). Scales become important in planning processes because they order social processes, and the social processes organise and recalibrate scales (Kurtz, 2003). Through scaling, the power dynamics in social processes are aimed to be changed by favouring some actors while disempowering others (Swyngedouw, 2004). This means that the relations between actors on particular scales are established, differentiated and hierarchised in new ways. By strategically formulating persuasive narratives in environmental discourse certain actors construct a scale that is regarded as "rational" and "objective". In this way the power of specific actors and the particular view on space are prioritised and considered legitimate (Kurtz, 2003; Martin and Miller, 2003). Therefore, scalar framing can be used as a strategic discursive power to reframe, rescale, and rationalise particular political resolutions in social processes – e.g., inclusion or exclusion of particular actors or problems in particular discourses (Jones, 1998).

Scalar framing has been studied by environmental and political geographers. Kurtz (2003) explored the ways that scale emerges in the case of an environmental justice movement. She found that environmental activists used scale as an idiom of inclusion to be represented in a particular unit of population. In addition, they managed to rescale the locally experienced grievances as environmental racism, to a larger federal state level scale of regulation, to assert problem solving and political resolution to the issue a state level. Sejenser (2018) studied the scalar construction of the social world in the large-scale industrial plant's use of sustainability in Greenland. He found that new productive space of Greenland was formed through scaling the imagined futures, social identities, and social contracts, which legitimises transformative political and economic relations. Hence, actors can challenge the validity of the hegemonic discourses and meanings through scaled counter-narratives, and thus, the power of particular scales (Kurtz, 2003). Therefore,

through a contentious process of rescaling and recontextualising narratives, actors aim to reframe the way that issues and solutions are presented in a political struggle, and with that, their power geometries (Sejersen, 2018).

2.4.2.1. The scalar framing

The politics of scale literature provides useful analytical concepts that allow further examination of the construction of scale frames. Similarly to Kurtz (2003) following Towers' (2000) study that draws on Brenner's (1997) conceptual framework of politics of scale, I use the concepts of "scale of meaning", "scale of analysis", and "scales of regulation". Scales of meaning is used to "refer to the scales at which a problem is experienced and framed in political discourse and might "range from individual landscape features to the imaginable extent of the landscape"" (Towers, 2000: 26, quoted in Kurtz, 2003: 891). In political discourse, this is entailed in the problem formation. Scale of analysis refers to the part of the discourse where identities, phenomena, or processes are identified and analysed through a specific category or criteria. This affects how particular phenomena affects the outcome of analysis – e.g., if the population is used in an aggravated category, then the measures of spatial extent will include some and exclude others (Kurtz, 2003). Finally, scale of regulation refers to an extent of space that certain decision-making bodies and particular legitimate processes have power over (Kurtz, 2003). This can refer to the political, institutional, and legal practices and frameworks that have the power to start development projects and materialise them. Scale of regulation can be challenged for the purpose of changing the power dynamics in decision-making (Kurtz, 2003).

Scale of meaning, scale of analysis and scale of regulation construct the theoretical framework to conceptualise the conflict that is likely to occur due to strategic construction of discourses as scale frames. This is one possible approach to study how discourse and various institutional and legal practices are linked to "fix" certain understandings about various phenomena in political processes. Hajer (1995) argues that by strategically *arranging* discursive elements in strategies of power, specific processes, behaviours, values, and truths get temporarily "fixed" in the interpretation of reality. It is important because the issues that are addressed, researched, and articulated, become real for the society and environmental policy.

This is relevant in the context of mega-project because the discourses in the planning processes are often struggled over. As there is a need for a fixation of a certain concepts to shape planning processes and changes in spaces, the politics of scale theories show that it is important to pay attention to the spatial aspects in such framings. Spatial scales change through the changing of discourses, and knowledge, understandings, and power within them. For instance, Swyngedouw (2004: 133) argues that this is especially eminent in social strategies, as: "[t]he continuous reshuffling and reorganization of spatial scales are integral to social strategies and an arena for struggles for control and empowerment." Therefore, a fixation of a concept like sustainability which entails values, interests, knowledges, etc.,

could shift power dynamics and bring on spatial change over specific space. As the power and hierarchization of scales changes, the “geometries of social power”, i.e. the power that various groups of people have over the spatial changes and relative to each other, is also altered (Swyngedouw, 2004). Therefore, the struggle over meanings and power in a social process can reshape the discourse, legitimise a specific decision-making approach, as well as transform physical spaces (Kurtz, 2000).

3. Background

The thesis is based on a case of a mega-project called Rail Baltica (RB), which is a development of a transnational electrified conventional high-speed railway. RB will connect the capitals of the three Baltic states – Estonia, Latvia, and Lithuania – with Poland (RBE, 2020). In this way, the aim of RB is to provide a new connection to facilitate the mobilities between people, goods, and services between the Baltic states and the rest of Europe through the continental high-speed rail network[1]. An additional plan to extend the railway via tunnel between Tallinn and Helsinki is noted in the Trans-European Transportation Network (TEN-T) program. However, this is not included in the planned project (RBE, 2020).

Rail Baltica is a part of national and transnational spatial strategies, such as TEN-T programme in European Union (INEA, 2020). TEN-T is a regulation that identifies priority transportation networks in the EU that are "of common interest" and closely connected with achieving the spatial objectives of cohesion, sustainability, regional competitiveness, balanced economic growth, and polycentricity, among others (Dallhammer, et al., 2018). The programme highlights "priority" developments, Rail Baltica among them. RB project is said to create enhanced sustainable transportation opportunities between the Baltic and other European countries and subsequently improve the regions' economic perspectives (RBE, 2020).

The project is undertaken by the governments of the three Baltic countries in concert with the European Union. Although the idea of a railway connecting the three Baltic states with the trans-European railway network has been in various development strategies since 1994, the planning processes were started in 2010 (RBE, 2020). The project was heavily promoted by the government, which was dominated by the right-wing party Reformierakond. The planning process is coordinated by the multinational joint venture RB Rail AS, between Estonia, Latvia and Lithuania, and ratified with an agreement by all three Baltic Parliaments (RBE, 2020).

From the 870-kilometre railway one fourth, i.e. 213 kilometres is planned to be situated in Estonia. On the Estonian side, the national government decided to construct a new railway route, which reaches from the capital city of Tallinn to the port town Muuga in the north, the town of Pärnu in the southern coast of the country, and the border of Estonia and Latvia in the south of Estonia (Riigikontroll, 2019). With the estimated cost of 6 billion euros, it is

[1] Scholars have researched the topic of European railway network and argue that network is not a particularly good representation for the railways is Europe. Vickerman (1997: 22) argues that essentially, the European high-speed rail network does not exist, rather, the "network" is "linking together a series of national plans for upgraded or very high-speed rail improvements which emerged 1970s and 1980s."

the largest infrastructure project in the nations' 30-year reindependence period (Riigikontroll, 2019).

The problem

As it is the case with large-megaprojects, RB has also gathered a lot of public attention. The idea of developing Rail Baltica was generally a well-received idea among Estonian citizens. The railway was seen as a sustainable connection between the Baltic States and the rest of the European Union, which supports and strengthens the cultural, economic, and political connection between European countries in a sustainable way. RB was seen as a project that has potential to bring various social and ecological benefits for Estonia, including safe and fast connection in the country and with Latvia and Lithuania. Despite the shared vision of possible improvement in many areas, the conflict emerged in the RB development process.

The publication of AECOM's conducted cost-benefit analysis report, and the governments' decision on the establishment of the Rail Baltica railway route in Estonia attracted the attention of priorly unengaged citizens, experts and professional organisations. Whereas initially RB was a project that gained a lot of public support, the announcement of the planned route reversed the support of the public. Despite the developers' depiction of the project as a safe, fast, and environmentally friendly way to connect and move between places, the set of certain and potential impacts prompted by the construction of the railway in the landscape have become a source of public discontent. The most apparent indicators of the contentious views of the railway and the planning process surface in the discussions in the media, including national daily newspapers, and television programmes. Through these mediums, a formed citizen organisation communicated their critical views on the project, and expressed their counter-arguments, and visions in the name of Estonians, the general public, the citizens.

In the course of a few years the citizen organization has organized events, conducted counter analysis, spoken and written publicly about various issues and their findings. In the counter to the project, they have addressed the public, developers as well as the Estonian government and the EU institutions, and encouraged them to think along and explain the validity and objectivity of the planned project. Considering that the project is still being developed, the effects of it cannot yet be examined. However, the conflict regarding the spatial and environmental issues of the project deserves closer examination as it could provide a better understanding of the ways that the environmental issues in a mega-project planning processes become understood, contested, and struggled over by different stakeholders.

4. Methodology

The research is conducted using qualitative methods to explore the environmental aspects of a potential spatial conflict through the perspectives of various actors in the planning process of Rail Baltica in Estonia. Methodology was developed considering the research questions and the aim, in a way that enables to examine power relations, attitudes, understandings and values of various actors in the planning processes. In particular, the methodology follows a poststructuralist philosophy and discourse analysis as its main research method. Additionally, semi-structured interviews are used.

4.1. Poststructuralism

This study is based on the philosophy of poststructuralism in its theoretical and methodological understandings. Poststructuralist approaches focus on the relationship between power, language, and knowledge in social processes (Fox, 2014). It provides an approach that allows to explore what is central to the aim of the research: it is scrutinizing and explaining the social, natural, and spatial phenomena that are constituted through the power-laden communication of various actors. The ontological and epistemological basis of poststructuralism emphasise the social construction of "reality" and "truth"; thus, it cannot be taken as pre-given or objective, contrary to Marxist approaches and, for instance, its understanding of structures such as "class" (Cresswell, 2013). Poststructuralism outlines how certain meaning about phenomena is created through the interaction between actors that convey particular perceptions, understandings and values of how the world and society are organized (Cresswell, 2013). However, these perceptions differ and contrast between multiple actors or groups in society. As some actors are socially situated to have a power to communicate specific perceptions and understandings – e.g., about a planned, visible, and transformative project – they can legitimise their understanding as "truth" and control what becomes "real" (DeLyser et al., 2010). This does not mean that physical reality does not exist, rather, the knowledge about the pre-discursive world is difficult to approach, as language is used to make sense and give meaning (Flyvbjerg et al., 2002). Therefore, all knowledge is subjective, not pre-given or objective, but dynamic, contextual, fragmentary, and subject to change (Fox, 2014). The way that these perceptions shape the social processes, and eventually transform physical space, can be scrutinized relying on poststructuralism.

4.2. Discourse analysis

Discourse analysis focuses is on discursive articulation, i.e., the ways that connection is established between multiple elements that results in particular identity or meaning (DeLyser et al., 2010). This is to say that discourse can be a useful way to examine the multiple possibilities, interpretations, and the conflicting nature of the concepts that seem natural or "true" to many people. Therefore, discourses also highlight the inner conflicts and

show that there is always ambiguity and struggle in meanings (DeLyser, et al. 2010). The discourse theory states that "social phenomena are never finished or total", as constantly emerging struggles and conflicts about the meaning of social phenomena challenge the temporarily fixed understandings, identities, and outcomes (Jørgensen and Phillips, 2011: 2). Therefore, discourses are also connected to changing of social structures, as it shows how some actors have the discursive power to model and alter the truths of the world, communicate their values, legitimise them, and make them seem objective (DeLyser et al., 2010). Through paying attention to discourse of various actors about the same phenomena, we can see how their attempts to gain power over certain understandings, shape social processes, thus define reality. Therefore, discourse analysis also highlights the construction of policy arenas and problems through language and struggle over meanings (Fox, 2014). As I am interested in exploring the conflict between particular meanings and understandings, discourse analysis provides the appropriate methodology and guidelines to explore the interlinking between meaning, knowledge, and power.

For this study, discourse analysis was performed on the environmental discourse surrounding Rail Baltica planning process. It was done to understand how environmental aspects constitute a conflict in the mega-project development. The study uses discourse analysis following Laclau and Mouffe's methodological guidelines. Their approach sees discourse as "conflict over terminology and language as a sign of the contestation between competing ideologies." (DeLyser, 2010: 278). I find their approach useful for exploring the contestations that are present in the environmental discourse of the mega-project, as they emphasise the struggle inherent the creation of meanings. Therefore, it is possible to examine the ways that conflict situations and emerging movements challenge prevailing environmental discourses in social and political processes. Particularly, how it happens through struggling over meanings and concepts in various actor's discourse, in the complex network of interests and power dynamics.

4.2.1. Data collection

The data for discourse analysis was obtained from primary and secondary sources. Primary sources included interviews with different stakeholders, and secondary sources included various texts, documents, and audio-visual media.

4.2.1.1. Texts

The main part of discourse analysis was focused on secondary sources. These sources, such as newspaper articles and feasibility studies were collected to explore the environmental discourses connected to Rail Baltica. The articles were obtained through the online search engine of two daily news outlets in Estonia – Eesti Postimees and Eesti Päevaleht – using the key word "Rail Baltica". These data sources were chosen due to the relatively extensive and diverse readership in the country. This is important because the information communicated

through these mediums have a potential to convey certain opinion, understandings to larger public, and allow the reader to adapt or develop certain perceptions about the project. The newspapers publish texts that spread the official information about the project and its development process, but also opinions and concerns. Moreover, they publish opinion pieces where various experts, politicians, academics, and citizens from diverse social sectors share their perspectives. Articles that depicted official or alternative visions about the impacts and meanings regarding environment in the context of the Rail Baltica development in Estonia were chosen. These articles published between 2014 and March 2020 were chosen. These articles led me to additional sources like studies, analysis, reports, seminars, information sheets, that entailed relevant information about the Rail Baltica development project. These sources were also examined and used in analysis if they expanded on environmental issues on the subject. Therefore, the analysis is done on various official documents, media texts, expert opinions, official notices, audio-visual material, regarding the planning process and environmental issues of Rail Baltica. The different formats of texts bring qualitative diversity to the analysis and allows to explore the environmental aspects that were emphasised by the actors, and analyse the meanings directed to different audiences and by different actors.

4.2.1.2. Interviews

In addition, complementary semi-structured interviews were conducted. To further explore the various actors' perceptions and rationale on environmental issues, four interviews were conducted with three groups of people. First, one of the leaders of the citizen organisation was interviewed, second, interviews with the people living in close proximity of the planned railway, and third, an interview with the developers of Rail Baltica project were interviewed. The interviews were done with different groups of people to capture various perspectives and experiences. Semi-structured interviews allowed to uncover the themes that I found the most relevant in the environmental discourses by analysing various texts. The interview questions were constructed based on the need for additional information regarding the environmental aspects and respective issues. In the participants' answers I was looking to identify understandings, relations, and perspectives regarding various decisions, actions and visions related to the RB project.

The interviewees were chosen based on relevance in the conflict situation. On the one side, the citizen organization representative is one of the initiators and leaders of the movement, and on the other side, representatives of the Rail Baltica Estonia are experts in the field of the environment and the official planning process. In addition, I constructed two supportive interviews with two families living in the areas of the planned railway route to understand the perceptions of the people directly impacted by the development project. The interviewees were chosen due to their close involvement with the project. However, they were differently positioned regarding their interests, experiences, and opportunities in the development. Specifically, interviewing the citizen organisation representative and the

families living near the planned route, enabled to analyse the perceptions about the environmental aspects in the development that otherwise may be limited in their reach to the institutional processes as they are not actively included in the planning process. Interviewing the representatives of Rail Baltica allowed me to get more specific information about the issues that were unclear in the media texts.

These actors were identified through initial stages of various articles and videos and contacted by email. The in-person interview with the Openly about Rail Baltica representative was conducted in March of 2020. Due to the beginning of the COVID-19 outbreak, following interviews were conducted via a video-call. The interviews with the families living close to the planned route were conducted in April of 2020, and the interview with the Rail Baltica Estonia representatives was conducted in May of 2020. The interviews were recorded with the interviewees' permission, and later transcribed for a discourse analysis.

4.2.2. The coding process

The coding process was done during an in-depth reading of the texts and transcribed interviews. The themes that emanated from the texts regarding environmental aspects of the project, were coded. They were identified by coding texts of similar articulations about an understanding. The categories were adjusted as necessary in the process. The coding process was done using the software NVivo 11, which facilitated the identification of various themes, relationships, and connections. Subsequently, the relationships were analysed and interpreted through the Laclau and Mouffe's discourse methodology, guided by Jørgensen and Phillips (2002). In addition, the results were analysed in relation to the theoretical framework of the politics of scale.

4.2.2.1. Laclau and Mouffe methodological framework

The interpretation of the different actors' perceptions follows Laclau and Mouffe's framework. Therefore, *nodal points, floating signifiers, elements, articulations, discourses* were identified and explored in different actors' discourses. This level of analysis enables deconstruction of the rationalities to see how language is used to construct and challenge certain realities. Moreover, how it shapes and justifies power relations in the Rail Baltica project and its effects in space. Therefore, the aim of the analytical categories is to show the multiple sets of articulations that different actors have produced in order to communicate their perceptions and understandings and create specific meanings of the environmental aspects of the Rail Baltica project.

<u>The terminology of Laclau and Mouffe's approach</u>

The concepts that that were used to organise and analyse the texts followed Jørgensen and Phillips' (2002) methodological guidelines about the Laclau and Mouffe's discourse theory.

Therefore, a brief introduction to the terminology of the discourse, according to Jørgensen and Phillips' (2002), goes as follows:

- *Nodal points* are elements which meanings get temporarily fixed, through their relation to other elements in various articulations and discourses. They are in a central position in texts, as articulations in texts give the nodal point its meaning. As the focus of the thesis concerns environmental aspects, then the nodal points in the texts were various notions regarding environmental benefits of the project such as "environmentally friendly", "environmental sustainability", "environmentally saving".

- *Elements* are *signs* that have an unfixed meaning, but they have multiple potential meanings dependent on the ways they are connected in relation to each other and the nodal point. In coding process, the elements were identified in various articulations and their relationship in relation to each other was analysed to understand the ways that certain meanings – nodal points – were fixed in this articulation.

- *Floating signifiers* are central nodes or nodal points which definition is a centre of struggle in various articulations. Therefore, I interpreted certain signs as *floating signifiers* as I found them have a significant role in forming the specific discursive structure or narrative. Having them as analytical categories, I could examine the different meanings that are created through the use of the specific expressions.

- *Articulations* are all social practices – verbal or written expressions – which have the power to change and shape the structures of meaning. Articulations either reproduce particular meanings, understandings, and discourse, and therefore, the organisation of society, or challenge them. This is done through establishing the relations between the elements in a way that changes the meaning of the element. Thus, they actively *reduce the possibilities of meaning*, as it positions the sign in relation to one another in only one way.

- Similarly, discourses are like "persuasive narratives" that consist of a story, where the elements act as "characters", which create a sense that an element has a fixed meaning. If an element has a fixed meaning, it turns into a moment, which is the aim of the discourse. This is done by reducing the possibility of multiple meanings of the element. Moreover, it removes the ambiguity of the meaning of the nodal point, this means that a certain notion becomes self-evident and accepted – the *closure* happens.

The notions were used in the coding-process and categorising of the themes of environmental aspects. Particularly, in the narratives and articulations various signs or

elements were identified, along with the elements that had a central position – nodal points. In this way, a particular construction of meaning was examined in specific articulation, i.e., how the signs are related to one another to create the meaning. The relation of various elements to one another evoke a meaning of the nodal point, as it forms a chain of equivalence. The nodal point is made equivalent to all the concepts in the chain. This enabled a closer look into what discourses different understandings drew on. This was done for all articulations, which allowed to analyse how the articulations and narratives of different actors conducted the meaning for the same nodal point or floating signifier – in which ways the meanings differs and what discourses are connected. Thus, it provides a closer look into the conflict situation and a way to explore the central role of discourse – the ways it produces truth and reality.

4.2.2.2. The politics of scale framework

The politics of scale provided a theoretical framework (Chapter 2.4.2.1.) to see whether and how scales were deployed to create persuasive narratives to legitimise specific meanings, approaches, actions, and truths. It can help us connect to the theory and generalise and explore the role of spatial thinking in the constitution of meanings. Thus, it gives a scalar approach to the issue, which is relevant as one of the objectives of the thesis is to gain a better understanding how the conflict regarding environmental discourse is spatial.

4.3. The research process

The research started by exploring various aspects of the development project of Rail Baltica. For acquiring information about the project, I started to explore media articles about the development project, and scholarly works on the subject, which led to visiting the official websites of the Rail Baltica project and the citizen movement organisation. I associated the information obtained from these resources with a set of theories in human geography, which I then started to review. Moreover, I looked for empirical studies to find which issues regarding the development of high-speed railway, and to what extent, is known and studied. In this way, I gained an overarching understanding of the theoretical, empirical, and methodological approaches used in various studies. Subsequently, I identified possible issues which could be examined at closer in my thesis, which later were narrowed and specified. This was followed by identifying suitable methodological approaches. In a result, I developed a research aim and research question, which could propel existing knowledge on spatial conflicts in human geography, as well as could be answered through the methodological choices.

The initial exploration of media articles, conference videos and websites gave me a certain understanding about the actors engaged in the project in official, supportive, and unofficial roles. The actors who were engaged in the planning process due to concerns about natural environment and regional development but are not involved in the work of developers, were included in the study if they had expressed their opinions, values and interests

associated with the development of the project in the public media. Furthermore, I looked for potential people whom I could interview to gather different perceptions about the environmental aspects of this project. The interviews were conducted at the same time as the textual material were analysed. Data was obtained and then analysed and coded, including the identification of relations and categories. Through categories that emanated from the results, the data were presented and structured for further analysis. This was followed by writing the discussion and conclusion.

4.4. Personal situated knowledge

As a researcher who conducts a qualitative academic study, it is important to outline the personal situated knowledge. This is because I act as an analyst as I use my own voice to collect, interpret, and analyse situations, obtain data, and create knowledge. Therefore, my understandings, education, experience, and social identities, among others, affect the interpretation processes.

In this study my personal knowledge about Estonian context, including the language, history, geography, politics, and society, has developed throughout my experiences and education as an Estonian citizen in this country. Being familiar with the historical context, challenges, and the overall mentality regarding changes in the environment and society, has shaped my ability to identify different actors in the planning process, and to understand and interpret various perceptions and emergent themes. Moreover, the familiarity with the political landscape and the governing practices in Estonia were needed to better navigate the planning process, as well as areas of decision-making and citizen movements. In addition, the knowledge of the Estonian language and culture was important for the ability to obtain the data and information as the texts and the interviews that were used in analysis were to mainly in Estonian.

Importantly, the studies in physical and human geography, as well as human ecology, in Estonia and in Sweden, have shaped the perspectives I have regarding the environmental change, and spatial changes at large. I think that the powerful actors in society, including governments in all levels, international organisations and financial institutions have the main responsibility to examine the environmentally sustainable ways of doing things, and it should be done critically, prioritising the common good over the economic and political interests of the few. Personally, I do subscribe to the poststructuralist views, as I believe in the power of agency and the idea of social construction. However, the studies in human geography have enlightened me to see and consider various issues also through the Marxist lens, which had been previously undiscovered approach for me.

4.5. Ethical considerations and limitations

The study has multiple limitations. The sample of the texts included in the study, regarding the number and the time-period of the texts chosen, determines the information that is analysed, and therefore shapes the result of the analysis considerably. Similarly, the choice of the people that were interviewed sets particular limits about what can be asked, what is known and what can be communicated. Therefore, the study represents a choice of experiences – which were considered representative considering the purpose of the study – but does not exhaust the existing perceptions. Therefore, arguing that "the developers" or "the citizens" argue comes with a certain degree of generalisation. However, considerable differences will be outlined.

In conducting this study, I followed several ethical considerations. The interviewees that participated in the study were asked for their permission to interview for a master's thesis. The theme of the study, purpose, along with other necessary information was given to them prior to conducting the interview. Moreover, permission to record the interviews was asked, as well, before the start of the interview. The interviewees' names are not mentioned in the study, but they are referred by the common group – as developers, the citizens, etc. Moreover, the analysis did not include information that was stated to be confidential in the interview.

5. Results and analysis

5.1. Overview

Rail Baltica gained a lot of attraction on the national media and various other publications. On the one side, there are people involved with the planning process, such as the government, officials, developers, involved experts on national and European Union level, as well as politicians, to whom I will collectively refer as “the developers”. On the other side, there are number of active citizens such as experts of various fields, academics, cultural figures, active community members, as well as people living in proximity to the planned railway, and organized citizen groups. The grassroot-level movement entailed experts and professionals in different engineering, transportation, or logistics areas. I will refer to them as “the citizens”.

Throughout 2016-2020 the citizens wrote five open letters to the government of Estonia that were published in one of the most popular daily newspapers Postimees. In the article, the citizens concluded and communicated their main points against the Rail Baltica project as it is planned and demanded the route being changed by the government. Among these reasons, environmental issues were brought up frequently. The letter included signatures of hundreds of public figures like academics, experts, and cultural figures to support a more extensive in-depth analysis of multiple railway route alternatives, and ultimately, to change of the position of the railway corridor. Moreover, a counter-analysis of the cost-benefit analysis (CBA) was done to express their criticism about the understandings, interpretations, and visions, in the assessment, and to propose favoured changes in the project. Therefore, the citizens started creating their own discursive measures, i.e., counter-narratives, through opposing the meanings present in the prevailing discourse, and ultimately, change the physical realities. Through various practices the citizens struggled against the planning process in its present.

The central issue of the conflict regarding the environmental aspects is about the route position in the landscape and its consequent environmental impacts. The overarching criticism from the citizen groups is that the planned route and its impacts on the landscape and society at large go against what the developers claim RB to be – sustainable, green, socially beneficial, and connecting. Specifically, the citizens demonstrated that their understanding of environmentally friendly project, as what RB had been marketed as, to be very different what RB is.

5.2. The main meaning-making and conflicting discourses

A conflict situation emerged between the citizen organization and the developers of Rail Baltica, regarding the route position in the landscape and its consequent environmental impacts. There is a two-sided opposition between the idea of having a completely new, close to high-speed railway on one side, and reconstructing the existing railway

infrastructure for the development of the new railway on the other side. Thus, two umbrella discourse strategies were identified: “RB as a sustainable new railway” as used by the developers, and “RB as sustainable when reconstructing existing routes” as used by the citizens.

First, the discourse strategy “RB as a sustainable new railway**”** focused on creating a new, direct, and fast electric railway, motivated by environmental and economic benefits. The discourse included nodal points of electric railway, environmental sustainability, which resulted in connection between the elements that formed chains of equivalences between objects: climate policy, missing link, competitiveness, electric railway, energy sector; and subject positions: EU, nation states, common interest, experts; as well as processes: increasing demand of transportation, modal shift, lowering CO_2 emissions.

Secondly, the citizen movement’s discourse focused heavily on the issues around the route and on the discourse of “sustainability” or “environmental friendliness” in relation to the railway’s situatedness on existing landscapes. To counter the developers’ discourse, the citizens created the discourse of “RB as sustainable when reconstructed”. This constructed strategic equivalences between the objects: nation’s needs, existing configurations/infrastructure, spatial distribution; subject positions: regions, nation, local experts; and processes: land-use change, rational resource-use, transparent processes, participation.

There are multiple themes or *floating signifiers* which meaning is struggled over and which constitute a conflict in the larger meaning of environmental sustainability in this project. For instance, the issue of sustainability and environmental savings as *nodal points* were questioned, challenged, and attempted to be either fixed or reframed in the RB planning process. Thus, the central notion also acts as a *floating signifier*. The elements that are connected in the articulations and discourses, which give the “environmental sustainability” its specific meaning in the RB planning process, can be categorised into multiple themes.

5.2.1. Technological improvements in transportation

5.2.1.1. Electric railway is the most environmentally friendly mode of transportation

The developers created the meaning of *RB as environmentally friendly* by connecting it to the nodal point of *technological improvements* in the transportation and mobilities of people and goods. Thus, the elements like fossil fuel, electric energy, pollution, railway transportation, other countries’ experience, are connected in the articulation that compares various modes of transportation regarding the type of fuel they use. It fixes an understanding that *electric railway* is always more environmentally saving than transportation that uses fossil fuels. Hence, there is a principal understanding with a fixed meaning that RB is environmentally friendly as it is fuelled by electric energy. Thus, sustainability is highlighted through opposing position between the elements of fossil fuel

and renewable energy, and between rail transportation and road, air, and marine transportation. For instance, road transportation is connected to elements such as pollutive, and marine transportation with the element slow, which is considered unattractive for passengers. Another set of articulations highlights environmental sustainability through being informed by studies and common practice, as well as others experience, which is positive and can be adapted to the Estonian context. Moreover, it is connected to and supported by the socioeconomic benefits discourse. Through such meaning RB's connection to sustainability becomes self-evident, as RB means transportation that is powered by electricity, reduces air pollution compared and brings socioeconomic benefits to both Estonia and the EU.

Therefore, the developers argue that RB benefits the society through such the technological improvements and in an environmentally saving way. Some of their articulations include:

- "Considering the experience of many other countries, then electric railway is the most nature-friendly, safe, and fast mode of transportation." (Grünberg, 2020);
- "RB is investment into green transportation, but also a new way of thinking and an energy saving way to travel and transporting goods into Europe" (Rail Baltic Estonia, 2020);
- Rail Baltica is said to "be fully electrified so that any emissions will be avoided" (Rail Baltic Estonia, 2020).

5.2.1.2. Technological improvements need to be contextualised

The citizen movement does not argue with the overall benefits of the electric railway and the understanding that theoretically, electric railways are less polluting than transportation that uses fossil fuels. Rather, they question the *wider context* of RB through questioning the positionality of its route. They argue that the framing of environmental sustainability that is limited to technological improvements and technological change discourse is too narrow and contextually detached to look at the potential environmental issues. Instead, the environmental sustainability needs to be approached from questioning the suitable route alternatives regarding the impacts to the landscape on various scales.

The citizens criticise that the developers' reasoning of the railway route lacks the consideration with the local context. They do not agree with the developers' argument that RB does not cause CO_2 emissions. They point out to that this argument does not consider the environmental costs of constructing the railway, nor the indirect emissions coming from land-use change and the production of electricity. They argue that in Estonian context the electric railway does not equate with an environmentally friendly means of transportation as the main source of electricity is oil shale, which is a fossil fuel and also the biggest source of CO_2 emissions and other greenhouse gases in Estonia.

> Over 70 percent of the carbon dioxide emissions in Estonia occur due to the oil shale energy. So, this means that all else makes up under 30 percent. This includes heating and transportation. A large share of liquid fuel is used in agriculture. A fraction of the fraction goes to the freight transportation. A fraction from that fraction could allegedly be saved by building Rail Baltica. As if it was not enough that this argument itself is dubious or that the energy that is meant for building it is not accounted, it is completely criminal to sacrifice real [ecological] communities. (Kunnus, 2019)

The citizens highlight that applying other countries' experience with the sustainability of a high-speed railway to the Estonian space without a proper contextualisation is another detached understanding. They emphasise the different spatial context in which the railway is positioned for each country, arguing that the differences in the base data do not allow generalizing other countries' experiences on RB. For instance, the forest cover in Estonia is 51% while it is only 6% in the Netherlands. As there is more natural land to be impacted by the barrier effect, the impacts would be different in Estonia than elsewhere. The citizens outline extensive damages to the functioning of the landscapes as a whole like fragmentation of landscapes, impacts to biodiversity and animal and human mobility patterns, among others. Therefore, the citizens argue that with such project only environmental harm is certain and the benefits are speculative.

5.2.2. Modal shift

5.2.2.1. Rail Baltica as an improved quality service will lead to a modal shift

Modal shift emerges as one of the nodal points in the developers' meaning of environmental sustainability. It is outlined as a strategic solution to the issue of high levels of CO_2 emissions in the transportation sector. It is seen to happen by the electric railway attracting a volume of cargo trucks and passenger cars to shift from road to rail transportation due to the improved quality of service. Thus, significant contribution to the reduction of CO_2 and other greenhouse gas emissions are expected in transportation sector due to the change from using fossil fuel based transportation to using electric energy. Moreover, there is an assumption that once the modal shift occurs, the environmental harms caused during the construction period can be compensated by the active use of RB.

The developers' discourse expresses that modal shift can be achieved by meeting specific conditions that contribute to constructing a railway that would be highly used, and thus, attractive to the potential users. The economic conditions that are required for the compensation of the railway through its use include RB being a close to high-speed railway, i.e. relatively direct as possible. The developers' articulations inform that if Estonia as periphery wants to succeed on a world market, there is a need for a fast connection with the rest of Europe. Thus, the advantage that travel times and service bring compared to road and marine transportation, is also the quality of service that will lead to modal shift.

The environmental discourse shows trade-off situations in the meaning of environmental friendliness, between the understanding of *attractive railway* and *environmentally sustainable project* in the following quote, which illustrates the developers' discourse:

> There is no point for us to make an ultra-environmentally friendly solution that has a small use value. This means that if we look at what played an important role in the decision of the route, then the first thing has to be that we have a route that has a high interest of use. What does that mean? If we make a route, which construction and operating costs are very high, which results in high ticket prices, then the interest to use it is low, and we have created an environmental disturbance that does not compensate the local environmental loss, or so to say the local losses of its values. (Interview with developers, 2020)

The discourse analysis shows recurring connections between the nodal point of *environmentally sustainable* with the elements of *attractiveness of the railway* and *compensation of environmental impacts*. In this way, high interest of use results in low ticket prices, which compensates environmental impacts. However, "ultra-environmentally friendly" project is seen to result in low interest of use. This formulates a trade-off situation with somewhat conflicting logic, as by definition, an "ultra-environmentally friendly" project would result in considerably less extensive environmental impacts, and therefore, would demand less compensation for the impacts through the high interest of use. In this case, interest of use would become more redundant regarding the environmental impacts of the railway. Moreover, the assumption that an ultra-environmentally-friendly project would not be economically reasonable is conflicting some other articulations developers have used in the sustainability meaning – e.g., with the idea that environmental savings bring the most socio-economic benefits as outlined in the CBA.

The nodal point of modal shift supports the meaning of *environmental sustainability*, as it frequently connects to the same relation between the elements outlined in the last paragraph – the conflict between electric and fossil fuels. Moreover, it is strongly connected to the narrative that the railway is sustainable if it is built in a way that is attractive to the users.

5.2.2.2. Modal shift can only occur through connecting to existing spatial structures and patterns

While the citizens agree with the idea that RB leading to a modal shift would mean environmental benefits, there is a conflict between the way developers and the citizens approach achieving it. The citizens criticise the developers' strategy to base the notion of sustainability on principal understandings of building an electric high-speed railway. They argue that modal shift cannot occur through the planned route as the volume of travellers and mobility patterns in Estonia have not been accounted for as evident from the CBA.

Thus, their discourse reflects the understanding that modal shift can occur only through RB's alignment with the existing spatialities – the existing network, mobility patterns, and

the preservation of the current land-use – as this would correspond to the spatial needs of Estonia. Particularly, as RB route is designed to go through the most sparsely populated areas in Estonia, runs parallel to the Via Baltica highway, it will be inaccessible as a mode of transportation for regular use to most of the population, and therefore, will not improve transportation on a national scale. Thus, without questioning whether the transportation reaches to the spaces that need to be connected in a sub-national level, the possibility for a modal shift and the notion of sustainability become highly questionable as it is in many ways detached from the local landscapes. As a result, they see that RB as planned will not improve transportation nor lead to modal shift due to the lack of consideration and connectedness to the local spaces. Thus, the analysis has to consider the spatiality of Estonia, including detecting traffic-patterns and existing and potential high-demand routes, to be able to achieve the modal shift.

5.2.3. Potential impacts to the environment and ecosystem

5.2.3.1. Research on impacts, mitigation, and nature conservation measures

The developers' discourse connects the nodal point of technological improvements, nature conservation and mitigation measures. Connecting with the last chapter, the developers consider modal shift and the long lifespan of the railway as a mitigation measure. Thus, some of the measures are also connected to temporal and economic rationale, as RB is considered a strategic investment that needs to focus on a long-term perspective. Particularly, we should not

> limit ourselves looking at the short-term impacts […] the positive impacts of the long-term utilisation of the railway will mitigate additional hazardous environmental impacts of the construction period. Therefore, RB corresponds to the actual present needs of Estonia as well as considers the future (Aas, 2020).

In addition, the developers emphasise that any development or construction project will lead to impacts on the environment. As they see environmental harm being done in the construction period, it is planned to be mitigated by specific measures taken in consideration to the wildlife. Developers argue that an extensive set of research has been done in collaboration with the University of Tartu to study the environmental impacts of the new railway: the habitats and mobility of the protected species; presence of natural values, and potential conflict areas. In addition, various environmental impact assessments (EIA) have been done regarding multiple areas, which specify the mitigation measures needed. They find that using mitigation measures, like avoiding construction during ecologically valuable breeding habitats, using geotextile to prevent contamination and disturbance of the ecosystem, and to store construction materials is sufficient to manage the environmental harms.

The meaning of environmental sustainability is also closely connected to *nature conservation*. The developers' rationale for deciding to develop a new railway route from Tallinn to Pärnu to Estonian southern border (Figure 1) follows the articulation that it is the only possible environmentally friendly scenario regarding the changes in landscape. The sustainable route is constructed through the lens of the technological requirements, avoiding the Natura 2000 areas and human living environment. This means that the degree of impact that the railway has to the nature is equated with the impact to the Natura 2000 areas; thus, the "nature" or "living environment" is equated to Natura 2000 areas. Moreover, the meaning of sustainability is created by opposing it to reconstructing the "old" railway, as this would require changing the curvature of the railway and result in extensive reconstruction in urban areas, including demolition of buildings, and changes in utility networks along the corridor. Therefore, environmentally friendly means not to be affecting "valuable landscapes" – Natura 2000 areas and urban living environment. The rest of the areas are approached by mitigation measures.

Figure 1. The planned Rail Baltica railway route. Source: Lambot, et al. (2020). Rail BaltiCUT? Avalik Eesti. www.avalikeesti.ee

5.2.3.2. Need for more scale-sensitive comprehensive research

The citizens argue that such analysis on the implications and changes on landscapes that different routes would bring, is missing. This means that there is a lack of an overview of *where* specific changes occur, and where they could be the most beneficial. Moreover, it is argued that the analysis uses insufficient data, and does not consider environmental issues in a comprehensive manner. In their counter-analysis of the EY's CBA, the citizens argue:

> EY ignores the environmental costs arising from the implementation and operation of the project, such as environmental impact costs arising during construction and from CO2 emissions, reduced CO2 absorption, unsealing of nature, restoration costs of landscape, barrier effects to society, etc. (Humal et al. 2018: 11)

Thus, the citizens counter the developers' assessments, arguing that not EIA nor any other analysis show the environmental benefits exceeding the environmental harms in this project.

In this way, the citizens insist that an environmentally friendly project requires assessing various route scenarios, including conducting a comprehensive examination on the impacts that both building a new railway and reconstructing one the existing ones would bring to landscapes and ecosystems on various scales. By connecting it with elements of resource use, extraction sites, reusing materials, recycling, the further examination is said to lead the project closer to real environmental savings. The citizens emphasise that the construction and maintenance of the railway will likely bring more harm to the ecological systems and unchanged natural areas through the land-use change and subsequent CO_2 emissions than the modal shift could compensate. Thus, they argue that land-use change threatens to increase greenhouse gas emissions, which is why avoiding extensive transformations in green and previously unchanged areas like forests and bogs regardless of their nature conservation status is necessary. In this way, prioritisation and preservation of the land-use is in the focus of the citizens' environmental sustainability discourse.

The spatial position of the railway is closely connected to the environmental impacts it causes. The new railway is seen to be damaging to the environment and threatening to holistic functioning of the Estonian space as it creates a barrier effect to extensive landscapes:

> The established railway together with the surrounding management areas and border fences split Estonia into two by creating an unforeseen barricade that runs through north coast to the south border (Lambot et al. 2020: 8).

However, the citizens argue that reconstruction of one of the existing railways and lowering the speed of railway to 160 km/h would minimize landscape transformations and barrier effect as it would prevent complete fencing of the railroad. Moreover, in this way the travel times between Tallinn and Pärnu would change merely 15 minutes, yet the social and ecological sacrifices would be smaller.

> We wish that Estonia would stay and become a land, which living environment would constitute a natural whole. We wish that Estonia has secured and excellent connections with Europe, which would not put Estonian people or nature in danger, would not endanger the future of Estonia, nor would neglect the intra-national railways, which need for upgrading is no less important than improving the railway connection with the rest of Europe. (Open letter, 2016).

5.2.4. The Rail Baltica route alternatives

5.2.4.1. Rail Baltica as a sustainable addition to Estonian infrastructure network

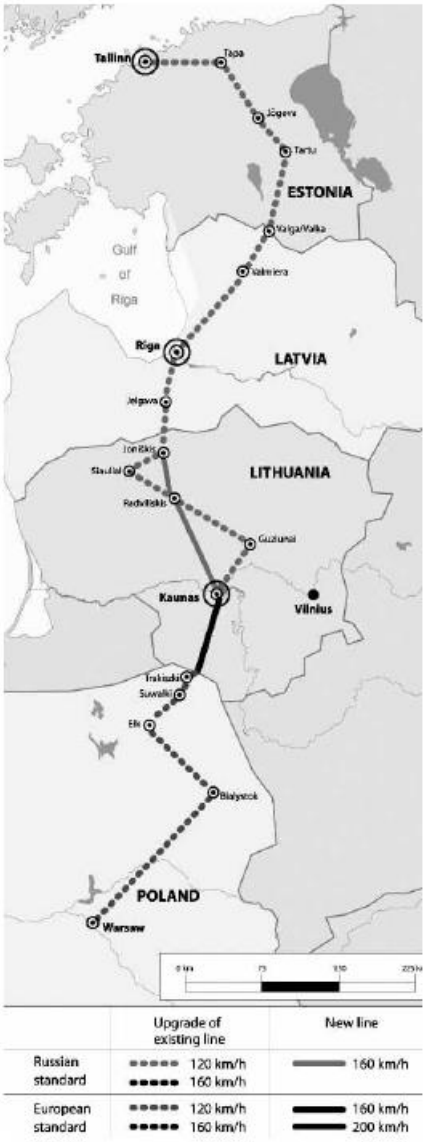
RB developers' articulations express that existing railways cannot be altered and reused for establishing the RB railway. According to them, the usage of existing routes does not allow for what they identify as a sustainable railway. This comes down to two aspects. First, the sustainable railway is a relatively straight high-speed railway, yet the technical parameters of the existing railway are not suitable for the required speed due to the curvatures in some areas. This would result in transformation in existing structures like demolishing buildings and building more overpasses considering existing roads. This level of transformation to human living environment is seen as against sustainability principles. Moreover, the developers argue that certain trade-offs between natural and urban areas need to be made:

> If we are looking at a particular place, or a scale of habitat, one can say that it is environmental loss. However, this is a weighed decision – by creating a sustainability or saving of environment on a larger scale, one needs to accept that at particular places on a local scale there may be negative impacts. (Interview with developers, 2020)

Secondly, the developers argue that changing the Pärnu route for the development of RB would exhaust and leave out a part of the local Viljandi-bound connecting railway line, due differences in technology. They see the decision not to reconstruct as sustainable: "We actually want to save the intra-Estonia transportation, and this is also one of the "environmental savings" base reasons, that we would not exhaust this, what has so far been done and been in use" (Interview with developers, 2020). Moreover, they consider reconstruction of an existing railway more resource demanding, transformative, and damaging to the natural and living environment than building a new railway. Therefore, the spaces in the planning process are seen through the requirements for the technology as there are specific technological attributes that are regarded suitable for a "environmentally sustainable" or "environmentally saving" railway. Thus, their approach to environmental sustainability and sensitivity is guided by the principle by which creating new is prioritized over reusing the old.

5.2.4.2. Through reconstruction Rail Baltica will prevent transformation in landscapes

Neglecting the options to reconstruct the Tallinn-Tartu-Valga-Riga (Figure 2) or the existing Tallinn-Viljandi-Pärnu railways in the decision-making processes is questioned. As the construction of the new railway leads to transformation in natural forest and wetland areas, the citizens consider it environmentally more harmful than reconstructing the existing railroads, which would result in relatively less extensive transformations. Moreover, constructing a new railway would result in adding another set of environmental impacts to the landscape while the previous ones remain. The principle to "leave the old as it is and create a new one instead" is a yesterday's mindset which does not align with sustainability



principles (Tiit, 2014). Thus, the citizens argue that reconstruction of an existing route would lead to less environmental harm and additional emissions as the transformation of landscape has already transformed – the land has changed from "natural" to a "man-made".

Therefore, the nodal point *environmental sustainability* constitutes a chain of equivalence with *the least transformative route alternative* and *aligned with local spaces*. It is connected to the nodal point of distribution of environmental changes, holistic approach to landscape, local scale impacts, and scrutinizing route alternatives. Their articulation shows that prioritisation of local scale impacts and examination of the distribution of such impacts is going to lead to the knowledge on the basis of which *environmentally sustainable* railway can be constructed. Thus, they also connect the nodal point with *thorough and comprehensive analysis*. In this way, they consider the bottom-up approach to environmental friendliness as the most rational. They agree with the developers' understanding that environmental change is inevitable; however, their approach prioritises the least transformative scenario as the most environmentally friendly, contrasting to the mitigation approach that the developers use.

Figure 2. The existing Tallinn-Tartu-Valga railway, continuing to the railway in Latvia, Lithuania, and Poland. Source: Lambot, et al. (2020). Rail BaltiCUT? Avalik Eesti. www.avalikeesti.ee

5.3. Scalar framing in the meaning of environmental sustainability

5.3.1. The scale of meaning for developers

The developers' discourse shows the environmentally friendly project and sustainability objectives can be reached by bringing a technological change to transportation sector through RB. This understanding is connected to and framed through the economic rationale on a large European scale. The large-scale logic is based on the economic discourses such as "*financial advantage*", "*cost advantage*" and "*economically attractive*", which shape how the "most rational" route option is seen. Thus, by framing the environmental issue through economic rationale, it becomes a framework when looking for the "correct" answers to the

environmental sustainability questions. In this way, the answer to the question of "What is an environmentally sustainable RB?" focuses on the characteristics of the railway, such as new, fast, direct route, as the economic and environmental goals are seen to be achieved only through these requirements for the railway. In this way, the meaning of environmental sustainability has become interchangeable with the economic development in the RB project. It shows that the understanding of environmental sustainability that does not entail economic development is not considered to be justified in the planning process. The framing of the environmental issues through economic interests on the large scale prioritises the power and actions in the development project on the EU scale.

5.3.2. Scale of meaning for citizens

The citizens created a significant scale of meaning on a local scale by strategically merging the power and expertise of the local actors and publicising their views through the open letters to the government of Estonia and to the public. They addressed questions about issues regarding RB on the Estonian level and demanded change in the planning process. The citizens criticise that the sustainability is legitimised in the planned project through a large-scale approach with the lack of context-specificity in their understanding. For them, the intertwined technological improvements discourse and economic interests in the sustainability concept focus on *large-scale solutions*, which generate easy "fixes" to solving a complicated issue. This is seen to lead to misrepresentation of the real impacts on the local scale. Moreover, they see this framing to serve the European economic interests, on the expense of the environmental conditions in Estonia.

The citizens reframe the scale of meaning to a more local scale through their counter-narratives. The railway is considered environmentally sustainable if it is aligned with and complementing to the local Estonian landscapes. Thus, only through the consideration with the Estonian regional political, ecologic, and economic interests, can the railway lead to the benefits that it is set out to bring. This means that the emphasis is on expanding on the particularities of the spatial position of the railway, and the subsequent distribution of the impacts on the sub-national scale. For instance, regarding the modal shift, the citizens argue that the railway's lack of connection to the existing network either in terms of location or in terms of technology means that the socio-economic impact regarding improvement of passenger transport will be extremely limited in Estonia. Therefore, the technological improvement approach to sustainability needs to depart from the connections with existing needs, spaces, and networks to enhance environmental savings and avoid ecologic losses and improve the accessibility to the railway within the country, rather than prioritise economic attractiveness like speed and travel. Thus, the citizens attempt to unfix the prioritisation of the principal understanding of environmental sustainability that connect technological improvements and economic benefits. It is followed by rescaling and reframing sustainability to a local context and land-use saving concept. In this way, the scale of meaning of environmental sustainability is connected to the elements that refer to the

local scale and the lived space, such as saving of the existing landscapes, maintaining the land use, improvement of the local conditions, reconstruction of the railroad, interests of Estonian spaces.

5.3.3. Scale of analysis for developers

The scale of meaning forms the developers' approach to various assessments about the railway route alternatives to be on the national and the European Union (EU) scale. The developers see all necessary analysis for EU-funded project are completed and meet the quality requirements. The developers' approach to analysing spatial distribution of the impacts of the railway categorises the land-use through specific ecologic values. In the search for the most sustainable route alternative this manifests as limiting the possible route options, because the criterion to not affect these areas creates a search for the route by avoiding the "obstacles" on the landscape. This categorisation and prioritisation of landscape by their value as "protected" – deriving from the EU categorisation of protected areas – underlies the meaning of RB as environmentally friendly. However, the mitigation measures and research about specific national resources in Estonia departs form a more local level. Moreover, this supports the framing of the new, direct, and fast railway as the only acceptable one and justifies RB as environmentally friendly.

5.3.4. The scale of analysis for citizens

In their counter-analysis of the CBA, the citizens created a scale of analysis on a local scale by criticising the *extent* that the local spaces are accounted with in the rationale of sustainability, which underlies the decision to build a new route instead of reconstructing an old one. Therefore, the citizens found the developers' analysis insufficient regarding the analysis of route alternatives, as well as for various environmental issues on the local scale. They find that the CBA assessments include strategic misrepresentations and are flawed, misrepresented and under-represented on Estonian level. Moreover, the approach to research the impacts of the railway only considering the "privileged" spaces like Natura 2000 areas was criticised as the importance of studying impacts to the "other" spaces was emphasised. They argue that without approaching the environmental issues and possibilities of the project in a more scale-sensitive and comprehensive way, the analysis remains too general and RB as environmentally saving will be based on assumptions. This framing puts emphasis on the need to increase engaging local knowledges in planning processes to ensure an adequate representation of the spaces that the railway situates in, and links it with the possibility, as well as a responsibility, to make a better, i.e., more utilised, and sustainable project.

5.3.5. The scale of regulation for developers

The developers' framing of the environmental problems that draws on the EU-level regulations and programmes constructs a supportive and legitimising meaning-making system. Seeing RB as a "priority measure" to tackle climate changes and depicting it as a large-scale shift to using less polluting transportation and technologies in Europe, connects it with the technological improvements and larger climate crisis discourses on the EU-level. These articulations position Estonia "*belonging*" to the EU, and highlight its responsibility to follow the EU strategies, and contribute to the fight against the climate crises by electrifying the railway. Thus, the meaning is created through continuous references to the project's alignment with the EU legislation and programmes, such as TEN-T, European Cohesion strategies, among others. Such meaning frames the possible solutions in the realm of the EU policies and shows the planned project in connection to other fixed understandings on the EU scale. Hence, the framing reifies that RB is already a *fixed notion* as it is planned in a larger network of meanings, knowledge, and actions. Moreover, these practices legitimise the EU and national scale approach as "objective" and "rational" way of thinking about sustainability and environmental issues; meaning that it also justifies the new route as the only "rational" alternative. This suggests that the meaning is not open for discussion as all required processes are appropriately completed. In this way, the EU-scaled practices prescribe the measures also on the national and local scales to achieve sustainability, creating conditions for specific projects. Hence, the planning process and decision-making are legitimised on larger scale by the actions on the nation state and the EU scale.

> European Union, including Estonia, has taken an ambitious goal reach climate [carbon] neutrality by 2050. Primarily, there is a need to review the energy sector, but CO2 emissions are high also in transportation. One direction that European Union is going, is directing people and goods from roads to railways. Railway is, compared to a car, significantly more environmentally friendly as well as safe. I claim that it will be very difficult for Estonia to reduce the greenhouse gas emissions if we do not invest in electrifying railways (including electrifying the existing railways) vigorously. On the other hand, as a periphery, good high-quality international rail-connection is particularly important to our economy. Our transportation sector will not be competitive merely relying on trucks. (Aas, 2020)

5.3.6. The scale of regulation for citizens

The citizens question the understanding and the approach through which developers depict RB leading to environmental and social benefits. Through challenging the scale of meaning and the scale of analysis, they question the overall legitimacy of the project. They confront the legitimacy of the project by insisting that the political decision to establish a new direct route was based on untransparent, biased, and interest-ridden political decision. By emphasising the importance of including local actors and drawing on global agreements

such as Arhus Convention and the Constitution of Estonia, they highlight the need for transparency regarding environmental decisions in such planning processes. Thus, the scale of regulation is challenged through framing the developers' approach as biased and misaligned with institutional regulations, and as an undemocratic process. Therefore, the citizens pressure the government and the parliament of Estonia to undertake more comprehensive unbiased research that relies on the best expertise, and practices and departs from the specific Estonian context when assessing the impacts and sustainability of various route alternatives. Thus, questioning of the meaning of environmental sustainability was discursively framed to benefit, include, and give more power to the local actors in the decision-making, analysis, knowledge creation and meaning-making, as well as in representation of those spaces. On the other hand, by discrediting the validity of the developers' scale of regulation and analysis, they unfix the meaning of sustainability in this project, as it does not reach what they consider "sustainable", spatially.

> Conveying responsibility to the European Commission is not appropriate for a mature country. Estonian development and future are under question. Our bogs and forests cannot perish with the trust towards our own country. Truth and trust that we inevitably need for the defence of the country cannot drown into the bog under the Rail Baltica tram. (Open letter, 2018)

6. Discussion

Mega-projects as highly visible endeavours with far-reaching impacts have multiple functions. In the times of the climate crisis, no such project could be undertaken without mentioning environmental impacts, including the pursuit to develop it in an environmentally sustainable way. However, the sustainability literature is clear about the ambiguity of the concept and its use in various projects (Kuhlman & Farrington, 2010). Moreover, the mega-project literature has for decades emphasised the dangers of overoptimistic assessments regarding its benefits (Flyvbjerg et al., 2003). Therefore, this study looks at the ways that environmental discourse conflicts between stakeholders in a mega-project development. Specifically, how the concept of environmental sustainability becomes contested. The study examines the issue through the discourse theory and the politics of scale approach to understand how the environmental issues are problematised and respective solutions framed in relation to different spatial scales; thus, how the use of environmental sustainability is connected to the particular scales included in the meaning and how it constructs a particular mega-project as environmentally sustainable.

The use of the environmental sustainability concept becomes highlighted and questioned in mega-projects as there are myriad ways that the development can impact landscapes, society, ecosystems, the climate, and the environment at large. The results of the discourse analysis show that the stakeholders' understandings of environmental issues of the Rail Baltica mega-project are multiple, complex, and embedded in various other issues of the project. The study shows that the environmental impacts become a contentious realm where various stakeholders' values, interests, spatial understandings, and power relations intertwine and conflict. Considering the extensive reach and various purposes of a mega-project, this becomes particularly complicated.

To answer the research question, the study shows that the environmental issues of Rail Baltica mega-project constitute an extensive conflict between the developers and the emerged citizen organisation. It centres around the question of whether the planned route of Rail Baltica can be considered environmentally sustainable regarding the impacts its position in the landscape and its characteristics. Moreover, the materiality of the mega-project is struggled over discursively, hence, the conflict happens through particular scaling of environmental sustainability.

The conflict over the route of the railway

The conflict over the environmental aspects in the RB project show that stakeholders have a different idea of the "most rational" environmentally friendly railway route. Particularly, the

developers understand that RB is environmentally sustainable only as a new, direct railway that runs from north to south of Estonia providing fast connection with the capitals of other EU cities. Moreover, it needs to be constructed in a way that leads to a modal shift and brings economic development to the country by the European value-added, and consequently, leads to environmental benefits. Therefore, they highlight the ways that the mega-project can itself through an economic rationale and through possessing certain characteristics contribute to the overall fight against environmental and climate issues. Meanwhile, the citizens understand the environmentally sustainable RB railway to be achieved only through reconstructing one of the existing railways. In this way, they depart from the local needs to preserve the landscapes and existing socio-spatial configurations. Thus, they prioritise the connections with neighbouring countries through saving and enhancing the connections within the country. Thus, the citizens focus on the construction of the railway that could be the least environmentally transformative.

The spatial approach to environmental sustainability conflicts between the stakeholders

The study shows that the stakeholders advocate for different railway routes due to their contrasting understanding of the concept of environmental sustainability. Moreover, the understandings differ due to different approaches to space (Chapter 5.3.). The results show what the sustainability literature and discourse theory state: the environmental sustainability is an ambiguous concept. Scholars like Goodland (1995), Fresco and Kroonenberg (1992), Shiva (2005), and Barlett (2012) emphasise that sustainability is a vague, value and scale-based concept and there is no commonly accepted definition. In addition to the multiple ways that one can interpret the various parts of its general definition, such as “the needs of the present” or “future needs”, “development” or “growth” (Shiva, 2005), sustainability is also unclear in the way that its spatial and temporal scales are accounted with, and the extent to which an ecological disturbance is considered acceptable (Fresco & Kroonenberg, 1992). The discourse theory says that the way we understand and perceive the environment and respective issues, is a “fixation” of a specific *perception* of natural phenomena and processes, as well as materialisation of a set of environmental knowledges (Feindt & Oels, 2005). However, it also affirms that there is a continuous struggle around “fixation” of the meanings, the realities, and knowledge in environmental policies (Keil & Debbane, 2005). This means that the political approach to environmental issues is not singular, but multiple and contested.

The stakeholders’ environmental discourse in the RB project shows that the environmental sustainability concept is strategically constructed and aimed to be fixed through particular scalar framing. This means that the meaning of sustainability represents a scaled view of the world. Thus, conflict situations over environmental issues and environmental sustainability as seen in RB project can be expected. This is because scaling sustainability entails particular representation of the social and physical world, which is in nature a political process. This supports what scholars in the field of politics of scale have argued: “When sustainability and

scale-making are seen together, the evocation of social worlds becomes anything but innocent." (Sejersen, 2018). Therefore, the citizens' attempt to fix their meaning in the planning process though scaling environmental sustainability on a local scale comes from the absence of such approach in the official planning process.

As the citizens see the environmental issues being misinterpreted and misrepresented in the project, and the concept of environmental sustainability used in a misleading way, they respond with forming counter-narratives that reframe and rescale the environmental issues depicted in the project on a more local scale. This is done to include the local-scale representations and environmental grievances in the planning process, to address issues that are left out in the planning project, and to give the communities and local knowledges a considerable power to shape their everyday experienced spaces. This is done with the attempt to change the project to acknowledge local impacts of the project and shape the railway accordingly. In this way the local scale is created in the RB planning process. This supports what Swyngedouw (2004) and Kurtz (2000), among other authors in the field of politics of scale argue: scales are constructed, hierarchised and evoked by actors and communities to engage with political processes. Moreover, it confirms what Kurtz (2000) and Towers (2000) emphasise: that the politics of scale and scaling strategies have been used due to the attempt to connect the scales on which the problem occurs and is experienced, and on which it is addressed and resolved. Therefore, the practices of rescaling sustainability are attempts to build the connection between the local, national, and international scales to better and in a more egalitarian way address these issues (Kurtz, 2000). Thus, similarly to the environmental justice movements, the citizens in Rail Baltica project emphasise the locally experienced issues and direct it for the entire nation, on a larger scale.

The scaling practices produce particular material realities

The study shows that sustainability gets its meaning by being connected to specific elements, articulations, narratives, and discourses on a particular spatial scale. By rescaling the meaning of environmental sustainability and environmental issues – i.e., through challenging particular discourses, knowledge production, and decision-making process – the actors struggle to fix their spatial thinking in the sustainability concept. This is important because it shapes the mega-project in question – its materiality, spatialities, and the way it shapes spaces and impacts the environment. Similarly, Sejersen (2018) emphasises that the sustainability concept needs to be taken with analytical sensitiveness regarding its spatial and temporal components, because the particular spatial approach of the world that is used in sustainability produces new spaces and social configurations. This is evident from the stakeholders considering different railway routes as environmentally sustainable while arguing for very different impacts to the environment.

For instance, the vagueness of environmental sustainability concept and the conflicting interests within it are evident in mega-projects as multiple roles and spatialities of the mega-project are highlighted. The conflict shows that fixing environmental sustainability concept on a specific scale helps to advocate for a specific purpose of the project. For instance, with the large-scale approach the articulations centre the rationale of *what conditions to set* in order for the railway to succeed, and the local-scale approach shows that the articulations focus on *how to align* the railway in the existing landscape for railway to benefit the regions. The former line of thinking justifies a high-speed railway that is focused on *overcoming space* by its particular characteristics, while the latter case rationale leads to a railway that *utilises space* as it is reconstructed or built along the existing railway corridors. In other words, the parties' understanding conflicts on whether it is environmentally sustainable to "set" the space for a successful project or how a successful project can be "hosted" or built to the existing spatialities. Thus, the spatial understandings of environmental sustainability also lead to a conflict in the purpose and the success of the mega-project as an environmentally friendly railway.

Therefore, regardless that both parties argue for an environmentally friendly project in the same conditions, it manifests as two very different things. This shows that there is no "objective" understanding of environmental sustainability. Rather, it is established through a specific conceptualisation of the natural and social spaces and processes. It is conceptualised through the social organisation, power dynamics and through a specific spatial approach. Environmental sustainability can have a general definition but in the specific mega-project context it can be interpreted in myriad of ways. The case of RB highlights that the understanding of environmentally sustainable conflicts between stakeholders by different values, interests, and approach between a large international scale and a more local sub-national scale.

Scaling meanings and knowledges

The study shows the importance of spatial representation in the depiction of environmental issues in planning processes. The scale of analysis (Chapter 5.3.3. and 5.3.4.) shows that there is conflict about the representation of spaces, as well as the selection of spaces considered in the analysis process. The representation of spaces becomes critical to understand because the spatial approach in the analysis determines the kind of issues that are addressed, regarded important, and tackled. Due to what the citizens found to be a lacking representation and consideration of the local-scale grievances and knowledge in the developers' assessments, they conducted a new meaning of sustainability on a local scale. Specifically, the citizens find that the assessment of impacts on the valued landscapes such as Natura 2000 areas and urban areas is not sufficient to decide the least impactful railway route. Moreover, it may result in having extensive natural areas, where impacts are not assessed, which may obscure extensive and cumulative environmental transformations that affect the environment negatively. These issues can stay hidden in large-scale framing of the

environmental issue yet determine whether the project succeeds in its goals. Therefore, the citizens emphasise the need to assess the distribution of impacts across all landscapes that the railway connects to. Thus, the citizens' meaning departs from these locally experienced environmental issues and offers respective approaches where local actors can engage in knowledge-production and decision-making processes that assess the appropriate environmentally sustainable route for RB. They see that it will lead to more productive answers regarding the uncertainties present in the project, and subsequentially, developing an environmentally friendly project.

The developers, however, prioritise economic rationale and depart from the understanding that electric railway is environmentally friendly as it reduces the CO_2 emissions (Chapter 5.2.1.1.), less emphasis is put on the issues like land-use change. Thus, the importance of the local context reduces in the meaning and analysis of the environmental impacts. This is justified by the environmental management approach to mitigate the impacts. While this may seem like a considerable acknowledgement with the local spaces, then in practice it allows to develop a project with considerable impacts, providing that they will be mitigated. The literature shows that this is widely used in mega-projects. According to Priemus et al. (2008), in the early days of mega-projects it was common that the project proposals which indicated considerable environmental change in natural or urban areas, were not accepted. Yet, it was found that regardless of the strict environmental requirements and sensitive assessments, all mega-projects led to negative environmental impacts (Priemus et al., 2008). Therefore, the mitigation measures became the promise that allow for the proceeding to construct the mega-projects that otherwise would not be developed (Priemus et al., 2008). Hence, the meaning of sustainability that departs from economic principles together with the technological change justifies the environmental interests and various transformations in across landscapes.

Uncertainties in mega-projects

Thus, as the mega-projects affect the society and the environment in multiple ways, they provide a context where conflicting perceptions can form easily. This guarantees the high level of uncertainties in the project. To reduce the number of uncertainties, scholars have for decades argued what the citizens in this project have brought out – there is need for more accurate information and transparency in decision-making processes, as well as more precise data, better forecasts, and meaningful engagement with the citizens and organisations in various knowledge production processes and political decisions (Flyvbjerg, et al., 2003; Priemus et al., 2008). Moreover, similarly to the citizens, Dimitriou et al. (2013) argue that the railway's impact to the environment or its overall success cannot be fully known but need to be examined closely in relation to the existing socio-spatial configurations. Moreover, Flyvbjerg et al. (2003) emphasises that one of the key issues in decision-making is to engage the parties that can provide the most accurate information in the planning process. Particularly, the construction of cost-benefit analysis and knowledge-

production processes should be in the hands of the actors and organisations that could potentially experience the most harm from miscalculations and flawed development (Priemus et al., 2008). Flyvbjerg et al. (2003) goes as far as to argue that in mega-projects the developers deliberately depart on misrepresented information, to depict the project more beneficial as it is, and to obscure the various harms.

Need for a multi-scale analysis

Therefore, the citizens' attempt to rescale environmental sustainability, elevate the importance of local spaces and shape the mega-project through the local context can be seen as an intervention to what has been called the "break-fix" model[2] if one would apply it to the environmental costs and benefits. The citizens propose a different approach to the planning process that focus on the impacts left unaddressed to bring forward a successful and environmentally sustainable project that is sensitive to the impacts left unaddressed. One of the issues that Priemus et al. (2008) bring out, sums up the main point that the citizens argue in the conflict situation: the misrepresented and overoptimistic assessments constitute a project that is developed instead of another one that would have been more beneficial. Therefore, the analysis and planning process need to be conducted in the way that is rooted in the best practice, research, and knowledge, with continuous engagement with citizens. Therefore, to gather a more holistic picture regarding the environmental changes, a more nuanced multi-scale analysis that assesses changes also on a local scale becomes important for a successful project which aims to be environmentally sustainable. Sejersen (2018) also emphasises that scaling both affects the kind of knowledge and the sources of legitimate information that are used, but also allows for the new avenues of knowledges and spaces to be brought in. Otherwise, a particular scale of analysis can be used to ignore important environmental issues and still regard a project environmentally sustainable.

Scale legitimises knowledge and power

Therefore, the questions of representation in the analysis of sustainability are essentially about the ways that particular actions become legitimised. Thus, it is evident that the discourse functions as a measure to legitimise knowledge and justify specific power over processes and changes in space. The knowledges that are present have enabling and disabling power as they include certain issues and actors while excluding others (Feindt & Oels, 2005). The issues that are addressed, researched, and articulated, become real for the society and environmental policy, which means that the struggle for better representation means the struggle for certain issues and voices to "become real". Therefore, as there are environmental problems that are unaddressed in the project, which are real for the lived

[2] The "break-fix" modal depicts a pattern commonly seen in mega-projects. According to this modal, the mega-project developers choose to rely on overly optimistic and manipulated data, which leads to a faulty belief that the financially non-viable project is beneficial for society. This will eventually "break" the project at some stage of its planning. Moreover, pausing and altering of the project without a comprehensive change in the overall approach to the planning process, that follows, results in a project with the same issues.

experiences of the people in the local landscapes, the local actors address them in the struggle over the planned railway regarding its environmental sustainability. In this way the citizens formulate the local scale. As a result, by arguing for local-scale perspectives and for the local actors to have more power in the decisions-making, they challenge the power geometries present in the planning process. They connect this need for local representation with a larger scale of regulation, as they connect to the international Arhus Convention, which states the issue on a global level. In a similar way, Kurtz (2000) shows that in the case of environmental justice movement, the locally occurring disturbance on the environment or ecology needs the intervention at national or international scale to be resolved (Kurtz, 2999: 891).

7. Conclusion

To understand the ways in which the environmental issues constitute a spatial conflict in a mega-project planning process, the study examined various stakeholders' use of environmental sustainability concept in the planning process of Rail Baltica mega-project. By looking at the struggles in the planning process through the theory of politics of scale, and by analysing various publicised texts through the discourse analysis, the study concludes that environmental issues have become a part of extensive conflict situation between stakeholders. Specifically, the conflict manifests spatially as stakeholders argue for a different railway route for the Rail Baltica railway, due to their differing approach to the environmental sustainability, that both parties see as the most rational and true to the environmental sustainability principles. Thus, it is evident that there is a conflict between the stakeholders' understanding of environmental sustainability. It is a spatial conflict as the scales in the concept differ, which leads to a project with different material realities and particular environmental impacts. Moreover, it shapes the social power in planning and decision-making processes, and shapes the knowledge and actors that are considered appropriate in the planning process.

To further understand the conflict situation and the role that a particular spatial approach plays in it, the scalar rationale of the stakeholders' environmental discourse was examined. This shows that the developers of the mega-project use scalar framing on a larger EU-scale. This is done through constructing a strategic environmental discourse that fixes the meaning of environmental sustainability in a way that legitimises particular proposed approaches, knowledge-production, and decision-making processes. As a result, the mega-project as planned, in its materiality and regarding its spatial changes, is justified as an environmentally sustainable railway. On the other side, the citizens construct counter-narratives that form a scalar framing on a local level, which strategically challenges the legitimacy of the developers' scale of meaning, analysis, and regulation. They challenge the developers' approach by showing that the scaling in analysis and decision-making processes misrepresents and obscures crucial environmental issues. The citizens frame the issue of the developers' undemocratic decision-making on a global scale, connecting to international agreements that emphasise the importance of the information transparency regarding transformative environmental projects. Their counter-frames depict the biased and interest-ridden take of environmental sustainability in the developers' discourse. In this way, the strategically constructed and scaled environmental discourse attempts to delegitimise and halt the project as it is planned. The citizens approach environmental sustainability and the issue of the route situatedness in landscape by departing from the local context. In this way, reconstructing one of the existing railways becomes the material manifestation of an environmentally sustainable mega-project.

Therefore, the study finds that as an ambiguous concept, environmental sustainability gets its meaning temporarily fixed though particular spatial approach, by connecting to other

discourses and departing from certain values. Regardless of the ambiguity, the concept is used as strategic discursive power to legitimise certain perceptions, knowledges, and material projects it produces. Therefore, the application of such meaning in a mega-project – a large-scale and highly uncertain endeavour – will likely lead to a situation where the geometries of power are conflicted as new scales are likely to emerge.

Moreover, study finds that the emergent local scale addresses the very questions and issues that scholars have elaborated on for decades. Particularly, the counter-narratives address the overoptimistic assessments of the mega-project production and the lack of context-specific knowledge and actors in the planning process. In addition, the study contributes to mega-project literature with the knowledge that it is the local-scale knowledge and spatial representations – particularly, the disconnection between the lived experiences of the people living in these landscapes – that are lacking in the concept of environmental sustainability, that conflict with the "empty" space approach in the planning process and lead to a conflict situation about the environmental issues. In other words, there is a disconnection between the scales where the problem is experienced and where the political resolution occurs. As a response, the conflict over environmental issues emerges as an attempt from the countering party to rescale the geometries of power, i.e., to reorganise scales in the planning process.

The study cannot be generalised to all mega-projects due to its social, institutional, and physical particularities. However, mega-project research has shown that these projects tend to follow very similar patterns. Therefore, the Rail Baltica case can show many of the reoccurring patterns between mega-projects. Thus, the study concludes that mega-projects are developed first, for economic, and then second, for other, including environmental reasons. As long as this is true, and the dominant legislation allows for a detached approach, the projects will be developed in correspondence with the meaning of environmental sustainability as it is conducted in their discourse – one that departs from economic interests, which is not set out to be the most environmentally saving project. The conflict highlights the need to include various scales and a wider reach of stakeholders in a meaningful way in the planning processes to get a more comprehensive overview of the impacts of mega-projects, including its uncertainties. For example, a thorough multi-scalar environmental analysis could be required throughout the planning process, where the evoked scales can through their own expertise assess the impacts of emerging project alternatives. The mega-project literature suggests that the tendencies to rush such projects, but also their limited and rigid structure, however, provides a challenge to such approach.

Therefore, future research could explore the ways that the emerged scales and scaled discourse transform and impact the environmental discourse in the later stages of the mega-project development. In particular, in which ways have the emerged scales succeeded in fixing the meaning of environmental sustainability, in shaping the power geometries, and in changing the particular project.

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9. Appendix

9.1. Texts used in discourse analysis

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