

# Infrastructure Planning in Scania a Discourse Analytical Approach to the Concepts of Regional Development and Sustainability in the Planning Process

Fredrik Pettersson

**Abstract**—The paper applies a discourse analytical approach to investigate important concepts influencing the infrastructure planning process in the region of Scania in southern Sweden. Two discourses, one concerning regional development and one concerning sustainability are identified, discussed and contrasted. It is argued that the perceptions of problems and their suggested solutions related to transportation are based on specific ideas, in turn dependent on the importance given to certain concepts, such as regional enlargement, Scania as a transit region, the national environmental quality goals and regional attractiveness. These concepts, their underlying meaning structures and their relevance for the infrastructure planning process are analyzed. The handling of conflicting interests in the planning process, and the possible implications this may have is also discussed. The results indicate that the regional development discourse is dominant and although the solutions to the problems caused by transport are framed in similar ways in the two discourses a harmonization between conflicting goals is proving difficult to achieve.

**Keywords**—Discourse analysis, Infrastructure planning, Regional development, Sustainability.

## I. INTRODUCTION

RECENTLY in Sweden as in most western countries, increasing attention has been paid to the problems caused by the current transport system as well as the transport related challenges facing society in the near future. While some environmental problems related to transport, e.g. emissions of sulphur dioxides and carbon monoxides have been substantially reduced by the successful introduction of exhaust fume cleansing technologies, some monumental challenges with potentially severe implications for the current transport system remain. The problems and challenges facing the

contemporary system can be summarized as a steadily growing tendency toward greater mobility, manifest locally as well as globally, while simultaneously the negative effects of increasing mobility have become more and more obvious. One way of visualising the problem is to relate it to the development of transport work and energy consumption in the transport sector. In Sweden the total transport work for passenger and goods transport have continuously been rising and in 2007 the energy consumption of the transport sector totalled some 130 TWh (including international flights and shipping, accounting for 34 TWh). This implies an increase by 87 % since 1970 and the transport sector is now accounting for roughly a quarter of the total national energy consumption [1]. A majority of the growth in transport work and energy consumption is attributed to the increasing share of road transports (it should however be pointed out that the growth in road based passenger transports have been far more energy efficient than the growth in road based goods transports) [2].

A major concern is related to the effects of the very dominant position of fossil fuels as energy carriers in the transport system. In 2007 around 89% of the energy consumption in the Swedish transport sector originated from fossil fuels [3]. The problem with dependency on fossil fuels in the transport sector can be framed from several different perspectives, from concerns about global issues such as climate change, to regional and national concerns regarding conflicts over energy sources and energy security, to local issues regarding adverse effects on human health and eco systems [4], [5].

Other concerns are related to the adverse consequences brought about by the drastic increase of the number of cars, which in the case of Sweden virtually soared since the 1950s and onwards. In 2007 more than 4 200 000 cars (excluding trucks, busses and motorcycles) were registered implying 470 cars per 1000 individuals, a rather high figure in an international perspective [6]. This has led to increasing problems with congestion, accidents, landscape segmentation and growing demands for solutions to these problems [7]. It can also be argued that society as a whole has been structured around the use of the car, and that we now live in a “car centred society”. This car dependency can have negative

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Fredrik Pettersson is a PhD Student at Lund University, Faculty of Engineering, the division for Environmental and Energy Systems Studies at the Department for Technology and Society, V-huset, John Ericsson väg 1, SE-221 00 LUND, Sweden (phone: +46(0)46-222 86 41; fax: +46(0)46-222 86 44; e-mail: Fredrik.Pettersson@miljo.lth.se).

social implications for people with limited or no access to a car (despite the high car density figure presented above 25 % of the Swedish households had no access to a car in 2006) and consequently it also poses a challenge that can not be met by switching from one energy carrier to another in the road transport sector [8], [9].

The rising awareness of problems and challenges from different perspectives has led to a growing consensus that the current transport system is unsustainable. And although the meaning of the concept of sustainability is often far from lucid it is at least clear that it implies that some of the current trends noticeable in the transport sector are viewed as undesirable, problematic and that a change is needed. The combination of problems and challenges described in the section above begs the question if and how the entire transport system can be transformed as to meet both the demands of increasing mobility as well as environmental and social challenges in the near future, which can be framed as a quest for sustainable mobility [10], [11].

Transport infrastructure planning clearly plays an important role if this transformation is to take place, and this paper draws on examples from strategic planning on the regional level in Scania in southern Sweden in order to investigate how problems and solutions are framed in the current planning framework.

A discourse theoretical framework is applied to analyse different concepts asserting great influence on transport infrastructure planning in Scania and a discussion regarding the possible implications thereof is held. Two broad discourses are identified, contrasted and discussed regarding their impact on the planning process; a regional development discourse associated with the wish to increase mobility, and a sustainability discourse connected to managing the negative impacts of transport.

The paper begins by describing the theoretical framework applied and then moves on to sketching the properties and the main actors of the planning system in southern Sweden. From this platform an analysis of the two discourses described above is carried out and the results are discussed. Besides the descriptive approach regarding the structure of the planning system, concerning for instance different administrative, juridical, financial and political aspects of the planning system, the analytical research questions this paper seeks an answer to are:

- How are the present and future problems of the transport system and their suggested solutions framed in the regional development and the sustainability discourses in the planning process?
- How is the potential conflict of interests between planning strategies for the benefit of regional development on the one hand and strategies for achieving a sustainable transport system on the other handled in the planning process?

- What are the implications of the discursive framing of problems and solutions in the two discourses and the handling of the potential conflicts of interests in the planning process?

## II. THEORETICAL FRAMEWORK

A central premise of this article concerns the handling of the concepts of sustainability and regional development. Both these concepts can be regarded as fuzzy; that is a concepts "... which posits an entity, phenomenon or process which possesses two or more alternative meanings and thus cannot be reliably identified or applied by different readers or scholars" [12]. This means that there can be different meanings regarding what constitutes sustainability and regional development in relation to transport infrastructure planning and the development of the transport system. The concepts are in themselves labels which can refer to different, even opposing claims and interpretations of problems and their proposed solutions [13].

The emphasis on the fuzziness of the concepts of sustainability and regional development and the importance attributed to how different policy documents and actors in the planning system defines the problems of the transport system, and which measures these problems warrant, implies that a discourse analytical approach is justified. However, since discourse analysis is a wide field including many different approaches it is necessary to clearly define what is meant by a discourse analytical approach in this paper [14].

One ontological premise valid for the different approaches in the discourse theoretical field is a social constructionist world view. This means that reality is only accessible through language. This should however not be interpreted as a denial of an independently existing reality, but rather that peoples knowledge of the world is a result of how they categorise knowledge. How humans categorise their knowledge of the world is in turn dependent on different social and interactive processes of knowledge production. The knowledge production process can be viewed as an arena where a continuous struggle for establishing communal perceptions of what is true or false is ongoing [15]. This means that peoples knowledge of the world and their world view is created and sustained in social processes that also determine the way we act. A certain view of the world implies that certain options and courses of action are viewed as natural while others are ruled out; and as a consequence the social construction of knowledge, or the discursive practice, has concrete effects [16].

Within the context of this analysis the concept of discourse will be applied as an analytical tool that allows for an investigation of the socially constructed systems of meaning that support the planning process of the transport system. The discourses identified and studied should thus not be interpreted as referring to distinct entities existing in reality, where the scope and content are waiting to be revealed [17]. Instead a discourse should be understood as a frame constructed by the researcher allowing for an investigation of

certain parts of the knowledge production process, in this case of the planning process for the transport system in southern Sweden. This also implies an understanding of discourse as being situated; the institutional arrangements provide the preconditions for the discursive practices [18]. The aim is to investigate why some statements about the world and the underlying systems of meaning encompassed in them are accepted as natural and “true” while others are not [19]. This does not imply that the purpose of the analysis is to reveal the “truth” behind the discourse, or to expose what is really meant by a statement, the focus of the analysis is instead the discourses themselves and how meaning is created in the processes [20]. Hajer defines discourse as “... a specific ensemble of ideas, concepts, and categorizations that is produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities” [21]. This paper departs from this definition of discourse and the intention is to identify and analyse two broad discourses, one relating to regional development and one relating to sustainability and then investigate how the discursive practices in the planning process shape the development of the transport system.

### III. THE ACTORS AND THE PLANNING SYSTEM IN SCANIA

This section will provide an overview of the planning system governing the development of the transport system in Scania. First a brief introduction of the region will be made which will be followed by a description of the characteristics and the actors in the national planning system. The purpose is to contextualise and explain why strategic planning at the regional level is chosen as the unit of analysis.

Scania is the southernmost region in Sweden (see Fig. 1 and 2). It covers an area of 11,035 km<sup>2</sup> and is inhabited by around 1, 2 million people, accounting for roughly 13 % of Sweden’s total population [22]. The majority of the population lives in the main population centres in the western part of Scania, while the eastern part is largely rural. Politically the area is governed by one regional administrative body, the Region of Skåne (ROS) and 33 municipalities providing local administrative infrastructure.



Fig. 1 Scania, a northern European perspective [23]

The ROS is the result of a rather recent alteration to the regional administrative structure. It was established in 1997 when two former counties were merged into one. The reform was part of an ongoing administrative trial investigating the possibilities of a more decentralized political administration by way of strengthening the regional level. Several important functions have been transferred from the national to the regional administrative level and there has also been a concentration of functions. The key ideas behind the trial is on the one hand that a decentralized political responsibility will lead to a more efficient administrative set up while on the other hand simultaneously increasing democracy by shortening the distance between local actors and decision makers. Elections for the regional political body are now held every four years and responsibility covers the following areas: regional development, health care, public transport, culture, planning and environmental issues [24]. While these areas of responsibility are clearly relevant for infrastructure planning, which is carried out in a highly ambitious and structured fashion under coordination of the regional growth board, the planning system is also characterised by considerable influence from the national and the local levels.

The overarching economic and political framework for infrastructure investments in Sweden is set in the government proposition for infrastructure investments which has to be accepted by the parliament. This political process is referred to as “direction planning”, since it stakes out the desired direction of the transport policy. It also establishes the economic limits for, and the balance between, investments in the road and railway network over a ten year period and thus governs the continued planning process in the national road and railway administrations. The national road and rail administrations are then expected to come up with “measure plans”, which proposes suitable projects in order to improve the national transport network. These projects are presented in two separate national road and railway plans [25].



Fig. 2 The region of Scania [26]

In a simultaneous planning process the regional actors, in the case of Scania the ROS, establishes a regional transport

infrastructure plan (RTI). The current plans are covering the period 2004 – 2015, while a new planning process concerning the period 2010 – 2020 is presently being undertaken, the results of which will be presented early in 2010. The RTI in Scania plays several roles. It includes measures for the regional road network where the ROS is responsible for development plans and allocating investments. The RTI is also the channel for providing government grants, both grants for investments in the parts of the transport system which fall under the responsibility of the municipal level, and grants to the regional public transport association. In terms of money the role of the RTI is quite limited; the current plan encompasses infrastructure projects and grants for roughly 3, 6 billion SEK for the period 2004 – 2015. In contrast the projects in the national road and railway plans concerning Skåne during the same period amounts to 9, 1 and 23 billion SEK respectively (prices not adjusted for inflation) [27].

Apart from the limited financial scope of the RTI it also important to acknowledge that the legal status of planning on the regional level in Sweden is rather modest. Traditionally the planning system in Sweden has allocated far reaching power to the municipal and the national levels. The strong position of the municipal level is commonly referred to as a “planning monopoly”, which in essence means that the municipal government has a final call in most planning matters since the municipal board is the ultimate decision authority for the establishment of the only compulsory (comprehensive plans) and legally binding (detail plans) planning documents in the Swedish planning system. To make sure the national legislation is not violated the county administrative board (CAB), the representative of the state at the regional level, monitors and oversees the municipal planning process [28].

But despite being restricted from a financial or legal perspective, the author still argues that the planning activities undertaken by the ROS are highly influential. One reason for this is the leading role played by the ROS in the coordination between the three infrastructure planning processes involving a large number of actors (see Fig. 3 for a schematic overview).

The planning carried out can be characterised as strategic and visionary and the role of the ROS is on the one hand to implement national policy goals on a regional scale, and on the other hand to coordinate the needs and wants of trade and industry, municipalities and citizens with the infrastructure plans made by the national road and railway administrations.

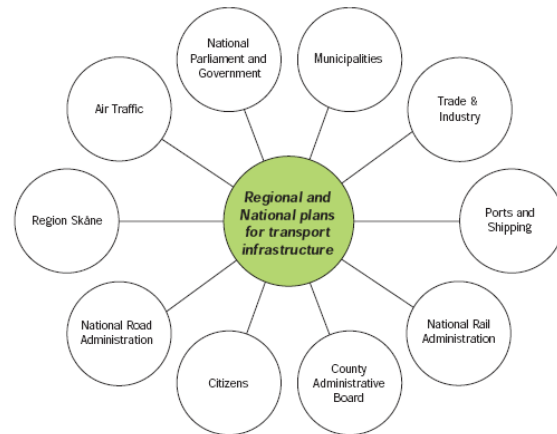


Fig. 3 Actors in the planning process, a schematic overview [29]

Additionally the regional planning is also aimed at forwarding an explicit regional agenda, not only intended to strengthen the position of the new administrative actor in the national perspective, but also to strengthen the position of the transnational Öresund region in a European and global context.<sup>1</sup> All things considered it is thus concluded that despite the limited financial and legal scope of the RTI the ROS has a very strong position in the planning system since their coordinative role and strategic ambitions on several geographical levels give them a prominent role regarding the definition of problems.

#### IV. FRAMING THE DISCOURSES: MATERIAL AND METHODOLOGY

This section will analyse the discursive construction of the problems and their suggested solutions using strategic planning documents on the regional level, such as the Regional Development Programme (RDP), the RTI and other strategy documents underpinning these plans. The examples will be used to frame the two different discourses which labelled the regional development discourse and the sustainability discourse.

Implementation of policy goals framed on the national level is expected to be carried out by actors on the regional and local levels and in this respect the regional level has, through the recent introduction of regional development programmes (RDP's), been given a prominent position in working with implementing the government's intentions. A RDP can be defined as an overarching strategic planning instrument providing guidelines and instructions for other strategy plans

<sup>1</sup> The creation of the Öresund region (comprising Scania on the Swedish side, and the metropolitan area of Copenhagen and the islands of Zealand, Lolland, Falster and Bornholm on the Danish side) was initiated in the late 1990s when the fixed link across Öresund between Copenhagen and Malmö was under construction. See reference [30] for a detailed description of this process. Since opening for traffic in July 2000 the integration process has led to intensifying cooperation between different actors and as far as infrastructure planning goes a large number of public actors on the municipal and regional levels on both sides of Öresund are active (backed by financing from the EU) in trying to coordinate their efforts [31].

and programmes concerning for instance regional economic development, infrastructure planning and municipal land use planning. The RDP's and related programmes and plans, such as the RTI are thus expected to take into consideration many different political goals and coordinate the needs and wishes of many actors [32].

As established earlier, discourse in this analysis signifies an analytical tool which will be used to analyse some aspects of the infrastructure planning process. A first step will be to establish what is meant by a regional development discourse and how this, in line with Hajers definition of discourse relates to certain ideas, concepts and categorisations of the world that will favour some perceptions of problems and their suggested solutions, while ruling out others [33]. A second step will be a similar analysis of the sustainability discourse which in turn will lead to a discussion of the potential conflicts that these different framings of the problems related to transports may have, and how this can affect the infrastructure planning process. In the discussion some examples from interviews with actors involved in the regional infrastructure planning process will also be used.

#### V. THE REGIONAL DEVELOPMENT DISCOURSE: BACKGROUND AND CONCEPTS

As mentioned earlier regional development is a concept with many potential interpretations. In Sweden a lot of attention in the political debate regarding regional development is paid to a process referred to as regional enlargement. According to a literature study on the subject, this concept and what it implies has no direct equivalence outside the Nordic countries. Regional enlargement in this sense is not about a territorial expansion of an administrative or political unit, as in the case of gradual accession of new membership states of the EU or the merger of previously separate regional actors as in the case of ROS [34]. Regional enlargement in a Swedish context is instead referring to a politically driven process aimed at facilitating commuting between local labour markets. The dedication of politicians and decision makers to increase the size of the local labour markets and thereby commuting is according to the aforementioned literature study exclusive to the Nordic countries and stands in sharp contrast to efforts made at reducing commuting in other European countries [35]. Knutsson argues that a possible reason for this is low population numbers, low population density and large regional differences between economically prosperous and lagging regions, which are common in some parts of the Nordic countries [36]. According to the view of the author this is an explanation with merit for instance regarding rural areas in the north of Sweden, but it does not suffice to explain why all three metropolitan areas in Sweden (Stockholm, Gothenburg and Malmö) actively pursue regional enlargement agendas.

However, since it is outside the scope of this study, the intention is not to provide a full analysis of why the process of regional enlargement is awarded such importance in Sweden. It will just be asserted that regional enlargement is a very important element in the regional development discourse and the paper will continue by explaining some of the premises of

the concept and the way it is influencing the infrastructure planning process.

A fundamental condition for regional enlargement is of course the process of time-space compression enabled by the introduction of motorized transport. But while the introduction of motorized transports (particularly the massive increase of cars in the 1950s and 1960s) greatly increased the overt mobility of the general population and therefore in some sense contributed to what today is referred to as regional enlargement in Swedish politics, a central idea in the debate about the regional enlargement during the last two decades concerns the latent mobility of the labour force. One central premise in the argument regarding the latent mobility of the labour force is that a geographically larger labour market area will allow for a better match between the needs and demands of the employers and skills of the employees, sometimes referred to as job-matching [37]. Increasing the potential mobility of the labour force is viewed as desirable since it is argued that more flexibility is necessary in an increasingly globalised, specialised and knowledge intensive economy. Facilitating the mobility of the labour force will thus create a number of benefits for individuals, businesses, municipalities, and regional actors, such as: increasing supply of jobs and freedom of choice regarding place of living, increasing supply of sufficiently skilled labour and decreasing vulnerability to structural changes affecting local and regional economies [38]. Ideas about job-matching are clearly not exclusive to the Swedish debate about regional enlargement but arguably the solution, to increase the possibilities for commuting by way of improved infrastructure is different from the focus on labour migration that seem to be more common in a European perspective [39].

Regional enlargement has been viewed as a welcome solution to local labour market problems by many local politicians during the last two decades. In a recently published report by the Swedish Association for Local Authorities and Regions (SALAR) it is argued that this represents a shift in the way of thinking. Only a few decades ago commuting (in or out) from a municipality was viewed as a sign of weakness implying that the municipality was not self reliant in terms of work force, or that local enterprises were in trouble. Since then regional enlargement and improved communications possibilities have become increasingly popular concepts and are now viewed as some of the most important factors for economic growth, both amongst business representatives as well as by politicians at all levels of the political system [40].

On the national level regional enlargement is for instance an explicit political goal forwarded by the government and the parliament influencing several different policy areas, in the context of this analysis most notably transport and infrastructure policies, but also for instance regional development policy, labour market policy and education policy [41]. Arguably one consequence of the importance attributed to the regional perspective is that in addition to issues related to the mobility of the labour force, regional enlargement is also increasingly perceived as a matter of an

integrated view of for instance service functions and educational facilities [42].

The mounting importance attributed to regional enlargement in a national perspective can also be traced in the development of local labour market areas as defined by Statistics Sweden. A somewhat simplified definition of a local labour market area is: a statistical measure of a group of municipalities where the target of commuting flows across the municipal borders is mainly directed towards one (or several) municipality within the group. When daily commuting increases above a certain level between previously separate local labour market areas they are merged into a single coherent area [43]. In 1970 Sweden had 187 local labour markets and in 2005 the number was 82.<sup>2</sup> The decreasing number of local labour market areas can thus be viewed as an indicator reflecting the increasing share of the population commuting to work, which in 2006 corresponded to a third of the active labour force, or roughly 1.33 million people [45]. It can also be viewed as an interesting example of a meaning producing practice within the regional development discourse.

Conceptualising the increasing mobility of the labour force this way – as a natural and necessary process, driven by the rationality of supply and demand on the labour market, and possible to measure with statistical rigour – will also entail specific perceptions of problems and how to resolve these in the planning process. One implication for infrastructure planning is that measures in the transport system are gauged by their ability to contribute to regional enlargement. One such example is the importance awarded to measures in the transport system that decrease travelling times down to the interval 20 – 40 minutes in important relations. This basically means that any measure in the transport system that reduces travelling times between places with large potential for commuting down to this interval will be considered interesting [46].

In Scania the number of local labour market areas decreased from 16 to 3 between 1970 and 2001 [47]. The tendency toward more and distance wise longer commuting have been very strong during the last decade, and the levels of increase in both in- and out commuting has been above the national average in all 33 municipalities of the region. On an aggregate level the increase in commuting for the period 2000 – 2006 was the highest in Sweden [48]. The strong increase can probably be explained by a number of factors, such as: the opening of the Öresund link, which combined with a strong economic development in Denmark has created large commuter streams to Copenhagen; other investments and administrative changes in the public transport system on a regional level explicitly aimed at achieving regional

enlargement effects; and also a more abstract process of creating a new mental map of the emerging unified and transnational region [49].

Despite the large increase in commuting in recent years a continued regional enlargement is still a central goal for the regional planning. But the goal of regional enlargement is now framed on several different geographical levels and the strong increase in commuting within Scania in recent years is but one aspect of a significant increase in overall mobility. Integration of the labour markets within Scania is still an important goal, but in addition there is also a strong focus on integration with the Danish labour market in Copenhagen and Eastern Zealand as well as integration with surrounding Swedish regions. Finally the mounting importance of Scania as a transit region for goods transports, both along a north – south, and a west – east axis means that a Baltic Sea regional perspective is gaining importance [50]. These different framings of regional development issues on several geographical levels entail different responses as far as infrastructure development goes and the attention will now be turned to how the present and future problems of the regional transport system and their suggested solutions are framed in the regional development discourse.

#### VI. PERCEPTIONS OF PROBLEMS – SUGGESTIONS FOR SOLUTIONS IN THE REGIONAL DEVELOPMENT DISCOURSE

Regional development on the geographical level of Scania is framed as a matter of connecting the “four corners” of the region and connecting cities characterised by different economic profiles. Improved commuting possibilities and regional accessibility are key aspects for achieving regional enlargement effects. More specifically the problems of the transport system are defined as increasing volumes leading to a situation where several road and railway sections are close to maximum capacity which demands increasing investments in order to avoid the creation of bottle necks. Apart from alleviating the present capacity constraints, the importance of foreseeing where problems with future bottle necks may arise is stressed. Based on calculations made by the national road administration it is expected that road traffic will increase by 20 % until 2020, which causes concern given the already strained situation in some parts of the road network [51]. In this respect the strong increase of railway passenger travel during recent years is also put forward as an example which demands drastically increased investment levels in order not to hamper economic growth in the future. One concrete goal is that the capacity of the railways ought to be adapted for a doubling of passenger and freight volumes by 2020 [52].

The problems with capacity constraints and bottle necks are described as being particularly dominant in and around the larger cities, especially in the South-western part of the region. Commuting to, from and within the cities of Malmö and Lund in combination with high levels of population growth is causing a problematic situation where traffic volumes are close to the maximum capacity of the transport

<sup>2</sup> The figure for 2005 is however not taking level of education into consideration. A higher level of education increases the propensity for commuting longer, thereby lowering the number of local labour market areas. In 2004 the number of local labour markets for people holding a university education was 61 while for people with primary education only the number was 114. There are also considerable differences between the commuting patterns for men and women [44].

system. This in turn causes bottle neck problems (especially in the railway system) affecting the whole of Scania [53].

The solutions to the problems on this geographical scale consist of a number of measures related to infrastructure development as well as measures that are not directly related to the physical development of the transport system. Physical measures include different measures related to public transport such as: new or improved railway tracks between cities and light rail systems within cities; bus lanes and measures for improving railway and bus stations, e.g. park and ride facilities and other forms of improvements for intermodal nodes. Road expansions in routes of regional and national and commuting importance are also viewed as essential [54]. The most common reason for projects in the regional road network is measures increasing accessibility and enhancing traffic safety [55].

The problem on the geographical scale of the Öresund region is also mainly framed as a matter of lack of capacity. Commuting from Scania to Copenhagen has increased rather drastically since the opening of the Öresund link in July 2000 and in 2007 some 18 000 commuters (including students) crossed the link on a daily basis, implying a sevenfold increase since the link opened for traffic. More than 90 % of the commuters live in Scania and work in Copenhagen. In 2007 around 19 000 cars crossed the link each day implying an increase by more than 100 % since the first year of operation [56]. This strong increase is predicted to continue, by some estimates the number of people and vehicles will increase by a factor of four until 2025, while even in the lowest estimates the figure is expected to double during the next decade [57].

The significant increases in road and railway traffic across the link are causing concerns of the future capacity on the link itself as well as on the connecting land infrastructure. In response to this challenge an expansion of connecting road and railway capacity is viewed as important. One such project, the Citytunnel, a railway tunnel providing Malmö with three underground railway stations is currently underway and is expected to be finished in 2010. Another solution to the future lack of capacity of the Öresund link is to build an additional fixed link in the northern part of the sound between the cities of Helsingborg – Elsinore. The issue of another fixed link is also given importance in the geographical perspective of the Baltic Sea region. It is both presented as a solution for increasing the potential for railway cargo transports by easing the pressure on the Öresund link, and as an important factor enabling a new high speed railway corridor connecting Stockholm and Sweden to Hamburg and the European high speed rail system. The recent decision made by Germany and Denmark to build a fixed link across the Fehmarn Belt is viewed as very important in this respect [58].

Apart from the problems and solutions related to the visionary and long term perspective connected to the Baltic Sea regional perspective there are also several other issues, mainly related to freight transports that are presented as areas of concern in a shorter time perspective. The role of Scania as

a transit region for cargo implies a focus on the main national transport nodes and routes (43 % of the freight transport work in 2002 was classified as transit transports with start and end points outside the region, 32 % had either starting- or end point in Scania while the remaining share was classified as internal to the region) [59]. Capacity problems are identified in both the main road and railway routes. Apart from this the need for better connections to the large ports of the region and other measures relating to intermodal freight terminals are considered important [60].

In summary, the regional development discourse in infrastructure planning can thus be viewed as a set of meaning producing practices that frame problems and their suggested solutions according to different geographical scales. Regional enlargement and Skåne as a transit region are concepts awarded great importance in the discourse and an important way of gauging the measures suggested in the planning process is how well they correspond to the criteria suggested by these concepts and their underlying meaning structures. Clearly there is a great deal of overlap between the views of challenges and their suggested solutions among the different geographical scales. Several of the proposed solutions are for instance concerning the same transportation routes and the same infrastructure. But there are also some quite specific consequences of framing challenges from an Öresund, or a Baltic Sea regional perspective in contrast to a perspective focusing mainly on Scania.

The Öresund and Scania perspectives are to a large extent concerned with passenger travel and the achievement of regional enlargement effects by way of improving roads, railways and the public transport system. The Baltic Sea perspective implies more attention towards goods transports by way of identifying important roads, railways, ports, terminals and other nodes of importance for goods in the transport system. This does not necessarily lead to a conflict of interest per se, but it clearly leads to a conflict over which projects to prioritise.

A common denominator for all three perspectives within the regional development discourse is a view of mobility and increases in mobility as something positive, implying a promising future for the region by way of job creation, freedom of choice regarding place of living and working and economic competitiveness towards other regions. Simultaneously this mobility affirmative stance also produces the view of a transport system facing serious capacity problems threatening the economic prosperity of municipalities, the region and the nation. In the regional development discourse the challenges of the transport system is thus framed mainly as a matter of promoting (or preventing) economic growth depending on whether or not the investments deemed necessary are made.

## VII. THE SUSTAINABILITY DISCOURSE: BACKGROUND AND IMPLICATIONS FOR INFRASTRUCTURE PLANNING

As mentioned earlier implementation of policy goals framed on the national level is expected to be carried out by

actors on the regional and local levels, and in this respect the recent introduction of RDP's and their related programmes and plans, such as the RTI are viewed as important instruments for integrating the aims of sustainable development [61].

Sustainability and sustainable development was made official policy by the Swedish government in 1997, when the governing social democratic party declared its vision of "the green welfare state". This vision implied a transformation of the economic base of society that by way of innovations, technology and resource efficiency would create jobs, growth and welfare in a sustainable manner as well as turn Sweden into a model state for sustainable development [62]. Sustainability and sustainable development are now frequently occurring concepts in many areas of the political debate in Sweden, not least in relation to infrastructure and the development of the transport system.

The overall goals of Swedish transport policy are since a parliament decision in 1998 established as economic efficiency and sustainability. These goals are further divided into partial goals regarding parameters such as accessibility, transport quality, traffic safety, environment, regional development and gender equality [63]. At the moment a revision of the transport policy goals are under way, the results of the revision is expected to be available by the end of 2009.

An important aspect asserting great influence on the sustainability discourse is the nationally established environmental quality goals. Altogether there are 16 national environmental quality goals established by the parliament in 1999 (revised in 2005) with the intention to remedy the most important environmental problems until 2020. The following five goals are directly influenced by the development of the transport sector: reduced climate impact, clean air, natural acidification only, zero eutrophication and a good built environment [64]. The fulfilment of the goals is viewed as a measure of sustainability and the process is monitored by the performance of a number of indicators. On the regional level the environmental quality goals are broken down into regional specific sub goals which are concretized, administered and monitored by the County Administrative Board (CAB) [65]. On the whole, the environmental quality goals related to traffic seem to be hard to achieve. Many indicators are pointing in the wrong direction and for several of the goals it is deemed that fulfilment until 2020 will be hard, or very hard. In many cases increasing traffic volumes are threatening to offset the improvements brought about by technological development [66].

The sustainability discourse on the national level is thus to a large extent characterised by a focus on environmental issues. However, apart from the strictly defined goals related to environmental aspects, the fuzzy nature of the concept of sustainability also implies that there is a lot of freedom for the regional actors to define what the aims of sustainable development should be. The rationale underpinning the ecological modernisation model forwarded by the national

government clearly corresponds to the triple-bottom-line version of sustainability where economic, social and environmental interests can be merged in a successful manner, and although no explicit definition of the concept is to be found in the RDP for Scania it is clear that the same logic is prevailing here [67]. But in terms of what the concept is referring to in the RDP a very broad definition is used that apart from environmental concerns include for instance visionary goals related to education, culture, public services and non-profit activities. And while the economic dimension is not treated explicitly in the section on sustainability in the RDP, it is a fundamental aspect informing the different dimensions of sustainability [68].

Regarding issues of sustainability related directly to transportation, the regional transport infrastructure planning process is an important instrument for implementing the national goals and the attention will now be turned to identifying the central concepts and sets of meaning related to the sustainability discourse in the RTI.

#### VIII. PERCEPTIONS OF PROBLEMS AND SUGGESTIONS FOR SOLUTIONS IN THE SUSTAINABILITY DISCOURSE

To begin with there is no clear definition of the concept of sustainability in the RTI; in the preface it is however established that Scania needs a transport system that is sustainable in the long-term to ensure that the region is an attractive place to live and work in. Furthermore the transport system should be suited for everyone, regardless of gender, cultural background and disabilities [69]. According to this loose definition the sustainable transport system is framed as a precondition for a successful economic and social development, and while there is no explicit explanation of what a sustainable transport system is, the definition gives some indication as to what it is not. The unsustainable transport system thus hampers economic growth and regional attractiveness while it discriminates users on grounds of gender, cultural background and disabilities. Arguably this could be viewed as a summary of how the challenges facing the current transport system from a sustainability perspective are framed. As such a wide variety of issues and challenges are on a most abstract level conflated under the sustainability discourse. In the view of the author one interesting aspect of this framing is how it illustrates the idea of interdependence and harmonisation between different goals; on this abstract level there is no conflict or hierarchical order between the different goals, on the contrary they are to a large extent framed as being mutually supportive and equally important.

It is also interesting to notice that this framing omits any explicit mentioning of environmental issues. This should however not be interpreted as meaning that environmental issues are unimportant or disregarded, it is apparent from the contents of the RTI that this is not the case. Instead it can be viewed as an example of how environmental issues to a large extent are framed as a matter of regional attractiveness, which in turn is related to economic development. This is especially clear regarding environmental issues related to traffic that



have direct local effects, for instance air pollution (such as nitrogen dioxide, tropospheric ozone and particulate) and noise, which can have negative health effects, as well as barrier effects with possible negative social consequences for humans while also threatening ecosystems and biodiversity [70].

Another central concern of the sustainability discourse with a less clear connection to local effects and regional attractiveness is climate change and the reduction of CO<sub>2</sub> from the transport sector. Strong increases in traffic volumes in Scania during the last two decades means that emissions from the transport sector has continued to increase and are now accounting for around half of the total CO<sub>2</sub> emissions in the region [71]. Consequently this is an issue to which increasing attention has been paid in recent years and in the currently ongoing planning process it is established that the goal of reduced climate impact should be given a high priority. One reason for this interest is the strategic importance of the next planning period (2010 – 2020) for the fulfilment of nationally established climate goals; another reason is that measures leading to a reduced climate impact in most cases also contribute to the fulfilment of the other environmental quality goals [72].

It is established that the national obligations necessitates a 12 % reduction of emissions from the transport sector on the national level (amounting to roughly 5 million tonnes CO<sub>2</sub>) until 2020. This means that emissions from the transport sector in Scania also should decrease with 12 % although it is not clear how much this reduction means in absolute figures [73].

Naturally this focus on reductions of CO<sub>2</sub> emissions entails that road transports are viewed as problematic and a central concern of the sustainability discourse is different strategies for coming to terms with this problem. As such railway investments along with other forms of investments aimed at strengthening the public transport system are viewed as very important parts of the solution both regarding passenger and freight transports [74], [75]. A lot of attention in the RTI is also directed toward measures not directly related to physical infrastructure. This includes “soft measures”, such as information, education and marketing campaigns aimed at increasing the competitiveness of the public transport system, as well as better coordination between infrastructure planning and land use planning and the introduction of alternative fuels for the regional buss fleet. The reason for this is the acknowledgement that infrastructure investments alone have a limited possibility to influence peoples travelling habits. This also means that the view of mobility is problemized since it in many ways is closely associated with road transports; an alternative view is that focus should be changed from mobility to accessibility and that more attention should be paid to “soft measures” and economic and legal incentives as a way to influence travelling habits. Nevertheless, in terms of money the investments in physical infrastructure are totally dominating [76].

The framing of the problems of the transport system in the sustainability discourse is thus heavily influenced by the national environmental discourse which to a large extent is structured around the national environmental quality goals. The current political focus on climate change consequently entails that the problems of the transport system above all is posited as a matter of reducing greenhouse gas emissions, which in turn leads to particular suggestions for solutions. Arguably the most dominating suggestions within the sustainability discourse include technological development leading to reduced emissions from cars and heavy vehicles and measures in the transport system specifically aimed at strengthening the competitiveness of public transport and the railway system.

The perception of sustainability in the regional planning process seems to imply a slightly different focus which adds some other dimensions compared to the national sustainability discourse. On the regional level a sustainable transport system is not only framed as a matter of environmental protection but also as a precondition for regional attractiveness. The logic of this argument is based on assumptions on how to attract (the right) people and businesses in competition with other regions. This means that transport related environmental and social problems with more local effects or dissemination such as air pollution, noise, barrier effects and unequal access to transportation to a large extent are framed as a threat to the economic prosperity of the region and not as problems in their own right.

Additionally it is also interesting to notice the lack of clear target levels regarding reductions of CO<sub>2</sub> emissions on the regional level. This distinguishes the goal of reduced climate impact from other goals concerned with transport related pollution such as nitrogen dioxide, particulate and tropospheric ozone which are quantified on the national and regional level. This is not to say that the issue of greenhouse gas emissions is disregarded in the regional perspective, but it is clearly peculiar that the most prioritised goal is also the least defined in terms of which target to reach, how to go about reaching it, where and which measures gives the best effect.

Despite this slightly different discursive framing of the problems depending on whether a national or a regional perspective is applied, the suggested solutions are very similar, at least on an aggregate level. Measures aimed at strengthening the role of the public transport and the railway system are viewed as the solution.

#### IX. THE HANDLING OF CONFLICTING INTERESTS

The mapping of the two discourses has shown that there are both differences and similarities between the framing of problems and the suggestions for how they should be solved. The most obvious conflict between the two discursive framings of problems arises from the mobility centred focus in the regional development discourse. This implies a focus on capacity constraints of the road network and an important part

of the solution consists of improvements of the roads and expansions of the road network. The rationale for this view is based not only the problems occurring today but it is also framed as an anticipatory action where the expected 20 % growth in traffic until 2020 is an important factor. This leads to a situation where the goals of regional development and the goals for an environmentally adapted transport system within the sustainability discourse are proving hard to harmonise. The conflict of interests is recognized in several planning documents where it is explicitly acknowledged that there is a clash between the goal of regional enlargement and the goals aimed at reducing the negative consequences of transport [77], [78].

It is argued that a harmonisation of the goals is possible in the long term if sufficient investments in the railway network are made along with measures such as utilizing land use planning as an instrument for assuring the location of new settlements in areas well served by public transport. In the shorter time perspective it is argued that incentives with impact on technological improvement and choice of mode of transport are most important [79].

On the one hand this means that the argument is resting on assumptions about the introduction of new types of fuels and the development of the energy efficiency of the vehicle fleet, and on the other hand it rests on assumptions regarding initiatives affecting the travel behaviour and transport patterns for people and goods. But what is confounding with this two sided argument focusing on technology on the one hand and behaviour on the other, is that simultaneously it is acknowledged that these measures will not be enough to solve the problem with CO<sub>2</sub> emissions.

Regarding energy efficiency improvements it is for instance interesting to consider the strategic environmental assessment (SEA) for the current planning process where it is acknowledged that the goal of a 12 % reduction of CO<sub>2</sub> emissions from the transport sector in Skåne by 2020 will be hard to reach given the assumptions made on growth in traffic volumes [80]. The growth in traffic volumes is thus expected to cancel out the possible gains from energy efficiency improvements.

This leads to the other half of the argument, concerning incentives capable of influencing peoples and businesses choices of mode of transport. While it is not clear exactly what these incentives consist of the list of options available in addition to physical measures includes taxes, road user charges, environmental zoning, speed limits, parking regulations, traffic regulations, efficiency improvements for logistics and freight transports, and regional wide strategies for land use planning. In short the list consists of measures aimed at decreasing the use of road transports and increasing the modal share of public transport, walking, cycling and goods transports by rail [81].

However in the SEA process it is also acknowledged that only a very small reduction of CO<sub>2</sub> emissions can be expected from a transfer between modes of transport [82]. So while the energy efficiency of the vehicle fleet as well as the modal

share of public transport users, pedestrians and cyclists for passenger travel and railway goods transports are expected to increase considerably over the next decades this is not expected to contribute enough to achieve a 12 % reduction of CO<sub>2</sub> emissions. The prospect of achieving the target levels for reduction of other emissions such as nitrogen dioxide, tropospheric ozone and particulate is for the same reason also considered bleak [83].

So despite the framing of measures aimed at increasing the energy efficiency of the vehicle fleet and decreasing the modal share of road transports as the solution to the problems of the transport system it is at the same time recognized that these measures probably will not suffice as solutions for a number of important environmental issues. This situation arises from the expected 20 % growth in road traffic which arguably is one of the most important aspects of the planning process. The expected increase is an estimate made by the national road administration and it is of course asserting considerable influence on the planning process, for instance regarding how much money to allocate to road development and which road projects to prioritise.

Transit transports of goods are expected to make up a large share of the increasing transport volumes and this is posited as both a threat to the environment and as a possibility for creating new jobs in the region. How to tackle the role of "Scania as a transit region" can thus be seen as a very central part of the conflict between regional development and the environmental aspect of sustainability. The issue is framed as a matter of competition with other Swedish regions, which is made tangible by naming cities such as Gothenburg, Jönköping and Hallsberg as potential competitors on the logistical market. The section on transit transports in the RTI is quite vague regarding how to handle this conflict but the importance of a forceful planning strategy regarding prioritised transport routes and suitable locations for goods terminals are stressed in order to decrease the environmental load [84]. Although not explicitly stated it is probably not totally unreasonable to interpret this as meaning that the perception of transit transports as an opportunity is more dominant than the perception of transit transports as a threat.

Consequently it seems like the recognition of the conflicting interests does not lead to much more than an acknowledgement of the problem; the solutions for the environmentally related problems in the planning process is in the view of the author characterised by a mix of resignation and technological optimism. Despite the emphasis placed on measures aimed at decreasing the modal share of road transports a fundamental aspect informing the planning process is still the expected 20 % growth in road transports. This leads to a view where an expansion of the road network is as inevitable as the projected increase in traffic [85].

This can thus be interpreted as meaning that the perceptions as framed in the regional development discourse are dominating the planning process. While there is a clear recognition of the conflicting interests between goals related to regional development and goals related to environmental

sustainability this acknowledgement does not in any way lead to a questioning of the fundamental aspects of regional development that implies increasing problems related to traffic. Instead it seems like the sustainability discourse is adjusted to fit the purposes of regional development, for instance by framing the solutions as railway investments, new technology and fuels for cars and demand side measures aiming to influence the choice of mode of transport. The view of increasing mobility as a condition for a successful regional development is however not questioned.

That this is a prevailing view is also affirmed by interviews with politicians and planners with connections to the planning process. For instance when asked if there is a conflict of interest between development for the sake of regional enlargement and development for the sake of sustainability, the answers indicate that to the extent that such a conflict is recognised a high degree of trust in technological improvements is prevalent. In some cases the interviews indicate that there is no conflict since regional enlargement effects are mainly achieved by public transport, especially by train [86], [87].

It is however interesting to notice that there seem to be a discursive struggle going on indicated by an inconsistency noticeable both within the RTI, and between the reports forming the basis for the planning process and the RTI. In the SEA and other documents related to the environmental aspects of the planning process there are several indications of a questioning of taken for granted facts. One example is for instance a quite clear message in some documents regarding the limited possibility of meeting the goals of decreasing levels of CO<sub>2</sub> emissions by measures aimed at increasing the capacity of the railway and the public transport system alone [88], [89]. Another example is a section within the RTI regarding the environmental adaptation of the transport system. Here a critique against the *predict and provide* planning paradigm is forwarded. The logic by which (road) traffic forecasts provide the basis for the infrastructure plans, and the expected increase in demand is met by new capacity in the road network is criticised on the grounds that it runs the risk of turning the planning process into a self fulfilling prophecy. This view is seen as problematic since it is based on the principle that it is possible to solve growth and environmental related problems simply by building new infrastructure. Instead it is argued that more attention to soft measures influencing choices and behaviour is needed [90].

Nevertheless, it is the opinion of the author that it is hard to see how the expectation of a 20 % growth of traffic, playing such an important role in the planning process, is different from the *predict and provide* paradigm. Increasing traffic flows are clearly taken for granted and despite the frequent mentioning of soft measures aimed at reducing the negative environmental problems caused by traffic, physical measures aimed at facilitating the increasing flows of traffic still account for an overwhelming majority of the allocated funds.

#### X. IMPLICATIONS OF CONFLICTING INTERESTS ON THE PLANNING PROCESS

So what are the implications of the way the conflicting interests are handled in the planning process? One implication is in the view of the author a shifting of responsibility away from the current regional planning process, both to the national and the international level as the arenas for establishing incentives for energy efficiency improvements and incentives for shifting means of transport. So while the national level is expecting the regional level to be an important actor for implementing the nationally established goals, there is a tendency for the regional level to avoid this responsibility by transferring liability to other actors.

Additionally it also involves a shifting of responsibility to future planning processes as an arena for making sure that planning is carried out in a manner that is positive for the public transport system. One possible implication is thus in the view of the author that the responsibility for implementation of the goals established at the national level is running the risk of ending up in an administrative vacuum where actors at different levels of the planning system are expecting someone else to carry out the necessary tasks.

Another important conclusion from this analysis is that the results indicate a strong focus on regional development, which implies a very positive view on mobility and transports as important factors for the economic success of the region. This focus on regional development is of course no surprise but it has implications for the possibility to solve the problems as framed in the sustainability discourse. The framing of perceptions of problems and solutions in the regional development discourse and the sustainability discourse show many similarities but there are also important differences.

In the view of the author one of the most interesting aspects is the acknowledgement that investments in railways and other measures aimed at increasing the public transport system can only play a rather modest role regarding the solution of the environmental problems caused by the increasing transports brought about by the various regional development processes.

This is not to say that railways and public transport are unimportant or that their significance is overstated. Nor should the results be viewed as meaning that the primary focus on regional development should be abandoned. Clearly job creation and accessibility to labour markets brought about by the strategic investments in transport infrastructure in general as well as public transport investments in particular are very important for individuals as well as society at large. Instead an important question arising from this analysis is whether or not the planning of a transport system aimed at alleviating the environmental problems caused by traffic is the same as the transport system aimed at regional development. In the meaning production process constituting the infrastructure planning process it is argued that this is the case; investments in railways and public transport are per definition beneficiary for regional economic and social development *and* the environment. However the author concludes that the analysis has shown that this is not

necessarily the case, the way problems and their solutions are framed are only partly objective constructs reflecting an independently existing reality. This should not be interpreted as a denial of the existence of traffic jams, capacity constraints in the railway network, poor maintenance of roads or any other concrete problem. But there is also a very important element in the problemization process that relate to specific mental constructions and essentially ideologically charged concepts associated with mobility, labour markets, regional competitiveness, the environment etc.

One point in case is investments in public transport systems which in general is good from a social perspective since it may potentially reduce car dependency and thereby increase accessibility for individuals with no car. But an important question arising from the very strong regional focus is whether measures specifically aimed at achieving regional enlargement effects are beneficiary for everyone or if it caters for the needs and interests of specific groups of people? A possible implication of the way the conflicting interests are handled is thus in the view of the author that the strong focus on regional development may block other perceptions of problems and solutions originating from the needs of social groups not benefiting from increasing regional mobility.

Another important implication of the way the conflicting interests are handled is deriving from the acknowledgement that transfers of passenger traffic to public transport and goods transports to railway can only be expected to account for a minor reduction of CO<sub>2</sub> emissions in the near future. This implies that the only truly effective way of handling the problems caused by increasing traffic volumes is measures aimed at restraining and reducing the growth of transport work by road. Consequently if the responsible decision makers conceive measures aimed at substantially decreasing the expected traffic growth as politically infeasible or harmful to the economy, a possible solution is perhaps to ensure that other sectors take a larger share of responsibilities for cutting emissions.

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