

REGIONAL TRANSPORT POLICY: PROGRESS TOWARDS ENVIRONMENTAL ADAPTATION?

Linnea Hjalmarsson, Linköping University, Department of Thematic Studies—Technology and Social Change, linnea.hjalmarsson@liu.se

ABSTRACT

Environmental concerns have given rise to a common understanding that the transport system must change. This study examines regional transport policy in Sweden and what it defines as problems and solutions. The aim is to explain how transport policy represents environmental problems in policy documents and to understand the effects of the policy process over time. The western county of Västra Götaland is used as a case and policy documents tracing the development of transport policy are the studied material. Results indicate that the transport policy process defines high energy use and fossil fuels as major problems and that four solutions are connected to them: energy-efficient vehicles, renewable fuels, regional public transport, and railway infrastructure. The Västra Götaland transport policy process does not define the following as either problems or solutions: restrictions on car use, policy integration, slower travel, short travel distances, and policy acceptability. Transport policy in Västra Götaland has remained constant over time regarding what are and are not defined as problems and solutions, and few minor changes have been observed in the construction of problems and solutions. This implies a situation of momentum for transport policy, whereby transport policy retains the same problem representations for a long period. This makes it difficult to introduce major changes that might be necessary for environmental adaptation of the transport system. If no major impetus from outside the system induces transport policy to change, the future development of the entire system will likely remain largely predictable.

Keywords: Regional policy, Transport policy, Energy, Transport system

INTRODUCTION

The transport system accounts for a major part of humans' present negative impact on the global environment (IEA 2011). It is no secret that the transport system must adopt more environmentally adapted solutions. Research reports on various dimensions of environmental problems indicate that the world needs to act now if we are to make needed changes and redirect development towards environmental improvement (Pachauri and

Reisinger 2008; Rockström, Steffen et al. 2009). International, national, regional, and local policies must be developed to deal with these global environmental problems.

Sweden, a small northern European country, has ambitious policy goals pertaining to environmental development and a more environmentally adapted transport system (Regeringskansliet 2008, 2009). Sweden is a sparsely populated country where the need for transportation continues to grow (Trafikverket 2012a). In addition, the perception that improving transportation promotes economic development is widespread among policymakers throughout the country (NUTEK 2001; Regionplanenämnden 2010; RVG 2012). Transport in Sweden is currently a regional concern, as better transport options make local labour markets larger and more regional in scale (SCB 2010). In addition, much of the planning for transport development takes place at the regional level, including matters such as regional development planning, infrastructure investment, and public transport. Simultaneously, municipalities have started to cooperate to manage issues that cross their territorial boundaries, such as transportation (Montin and Wikström 2004; Nilsson 2006). Therefore, regional transport policy development pertaining to environmental adaptation is the focus of this paper.

Aim

This study is rooted in the ongoing discussion of methods for achieving a more environmentally adapted regional transport system. The aim is to explain how transport policy represents environmental problems in policy documents and to understand the effects of the policy process over time. The paper problematizes how the environmentally adapted transport system is described in regional policy documents, how problems and solutions are formulated in these documents, and what meanings they express. The study contributes to our understanding of why the transport system develops in certain directions over time and why certain future developments are more or less probable. This is done by identifying what problems and solutions are currently being dealt with in the policy process and what ones are ignored. The following research questions concentrate on the problem representations and their development over time:

- What issues are represented as problems and solutions in the development of environmentally adapted transport systems?
- What issues are not considered problems and solutions?
- What has changed and what has remained constant in the problem representation of transport policy over time? What effect does this have?

The Västra Götaland region in southwest Sweden is used as a case and policy documents regarding regional development in general and transport issues in particular are the empirical material. To recognize both what has changed and what has remained constant, the material comprises documents covering thirteen years.

After this Introduction, the paper continues with a “Method” section, where the case study and the material used are described. The following part is the “Theory” section, first

presenting a brief discussion of how public policy is defined here and how policy relates to the concepts of system and policy documents. Second, continuing with a brief description of the “What’s the problem?” approach, which has inspired the research questions and serves as the method for analysing the policy documents. The “Results and discussion” section describes and analyses how the transport policy process in Västra Götaland represents the problem of environmental adaptation. The discussion elaborates on what the results may mean for transport policy development and for the entire transport system.

METHOD

Västra Götaland case study

This paper is based on a case study performed in the county of Västra Götaland in 2012. This county is situated in southwest Sweden, on the west coast, and is the second largest region in Sweden in terms of population, Stockholm county being the largest (VG Region 2011). Gothenburg, Sweden’s second largest city is situated in the western part of the region. The region also contains of several medium-sized cities, in Swedish terms, and large areas of more sparsely populated land consisting of farmland and forest (VG Region 2011).

The county of Västra Götaland is a relatively new county formed in the late 1990s by merging four smaller counties. This was done institutionally by forming a new type of Swedish administrative unit, Region Västra Götaland (RVG), in 1999 (VG Region 2012a). Region Västra Götaland is a regional parliamentary institution responsible for healthcare, public transport (owning the regional public transport company Västtrafik), and economic, environmental, and cultural (sustainable) development in the region (VG Region 2012b). Regarding the responsibility for sustainable development, the region is primarily dependent on decisions made by the municipalities, since it has no power of its own to implement what is outlined in policy (Nilsson 2006). Therefore, much of the regional policymaking is done through collaborations between the region and the four sub-regions, which are cooperative organizations representing the municipalities. The regional transport policy process is mostly undertaken through these collaborations and through other forms of collaboration with academia, the business community, and the public. The documents studied are therefore mostly the result of fairly extensive collaboration aiming to establish transport policy already approved by most regional actors.

Studying policy documents

The data examined here consist of over one hundred political documents, produced from 1999 to 2012, describing transport policy development. These documents are used as the only empirical source, a common method when studying the development of policy processes over time (Bryman 2008; Bacchi 1999; Hill 2005;). Documents could be considered a limited data source, since policy development consists of much more than textual formulations (Hill 2005). However, the long period under study makes documents the best empirical source, since they manifest collective memory of what was considered

important, and how it was problematized, throughout the studied period (Bryman 2008; May 2001). Following Bacchi's (1999) argument, in the present paper, documents represent the written part of policy and can therefore be analysed as signs of the established policy process.

The types of policy documents used in this study are background materials, vision statements, strategies, implementation plans, and budgets. The documents were produced by various institutions in the region, mostly by Region Västra Götaland, the four sub-regions, the public transport company, national agencies, and temporary networks comprising several regional actors. The documents were selected based on whether they concern regional or sub-regional matters and whether they treat transport policy.

Each document was first read through and then searched using key words; finally, the findings were summarized in a table. All document tables were entered into one Excel table, allowing the documents to be sorted chronologically, in order of decision relevance, etc. The various document sortings made it possible to analyse how problems and solutions were defined in various documents and to follow the problem representations over time.

THEORY

Definitions of concepts: Public policy process, system, and policy documents

The public policy process for transport in Västra Götaland will be described and analysed in order to identify the problems and solutions defined in policy and how these have developed over time. Public policy has been defined in many ways and there are various understandings of how policy should be studied and defined; defining how the concept is used in this paper is therefore necessary. Three concepts are important to the analysis in this paper: policy process, system, and policy document.

Policy process and system

Common to almost all definitions of public policy is the understanding that policy is not just one thing; instead, it consists of various political expressions in various situations. A policy therefore comprises the goals, decisions, actions, and inactions important to the development of a certain situation or system, in this case, the transport system (Hill 2005: 7ff; Jenkins 1978; Smith 1976). Regarding public policy as a process consisting of more than just a single decision, but as a web of important aspects, is useful when discussing policy in terms of policy process. This view acknowledges that policy is not static, but is a continuously evolving process that changes over time (Hill 2005; Smith 1976), though the policy process also encompasses issues that remain constant over time. Both changes and constants are important to take into consideration when analysing the policy process (Bacchi 1999).

As established above, the policy process is important to the development of a certain situation or system. In this paper, “system” refers to a socio-technical system that contains all aspects needed for the development of a technological system, for example, the technological, social, and political aspects of the system (Hughes 1983). The transport system thus includes every aspect of transport, for example, the vehicles, infrastructure, planning models, and policy processes, together with all actors connected to these. The development of the entire transport system is influenced by the transport policy process; consequently, transport policy process, as defined here, is concerned with the whole range of transport issues.

Policy documents

The third concept used is that of “policy document”, which is the written expression of a policy at a certain stage of the policy process (Bacchi 1999). One document may contain several expressions of several different policies, though it may also constitute an expression of a single policy. In this study, one policy document produced at a regional level often contains several expressions of several different policies. The regional policy for a certain system, such as transport, is established by all current documents treating that system. This is the case since the policy documents define the problems found in a given policy and the needed solutions to solve them. The policy documents are thus the textual sources in which policy expressions can be found (Bacchi 1999; Perman 2008). By regarding policy in this way, one can analyse how it develops over time, by following expressions of what is constant and of what changes (Bacchi 1999).

In the present study, the regional policy process is established by all policy documents describing the system of interest. The transport policy process in the Västra Götaland region thus encompasses public transport, land use planning, infrastructure planning, and other issues connected to progress towards a more environmentally adapted transport system. This is not the most common way of defining transport policy among transport researchers (see, e.g. Hull 2011; Marshall and Banister 2007; Stead et. al 2004). However, in the present paper, such a holistic perspective on transport policy is needed for the analysis of the problem representation. Hence, the various issues connected to the transport policy process reveal different aspects of the problems and solutions defined in the process.

Method of analysis: The “What’s the problem?” approach

In seeking to identify the problems and solutions that are and are not defined in the transport policy process in Region Västra Götaland, this paper is inspired by the “What’s the problem?” approach developed by Carol Lee Bacchi (1999). This approach can be used to critically analyse the problem representation in a policy process (Knill and Tosun 2012); therefore, it is used to inspire the research questions of the present study and as a method of analysis.

The “What’s the problem?” approach makes it possible to identify the problems and solutions represented in the policy documents as well as how they are represented. Furthermore, the approach makes it possible to discuss what it means for certain problem representations to

be current while others are not. The effects of the problem representation are also acknowledged in relation to the time perspective, i.e., whether there are differences or constants over time and what this tells us about the likely future development of the transport system.

Bacchi (1999) does not regard problem definition and problem solution as two distinct concepts, instead treating them both as part of constructing what a problem is within a certain policy process. Consequently, she argues that problems are not “out there” and policy is not developed to solve them; instead, problems are created during the making of policy (Bacchi 1999). Therefore, the representation of problems, understood as definitions of both problems and their solutions, is expressed in policy documents. To analyse how a problem is represented in text, Bacchi has developed a set of questions (1999, pp 12-13):

- What is the problem represented to be either in a specific policy debate or in a specific policy proposal?
- What presuppositions or assumptions underlie this representation?
- What effects are produced by this representation? How are subjects constituted within it? What is likely to change? What is likely to stay the same? Who is likely to benefit from this representation?
- What is left unproblematic in this representation?
- How would “responses” differ if the “problem” were thought about or represented differently?

In this paper the first, third (to some extent), and fourth questions are used in analysing the policy documents. The first question focuses on the problem representation: *what* are defined as problems and solutions within the policy process and *how* the problems and solutions are defined. The question is used to clarify what issues are defined as problems, what issues are connected to these problems as solutions, and how these problems and solutions are constructed in the transport policy process.

The third question focuses on the effects of the problem representation. In this paper, this question relates to the policy process development over time and focuses on the effects of the policy process development on the actual transport system. It can explain why the transport system has developed in a certain way and how the system is likely to develop in the future.

The fourth question concerns what considerations are not included in the problem representation and therefore not problematized as either problems or solutions. These could be issues not mentioned in policy or issues mentioned, but not treated as problems or solutions. In this paper, the scientific literature on environmentally sustainable development of the transport system is used to identify any problems or solutions that might be omitted from the Västra Götaland transport policy process. This discussion is limited to issues connected to the defined problems.

RESULTS AND DISCUSSION

In this section, the results of analysing the policy documents are presented to build an understanding of what problems and solutions are defined in transport policy, what might not be defined as problems or solutions, and how these problem representations have developed over time. The discussion concentrates on what the problem representations meant for the development of the transport system during the thirteen studied years and on likely future developments.

Defined environmental problems in the transport policy process

The issues the Västra Götaland transport policy identifies as environmental problems are congestion, substance emissions, high energy use, and fossil fuels. The first two problems are rarely treated in the documents while the last two are frequently treated in almost every document touching on transport. Consequently, aggregating the problem definitions over time reveals the problems defined in transport policy to be high energy use and fossil fuels.

The identified environmental problems are defined as such in view of the negative climate impact of greenhouse gas emissions (see, e.g., RVG, 2007, 2008). In addition, high energy use and fossil fuels are defined as problems from an economic perspective as well, i.e., extensive use of oil means that regional private and public actors are dependent on a global market where energy prices could increase without any possibility of regional control (Fyrbodal 2008; RVG 2003; Västtrafik 2009).

The results indicate that the transport policy process in Västra Götaland is focused almost solely on high energy use and fossil fuels as environmental problems. Other aspects of the influence of transport on the environment are either largely or completely ignored. This is not a unique situation, but confirms other research testifying to the interdependence of the transport and energy systems (Hull 2011). Reducing energy use and fossil fuels in general is high on the political agenda in many countries. What is especially interesting is how the solutions to these two problems – excess energy use and fossil fuel use – are constructed. This constitutes the complete problem representation of the transport policy process in Västra Götaland and also captures in greater detail what is included in transport policy.

Defining solutions to high energy use and fossil fuels in transport policy

The solutions to the problems of high energy use and fossil fuels articulated in the Västra Götaland documents involve several closely connected components of the transport system. The descriptions are grouped under headings representing the solutions defined in the policy documents.

Energy-efficient vehicles

Much of the Swedish vehicle industry is situated in the Västra Götaland region. Cars, trucks, and buses are developed and produced in and around Gothenburg and also in the northern part of the region around the city of Trollhättan. Knowledge of vehicle development is therefore up-to-date in the region, which the policy documents acknowledge and identify as an opportunity (RVG 2012b). The opportunity is described in the documents as the possibility for the established vehicle industry to apply its knowledge and experience to develop more energy-efficient vehicles (RVG 2012b; Skaraborg 2007). Preferably, industry should do this earlier than in other parts of the world, to create exportable products (Skaraborg 2003). In this way, the region hopes the industry will update itself, become attractive on the international market, and in the long run secure existing workplaces and create new jobs. Energy-efficient vehicles are therefore not only a solution to the problem of high energy use, but also an answer to another current problem: regional economic development.

Biogas in focus

Increased use of renewable fuels was a focus of Västra Götaland transport policy throughout the studied period (RVG 2001, 2012). However, the need for more renewable fuels in the transport system is usually argued in fairly general terms (Miljöberedningen 2000; RVG 2003). What exactly renewable fuel use constitutes and means is only specified in the case of biogas (BRG 2006; RVG 2001, 2008b, 2010). Biogas is not only used in vehicles in the region, but biogas production resources, production facilities, and distribution infrastructure are also situated in the region. Consequently, biogas is an industry in Västra Götaland that involves energy companies, municipalities, production companies, vehicle companies, and other actors (BRG 2006; RVG 2010).

Region Västra Götaland coordinates various regional actors collaborating in the biogas production–consumption chain. This collaboration was established in 2001 and has steadily gained more members following the increased interest in biogas in society. The goal of the collaboration is to increase the production and consumption of biogas in the transport sector. The collaboration partners consider that biogas is best used in the transport sector, as that is where it can benefit the environment the most (Biogas Väst 2012a).

It is clear from the policy documents that various actors are helping create a regional biogas market, to increase biogas production and consumption. To increase biogas demand, the public transport company has invested in biogas buses (Skaraborg 2009; Västtrafik 2010a,b) and Region Västra Götaland has an internal vehicle policy prioritizing biogas vehicles when purchasing new vehicles (RVG 2011b). In addition, there are requirements to prioritize biogas when conducting public procurements for public vehicles and public transport (Västtrafik 2010b).

However, there is a problem: the biogas buses use more energy than do the new diesel buses whose engines are fairly energy efficient (Västtrafik 2010b). Consequently, a conflict has arisen between the goals of increasing energy efficiency and increasing regional biogas

production and demand. Biogas is still the prioritized fuel according to the public transport company, but the lack of energy-efficient biogas vehicles has prompted the company to limit the use of biogas in public transport. Instead of biogas, diesel fuel made from renewable resources such as Rapeseed Methyl Ester, called RME, is mentioned as the preferred fuel in the coming procurements in 2014 (Sjuhärad 2012; Västtrafik 2010b). The public transport company has announced that it wants to take part in developing more energy-efficient biogas buses (Västtrafik 2010b).

Although biogas is considered important from an environmental perspective, the infrastructure for vehicle gas in the Västra Götaland region is today supplied with a mixture of biogas and natural gas (Biogas Väst 2012b). The belief is that interest in vehicle gas is likely to increase and create a demand that cannot be met by today's biogas production, and that this strong demand will stimulate an increase in biogas supply (Biogas Väst 2012b). This scenario indicates that biogas is defined not only as a solution to the problem of fossil fuel consumption, but also as a means to promote regional economic development, since it has created a new industry and market in the region. The biogas case also illustrates that, though a measure may be an obvious solution to one major transport policy problem, it may simultaneously be part of another defined problem.

Regional public transport

For most of the twentieth century, the car was the focus of transport policy (Falkemark 2006). During the studied period, however, regional transport policy in Västra Götaland emphasized public transport, which is argued to be a necessary current or future foundation of the region's transport system (RVG 2010c; Sjuhärad 2011; Västtrafik 2004, 2008).

There are several reasons why public transport should be emphasized in transport development. First, public transport is considered the most energy-efficient means of transport available today. According to the policy document goals, the number of travellers using public transport must increase to make the transport sector more energy efficient (Miljöberedningen 2000; RVG 2010c). The alternative means of transport to public transport is the private car, and a major goal is to induce drivers to use public transport instead of their cars. The documents contain several descriptions of information campaigns and incentivizing policy measures to induce people to choose public transport instead of cars (RVG 2005, 2010c, 2012b). One acknowledged problem is that increased public transport may not definitely lead to decreased car travel (RVG 2011).

Second, public transport is assumed to play an important role in the transition to a more closely interconnected region. This assumption is advocated in two ways in the documents. In the early policy documents produced by Region Västra Götaland in the late 1990s and early 2000s, the goal of a closely interconnected region is presented as a way to forge a common regional identity (RVG 2005b, 2006). As Region Västra Götaland was recently created out of four existing counties in 1999 (VG Region 2012a), there was a need to shape a Västra Götaland identity. If the region's inhabitants can easily travel around the region, they will come to feel like inhabitants of Västra Götaland and feel a sense of common identity.

Public transport could provide a convenient and accessible way to travel around the whole region (RVG 2005b).

Since the early 2000s, the creation of a closely interconnected region through public transport has been advocated as a means to increase access to the regional labour market (RVG 2006, 2012c). The goal is fast transport that enables longer commuting distances and thus creates larger local labour markets, a phenomenon called regional enlargement (RVG 2006). The documents treat regional enlargement as a major task of the transport sector. This is evident in investments in public transport, where increased service is concentrated along the routes where people are more likely to replace cars with public transport. This possibility is especially relevant along the routes where public transport is faster than commuting by car (RVG 2005; Sjuhärad 2012).

Third, it is considered impossible to make public transport efficient and attractive enough for use in sparsely populated areas, so people will need to use private cars in these areas for transport to the nearest public transport hub (Skaraborg 2007). Accordingly, “park-and-ride” spaces for commuters are defined as important for public transport use in sparsely populated areas, being part of improved transfer hubs between modes of transportation (RVG 2010). Making it easier to change modes of transportation at certain places is a priority for the Västra Götaland public transport company. In the cities, stations and bus stops are being improved for easier access by bike, walking, and car, while in the countryside, park-and-ride spaces are being made accessible to car commuters and, in certain areas, to bike commuters as well (Västtrafik 2005, 2010). More attractive transfer hubs for public transport are measures to make more people choose the bus or train instead of cars, even on longer journeys.

In summary, widespread car use is arguably problematic in relation to the advantages of public transport. Public transport is more energy efficient than is car travel and contributes to regional enlargement, which is why it should be expanded on the routes established as most influential in extending local labour markets (Västtrafik 2010a). Cars are an important means of transportation for people living in sparsely populated areas; since their transport needs must also be important for regional transport policy; public transport is considered an answer to the car problem in many places but not everywhere.

Railway infrastructure

In Sweden, the national government is responsible for developing new railways and for maintaining existing ones. The same applies to all larger roads, which are considered national roads (Trafikverket 2012). Other public roads and the road networks within cities are a municipal responsibility (Nyström 2003). Region Västra Götaland is responsible for regional infrastructure planning, which entails negotiation between the sub-regions, municipalities, and representatives of the national transport authorities about how national and regional investments should be distributed among various infrastructure projects in the region. Regional infrastructure planning concentrates on the regional transport system (RVG 2010b). In the region, infrastructure projects of national scope, such as highways and railway lines

that traverse many regions, are the responsibility of the national government (Trafikverket 2012). Because of this system of infrastructure planning, regional transport policy in Västra Götaland is largely concerned with how the regional actors can influence other planning levels.

Since the establishment of Region Västra Götaland, the problem of railway infrastructure has been high on the agenda (RVG 1999). In the early 2000s, the policy documents established, as a fact, that the region was receiving less money for infrastructure investments from the national government than were other similar regions in Sweden and that this had gone on for many years (Utvecklingsgrupp Väst 2003b). Therefore, in Region Västra Götaland's operational plan (RVG 2000) and first regional development strategy (RVG 1999), the region demanded a larger share of national investments in both roads and railways. In the late 2000s, railway infrastructure started to be prioritized above road infrastructure, even though roads are still considered important in certain areas. The reason declared in the documents is that fossil fuel consumption in the region can decrease if more people travel by train than by road vehicles (RVG 2010c, 2011, 2012). The railway is thus considered better from an environmental perspective than are roads.

Some documents express frustration at the lack of national investment in regional railway infrastructure, since this limits the region's ability to reduce fossil fuel consumption and become more energy efficient (RVG 2007b, 2008c; Västtrafik 2009b). The solution proposed by Region Västra Götaland to the national decision-making level is to develop an institutional structure to handle infrastructure investment planning in a more organized way, the goal being to exert more influence on the decisions made (RVG 2007b, 2008c; Västtrafik 2009b). The four sub-regions have emphasized regional investment planning (Fyrbodal 2010; GR 2008; Sjuhärad 2007; Skaraborg 2007), while Region Västra Götaland has generally focused on the national level as infrastructure planner (RVG 2003b).

Improved railway infrastructure is also considered desirable from the regional enlargement perspective. Trains provide faster transport over longer distances than do buses and are therefore a more desirable mode of public transport over such distances. Enabling faster commuting over greater distances in the region will likely encourage more people to commute, enlarging the local labour markets and advancing the goal of regional enlargement (Sjuhärad 2011, 2012). The routes served by trains are arguably the ones that can genuinely compete with car travel (Sjuhärad 2011).

The policy documents also articulate another perspective on the importance of railway infrastructure and access to labour markets, arguing that railways are the best way to connect Västra Götaland with surrounding regions. The regions with the most interest in this stance are Stockholm (though not a directly abutting region, it can be reached within a few hours by train) and nearby parts of Norway, because of their attractive labour markets. Good connections with these regions imply railway infrastructure for rapid commuting by trains (Utvecklingsgrupp Väst 2003).

To conclude, the railway infrastructure issue reveals a conflict between levels of decision-making power. Railways are desirable from a regional perspective because of arguments concerning transport system development in terms of both environmental adaptation and regional enlargement. The problem, according to actors in Västra Götaland, is national investment, since the region lacks sufficient investment in railways.

Problem representation in the Västra Götaland transport policy process

As described above, four issues evident in the policy documents throughout the studied period were argued to be solutions to the problems of high energy use and fossil fuels. The first solution is energy-efficient vehicles, linked primarily to the problem of high energy use, since the development of such vehicles implies reduced total energy use (RVG 2009, 2003; Utvecklingsgrupp Väst 2003). The second solution is biogas, linked primarily to the problem of fossil fuel use, since the development of renewable alternative fuels is anticipated to reduce the need for fossil fuels (RVG 2001, 2009, 2010). The description of biogas indicates potential conflicts between the problem representations, since biogas is both a solution to and potential contributor to high energy use.

The third solution is regional public transport, which is connected to the problems of both high energy use and fossil fuels. Regional public transport can reduce energy use by transporting more people using less energy than do private cars (RVG 2001; Västtrafik 2008). It is also considered easier to change the type of fuel used in public transport, since Region Västra Götaland is the owner of the public transport company (RVG, 2012; Västtrafik 2006). Finally, the fourth solution to both problems is railway infrastructure, considered energy efficient since railways can transport more people, are faster, and use less energy than other transport modes. Railway infrastructure is largely powered by electricity; since electricity is produced primarily from renewable sources in Sweden; increased railway use would reduce the need for fossil fuels in the transport system (RVG 2011; Sjuhärad 2011). The problem representation is summarized in Table 1.

Table 1. How problems and solutions are connected in the Problem Representation

Problem Representation	Problem	High energy use	Fossil fuels	High energy use Fossil fuels	High energy use Fossil fuels
	Solution	Energy-efficient vehicles	Renewable fuels	Regional public transport	Railway infrastructure

Our understanding of the effects, over time, of this problem representation on the transport system will be developed later in the paper; before that, however, the problem representation will be put in context by considering what is absent from the representation.

Absent problems and solutions in transport policy

Determining what is *not* defined as a problem or solution is difficult if an issue is not treated in the documents and one does not know whether it is supposed to be there. To identify what is missing from the problem representation of transport policy, a short check-list will be used. A list of the factors needed in order to achieve a more environmentally adapted and even sustainable transport system is commonly used by transport researchers (Banister 2008; Hull 2011; Marshall and Banister 2007; Stead et. al 2004). The list is not always exactly the same in terms of formulation and focus, though the major points are always there: technical change, behavioural change, restrictions on car use, policy integration, shorter travel distances, slower travel, and policy acceptability. The factors that are treated in the problem representation discussed here are technical change, i.e., energy-efficient vehicles and biogas, and behavioural change, i.e., a shift to public transport, efforts to induce people to make more use of public transport, and a requirement for biogas vehicles in public procurements. The other items on the list will be discussed next.

Car use restrictions seek to make it more difficult for individuals to use cars for their everyday transport, while making it easier for individuals to choose means of transportation other than cars (Banister 2011). However, in this case the car is not identified as a problem per se, and restrictions on car use are not presented as a solution in Västra Götaland transport policy. The main reason for this omission is that restrictions on car use are considered undesirable in a region with large, sparsely populated areas (RVG 2010c; Skaraborg 2007).

Gothenburg's urban area differs from other parts of the region: In the Gothenburg area, the sub-region has established a zoning map of housing and transport development for the municipalities to use in their land-use planning and to give them access to the sub-regional perspective (GR 2008b). However, even the Gothenburg sub-region contains sparsely populated areas far from the nearest centre and where cars are considered a necessary means of transportation (GR 2008b). At the Västra Götaland regional level, cars are clearly considered important for those living in areas where public transport simply cannot be efficient or attractive (RVG 2010c; Skaraborg 2007). Development of the road infrastructure is consequently high on the transport policy agenda and is considered especially important in the sparsely populated areas where roads are old and not well maintained (RVG 2010c; Skaraborg 2007). In addition, improvement of road infrastructure, which binds the region to other regions, is considered important for security reasons (Skaraborg 2007) and to allow public buses to travel faster (Skaraborg 2011).

Policy integration is a decision-making principle that is necessary when complex policy issues, such as the environmental adaptation of a transport system, are to be managed. It has at least two dimensions: on the one hand, to consider whether all necessary concerns are integrated in the policy process and, on the other, to ensure that all actors are integrated in a single policy process (Hull 2011). Policy integration is not clearly defined as a problem or solution in the Västra Götaland transport policy, but is implicit in the ongoing discussions in the policy documents. For example, there is a strong demand for cooperation between various actors in the region concerning energy and transport matters, in order to involve all actors relevant to the decision-making (RVG 1999, 2003, 2005b, 2008, 2009, 2010). High

energy use and fossil fuels are the major problems defined in the region's transport policy and they have started to influence the regional infrastructure planning: in the last plan, some investments were allocated to public transport (RVG 2010b). The need for policy integration is thus recognized, but not so strongly that it is defined as a solution or the lack of it as a problem.

Travelling shorter distances and travelling more slowly are advocated as necessary changes to everyone's behaviour in order to reduce the transport system's negative influence on the environment (Banister 2008). However, issues connected to shortening both the distances travelled and the time spent travelling are not defined as problems or solutions in the Västra Götaland transport policy process. On the contrary, the ability to travel longer distances within the region in less time is advocated as desirable in the documents, the problem today being that not enough of the inhabitants can do so (RVG 2006, 2012c). This problem definition is clearly connected to regional economic development, not to environmental concerns.

Policy acceptability concerns general acceptance of policy goals and measures established by public institutions and meant to be implemented among the public (Banister 2008). In this case, it is difficult to say whether policy acceptability is defined as a problem or solution in Västra Götaland transport policy, since it is treated as implicitly problematic. Many of the studied policy documents were produced in a process involving representatives of the private sector, interest organizations, and the public, manifesting a belief that involvement automatically leads to acceptability (Utvecklingsgrupp Väst 2003; RVG 2001, 2003, 2005b, 2009). Another example is the goal of increasing travel by public transport, which has led to several projects promoting public acceptance of increased public transport use (RVG 2005, 2010c, 2012b).

In summary, researchers consider several aspects important to the environmental adaptation of the transport system, aspects that are not defined as either problems or solutions in the Västra Götaland transport policy process. It is important to note that the policy documents are constant over time regarding their treatment of the issues discussed above. The following section will discuss changes and constants in the problem representation of high energy use and fossil fuels.

Changes and constants in the problem representation over time

The problems defined in Västra Götaland's transport policy pertaining to environmental development have remained the same over time: high energy use and fossil fuels. The solutions, the other part of the problem representation, have also remained constant over time: energy-efficient vehicles, renewable fuels, public transport, and railway infrastructure are all issues defined as solutions throughout the studied period. The problem representation in the transport policy has thus remained fairly constant over time.

However, there are some changes in how the solutions are advocated and in their ascribed priority in Västra Götaland's policy documents. The references to energy-efficient vehicles

include more specific measures in recent years, and since 2010 the conflict between energy-efficient vehicles and the increased use of biogas has become overt (Västrafik 2010b). The definition of energy-efficient vehicles as closely connected to successful enterprises, job opportunities, and regional economic development remained constant throughout the studied period (Skaraborg 2007; RVG 2012b). Biogas has consistently been considered a highly important regional product for both environmental and regional economic development reasons (BRG 2006; RVG 2001, 2008b, 2010). There has been a minor change in the treatment of biogas, and there is now a slightly greater emphasis on biogas as the most important renewable fuel in the region (RVG 2010).

Regarding regional public transport, there has been a major shift in the most recent part of the studied period, towards greater consideration of public transport in all forms of planning that might influence its development (GR 2008, 2008b; RVG 2010b,c). The assumption that public transport use must increase for the sake of the environment and for regional enlargement has remained constant over time (RVG 2001, 2006, 2008, 2012). Railway infrastructure has been consistently high on the transport policy agenda during the studied period, as all kinds of infrastructure have been considered important. More recently, there has been a shift in the prioritization of infrastructure investments to rank railway infrastructure above roads (RVG 2010c, 2011, 2012), the cited reason being that greater use of electric trains helps reduce fossil fuel use and increase energy efficiency in the region (RVG 2010c, 2011, 2012). A constant argument in favour of railway development, however, is that it contributes to regional enlargement (Sjuhärad 2011, 2012).

Table 2. The changes and constants of problems and solutions over time

Problem		High energy use	Fossil fuels	High energy use and fossil fuels	High energy use and fossil fuels
Time	Change	No	No	No	No
	Constant	Same connection between problem and solution	Same connection between problem and solution	Same connection between problem and solution	Same connection between problem and solution
Solution		Energy-efficient vehicles	Biogas	Regional public transport	Railway infrastructure
Time	Change	Biogas not as energy efficient	Intensification of biogas use	The role of public transport in all forms of planning (e.g., re. land use and infrastructure)	Railways prioritized over roads since 2007 for infrastructure investments because of more environmental

					benefits
	Constant	The importance of energy efficiency and regional economic development	Biogas as an important regional product	Public transport as important for the environment and regional enlargement	Investments in railway infrastructure are important because of their positive influence on regional enlargement

The problem representation and transport policy development over time are summarized in Table 2, which shows that, though there have been a few changes in how the solutions are defined, the problems have remained constant over time. The relevant question is then: What does it mean for transport development in Västra Götaland that the problem representation has remained fairly constant? The relatively small changes in policy imply that transport policy in Västra Götaland is governed by inertia. This is the same as reaching momentum in the words of the technical historian Thomas P. Hughes (Hughes 1983). The policy process seems to be slow-paced and unresponsive to new, innovative solutions. The political investments in the current problem representations have been large and there is little interest in changing how the problems and solutions are defined. Redefinition of the problems and the recognition of other solutions are unlikely as long as transport policy is still a momentum (Hughes 1983). The policy process as one part of the entire transport system implies that the same situation of inertia has spread throughout the system. Some technological changes have occurred as new types of vehicles and renewable fuels have emerged, but these innovations threaten to remain small-scale projects with a few participants, unable to redirect the slow-moving transport system.

What is needed to make the above-noted absent problems and solutions, i.e., restrictions on car use, policy integration, short travel distances, slower travel, and policy acceptability, part of transport policy? A momentum is not easily overcome, so a major impetus from outside the system is needed if new issues are to be defined as problems or solutions in transport policy. A crisis would supply such an impetus, a crisis serious enough to put transport policy into a developmental instead of momentum phase (Hughes 1983). If this major impetus from the outside the system does not arrive, one can foresee a quite predictable future transport system in Västra Götaland. The problems defined in the past transport policy process will likely continue to be high energy use and fossil fuels and the solutions will remain energy-efficient vehicles, biogas, public transport, and railway infrastructure, even though progress towards a more environmentally adapted transport system calls for new initiatives and innovative solutions.

CONCLUSION

The transport policy process in Västra Götaland defines high energy use and fossil fuels as major problems. Four issues connected to recommended technological changes and, to

some extent, behavioural changes are defined as solutions to these problems: energy-efficient vehicles, renewable fuels, regional public transport, and railway infrastructure. Not defined as either problems or solutions in the Västra Götaland transport policy process are restrictions on car use, slower travel, and short travel distances. Policy integration and acceptability are not clearly defined as problems or solutions, though implicit signs in the policy documents hint that both these matters are important to policy processes that would engender a more environmentally adapted transport system.

Few minor changes can be observed in how the problems and solutions are constructed, for example, in the arguments favouring public transport and railway infrastructure. However, what we can learn from the case study of transport policy in Västra Götaland is that it has remained constant over time in terms of what are and are not defined as problems and solutions. This implies a situation of momentum in transport policy, in which the problem representations remain the same for a long time. Given this dynamic, it is difficult to introduce major changes into the policy process. Absent a major impetus from outside the system that impels transport policy to change, the future development of the entire system is fairly predictable. A transport policy that does not incorporate novel ideas, such as innovations in areas other than technology and behaviour, could jeopardize progress towards the goal of a more environmentally adapted transport system. Therefore, the major lesson from this case is to watch out for situations of momentum in policymaking in other cases, if more far-reaching changes will be introduced in the transport system.

ACKNOWLEDGEMENTS

This research was made possible by funding from the Swedish Energy Agency. The author would like to thank Jenny Palm (Linköping University), Magdalena Falde (Linköping University), Lisa Hansson (Swedish National Road and Transport Research Institute), and two anonymous reviewers for their comments on the paper.

REFERENCES

- Bacchi, C. L. (1999). *Women, policy and politics: the construction of policy problems*. London, SAGE.
- Banister, D. (2008). "The sustainable mobility paradigm." *Transport Policy* **15**(2): 73–80.
- Banister, D. (2011). "Cities, mobility and climate change." *Journal of Transport Geography* **19**(6): 1538–1546.
- Biogas Väst (2012a) *Om Biogas Väst*, <http://www.biogasvast.se/sv/Ovriga-sidor/Biogas-Vast/Biogas-Vast/Om-Biogas-Vast/>, 2012-10-23
- Biogas Väst (2012b) *Varför Biogas*, <http://www.biogasvast.se/sv/Ovriga-sidor/Biogas-Vast/Biogas-Vast/Varfor-biogas/>, 2012-10-23
- Bryman, A. (2008). *Social research methods*. Oxford, Oxford University Press.
- Falkemark, G. (2006). *Politik, mobilitet och miljö : om den historiska framväxten av ett ohållbart transportsystem*. Möklinta. Gidlund.
- Geerlings, H. and D. Stead (2003). "The integration of land use planning, transport and environment in European policy and research." *Transport Policy* **10**(3): 187–196.

- Haughton, G. (1997). "Developing sustainable urban development models." *Cities* **14**(4): 189–195.
- Hill, M. J. (2005). *The public policy process*. Harlow, Pearson Longman.
- Hjalmarsson L, Larsson M, Olsson L, Wikström M. (2011). *Pathways to a renewable transport system in Stockholm 2030*. Working paper no 48. Energy Systems Programme. Linköping University.
- Hughes, T.P. (1983). *Networks of Power: Electrification in Western Society 1880–1930*. Baltimore: Johns Hopkins University Press
- Hull, A. (2011). *Transport matters : integrated approaches to planning city-regions*. London. Routledge.
- IEA, International Energy Agency. (2011). *World Energy Outlook*.
- Jenkins, W.I. (1978) *Policy Analysis*. London, Martin Robertson.
- Knill, C. and Tosun, J. (2012). *Public policy : a new introduction*. Basingstoke. Palgrave Macmillan.
- Länsstyrelsen VG län (2012). *Om Länsstyrelsen*.
<http://www.lansstyrelsen.se/vastragotaland/Sv/om-lansstyrelsen/Pages/default.aspx.2012-10-18>
- Marshall, S. and Banister, D. (2007). *Land use and transport : European research towards integrated policies*. Amsterdam: Elsevier.
- May, T. (2001). *Samhällsvetenskaplig forskning*. Lund: Studentlitteratur
- Montin, S. and J. Wikström (2004). *Moderna kommuner*. Malmö, Liber.
- Nilsson, J-E. (2006). *Regional planering i Sverige*. In: Blücher G, and Graninger, G, editors. *Planering med nya förutsättningar: Ny lagstiftning, nya värderingar*. Linköping: Interdisciplinary studies No 6, Linköping University. 91–106.
- NUTEK. (2001). *Regionförstoring – Hur kan åtgärder i transportsystemet bidra till vidgade lokala arbetsmarknadsregioner?*
- Nyström, J. (2003). *Planeringens grunder – en översikt*. Lund: Studentlitteratur.
- Pachauri, R. K. and A. Reisinger (2008). *Climate change 2007: synthesis report*. Geneva, Switzerland, IPCC.
- Perman, K. (2008). *Från el till värme : en diskursanalytisk policystudie av energiomställning på statlig, kommunal och hushållsnivå*. Örebro, Örebro universitet.
- Regeringskansliet. (2008). *Framtidens resor och transporter – infrastruktur för hållbar tillväxt*. Prop. 2008/09:35.
- Regeringskansliet. (2009). *Mål för framtidens resor och transporter*. Prop. 2008/09:93.
- Regionplanenämnden. (2010). *Regional utvecklingsplan för Stockholmsregionen, RUF 2010 – så blir vi Europas mest attraktiva storstadsregion*
- Rockström, J., W. Steffen, et al. (2009). "A safe operating space for humanity." *Nature* **461**(7263): 472–475.
- SCB, Statistiska centralbyrån. (2010). *Lokala arbetsmarknader – egenskaper, utveckling och funktion*
- Smith, B.C. (1976) *Policy Making in British Government*. London, Martin Robertson.
- Stead, D., Geerlings, H., Meijers E. (2004) *Policy integration in practice – The integration of land use planning, transport and environmental policy-making in Denmark, England and Germany*. Delft, Delft University Press
- Stockholm Stad. (2010). *Promenadstaden – Översiktsplan för Stockholm*
- Trafikverket. (2012a). *Trafikverkets årsredovisning 2011*

Trafikverket (2012b) *Vem gör vad av myndigheterna inom transportområdet?*
<http://www.trafikverket.se/Om-Trafikverket/Trafikverket/Vem-gor-vad-av-myndigheterna-inom-transportområdet/>, 2012-10-30

VG Region. (2011). Fakta om Västra Götaland, available at:

<http://www.vgregion.se/sv/Vastra-Gotalandsregionen/startside/Regionutveckling/Publikationer-statistik/Aktuella-rapporter/Rapportarkiv/Publikationer-2011/fakta-vastra-gotaland-2011/>, 2012-08-13

VG Region (2012a) *Vägen till Västra Götalandsregionen*, <http://www.vgregion.se/sv/Vastra-Gotalandsregionen/startside/Om-Vastra-Gotalandsregionen/Vagen-till-Vastra-Gotalandsregionen/>, 2012-09-22

VG Region (2012b) Vår organisation. <http://www.vgregion.se/sv/Vastra-Gotalandsregionen/startside/Om-Vastra-Gotalandsregionen/Regionorganisationen/>. 2012-08-13

Policy Documents

BRG, Business Region Gothenburg (2006) Verksamhetsplan 2007–2010 Business Region Göteborg/Tillväxtprogram GR

Fyrbodals (2008) Tillväxtprogram Fyrbodals 2008–2013

Fyrbodals (2009) Verksamhetsplan och budget Fyrbodals kommunalförbund 2010

GR, Gothenburg Region (2008) Verksamhetsinriktning och budget för GR 2009

GR, Gothenburg Region (2008b) Strukturbild för Göteborgsregionen

Miljöberedningen (2000) Strategi för miljöarbetet i Västra Götaland

RVG, Region Västra Götaland (2012) Framtidstro och hållbar utveckling – VGs budget 2013

RVG (2012b) Budgetunderlag 2013–2015

RVG (2012c) Regionrapport 2012 – Nya utmaningar för hållbar utveckling i VG

RVG (2011) Ansvar och utveckling – VGs budget 2012

RVG (2011b) Miljöpolitiskt program för VGs interna miljöarbete 2011–2013

RVG (2010) Kraftsamling Biogas Väst

RVG (2010b) Regional plan för transport-infrastruktur i VG 2010–2021

RVG (2010c) Samverkan och kvalitet – VGs budget 2011

RVG (2009) Smart energi – klimatstrategi för VG och Klimatstrategi för VG

RVG (2008) Tillväxtprogram för Västra Götaland 2008–2013

RVG (2008b) Miljönämndens handlingsplan för transporter och miljö

RVG (2008c) En region öppen mot omvärlden – VGs budget 2009

RVG (2007) Ökad tillväxt och en bättre miljö – åtgärder i transportsystemet i VG 2010–2019

RVG (2007b) Detaljbudget 2008

RVG (2006) Detaljbudget 2007

RVG (2005) Detaljbudget 2006

RVG (2005b) Vision Västra Götaland – det goda livet

RVG (2003) Det gemensamma VG – hållbar tillväxt för attraktivitet och konkurrenskraft
Tillväxtprogram för VG 2004–2007

RVG (2003b) Investeringsplanen för regional transportinfrastruktur 2004–2015

RVG (2001) Miljönämndens handlingsplan för trafik och miljö

RVG (2000) Förslag till budget 2001 och flerårsplan för 2002–2004

RVG (1999) Västra Götaland regional utvecklingsstrategi

*Regional Transport Policy – a development towards environmental adaption?
(HJALMARSSON, Linnea)*

Sjuhärad (2012) Kollektivtrafikprogram för Sjuhärad – inriktning 2013–2016
Sjuhärad (2011) Målbild för kollektivtrafiken år 2025 för Sjuhärad
Sjuhärad (2007) Budget och verksamhetsplan år 2008
Skaraborg (2011) Förslag till Kollektivtrafikprogram för Skaraborg inriktning 2012–2014
Skaraborg (2009) Målbild för kollektivtrafiken år 2025 i Skaraborg
Skaraborg (2007) Delregionalt tillväxtprogram för Skaraborg 2008–2013
Skaraborg (2003) Förslag till tillväxtprogram för Skaraborg 2004–2007
Trafikverket (2009) Västsvenska paketet – Avtal om medfinansiering av
transportslagsövergripande infrastrukturåtgärder i Västsverige
Utvecklingsgrupp Väst (2003) Hållbar tillväxt i Västra Götaland – Underlag med idéer för
Tillväxtprogram och regional utvecklingsstrategi
Utvecklingsgrupp Väst (2003b) Hållbar tillväxt i Västra Götaland – Stora utmaningar för en
hållbar framtid
Västtrafik (2010a) Västtrafik Verksamhetsplan 2011–2013
Västtrafik (2010b) Plan för avveckling av fossila bränslen
Västtrafik (2009) Målbild för kollektivtrafiken år 2025 i Skaraborg
Västtrafik (2009b) Västtrafik Verksamhetsplan 2010–2012
Västtrafik (2008) Västtrafik Verksamhetsplan 2009–2011
Västtrafik (2006) Västtrafik Verksamhetsplan 2007–2009
Västtrafik (2005) Västtrafik Verksamhetsplan 2006–2008
Västtrafik (2004) Västtrafik Verksamhetsplan 2005–2007