



# Change by whom? Four ways of adding actors and governance in backcasting studies

Josefin Wangel\*

KTH – Royal Institute of Technology, Division for Environmental Strategies Research, Drottning Kristinas väg 30, 100 44 Stockholm, Sweden

## ARTICLE INFO

### Article history:

Available online 24 June 2011

### Keywords:

Backcasting  
Scenario  
Governance  
Actor

## ABSTRACT

There is a lack of actors and governance in backcasting studies. Given that such studies typically are used to explore and promote change, the absence of change agents and their institutions is a shortcoming. This paper presents four approaches to include actors and governance as objects of study in backcasting studies; the stakeholder analysis approach, the social network approach, the governance model approach, and the policy and change approach. In the paper a scenario study of the greening of private transport in Bromma, Stockholm is used as example.

© 2011 Elsevier Ltd. All rights reserved.

## 1. Introduction

Backcasting is a futures studies methodology; a field of research aimed at developing and assessing images of the future [1]. These can be trend-based, as in the case of prognoses, explorative, as when companies use scenario planning to outline strategies for their future enterprise, or normative, as when developing images of the future around one or more specific targets [2]. Backcasting is a normative scenario approach which can be characterised on basis of two central elements: the development of images of desirable futures, and the elaboration of pathways of transition connecting these futures to the present [3]. As such, backcasting has been recognized as a fruitful approach to explore *how a certain target could be met when contemporary structures block the changes sought* [2,4].

One of the main benefits of using a backcasting approach is that it stimulates the scenario developers to deliberate from existing structures. Through a focus on the desired future state, rather than the problematic present, part of the socio-technical path-dependency delimiting cognition can be evaded. This is also one of the reasons for why backcasting scenarios typically are situated at least a couple of decades ahead, in this way facilitating the illustration of also major societal changes even when these are not supported by contemporary trends.

However, few backcasting studies can be found which includes actors or a dimension of governance; neither in terms of institutional structure nor in terms of process [5]. This paper aims at providing some proposals on how actors and governance could be included as objects of study in backcasting studies. Not only could this contribute to socio-technically more comprehensive scenarios, such an approach could also be used to open up contemporary practices of governance and policy-making for discussions on alternative modes.

As presented here the 'add actors' approaches are to be seen as tentative and aimed at providing some theoretical foundation and methodological considerations for such an endeavour. It should also be noted that the approaches presented

\* Corresponding author.

E-mail address: [josefin.wangel@abe.kth.se](mailto:josefin.wangel@abe.kth.se).

here does not comprise guidance on how to develop a scenario but are to be used as a complement to already existing approaches to create such.

This paper is organized in five sections. Backcasting is presented more in depth in Section 2. Section 3 gives a brief account on governance. Section 4 comprises the main body of the paper and suggests four different but interrelated ways of adding actors and governance to backcasting studies, exemplified through a scenario study in progress. In Section 5 the paper is ended with a concluding discussion and an outlook for future research.

## 2. Backcasting

Since first developed in the 1970s backcasting has been used for different purposes, giving rise to a variety of interpretations and practices of the concept. One first distinction to make is between result-orientated backcasting studies, i.e. for which the resulting scenario constitutes the main aim, and participation-orientated backcasting, when the procedural benefits of scenario development are in focus and prioritized over methodological stringency [6,7]. In participation-orientated backcasting, involvement of stakeholders or other participants is a must, but also result-orientated backcasting has increasingly been conducted through participatory approaches [8]. However, participation does not necessarily mean that the participants get (or are forced) to inscribe themselves or others as explicit actors in the scenario per se. Therefore the inclusion of actors in the scenario making process must not to be confused with the presence (or absence) of actors in the resulting scenarios. Moreover, the actors in a scenario need not be the same as the actors of today.

The result-orientated backcasting can be further divided into target-orientated backcasting, in which the importance of developing images of the future as target-fulfilling is emphasised, and pathway-orientated backcasting, in which the target is seen as less important than developing pathways of transition. There is also action-orientated backcasting which can be seen as standing in between the result-orientated and the participation-orientated approaches. In action-orientated backcasting the scenario study is aimed at being used for developing some kind of action plan, typically for a pre-determined set of stakeholders. Indeed, one and the same backcasting study can comprise more than one or all of these approaches and thus these are not to be seen as mutually excluding.

### 2.1. Actors and governance in backcasting studies

While target-orientated backcasting can be said to focus on *what* could change, pathway-orientated backcasting puts more emphasis on exploring *how* the changes could take place. However, all intended change depends on not only what and how to change, but also change by *whom*. But a recent overview shows that the question of *who* could change has up to now rarely been included in backcasting studies [5].

Depending on the aim of the study this can be a feasible approach; for instance when addressing energy efficiency potentials from a strictly technical point of view. But as soon as the perspective is widened to include also potentials, the realization of which is conditioned on e.g. the 'behaviour' of users or system managers, or policy measures, or potentials that are dependent on other changes, the question of actors and agency steps in: Who should change their (or whose) behaviour? Who should develop and implement the policy? Who are responsible for the other changes needed? The need for addressing actors becomes even more evident if the aim is to use the scenario studies for any kind of real dissemination—e.g. for policy recommendations or the development of an action plan. If the issue of actors and governance is not explicitly included in the scenario, these dimensions become present in the scenario only in implicit terms. This typically also means that these are retained according to the status quo. This paper argues that through including actors and governance as objects of study in backcasting studies, these can be made explicit and also examined in a more open-minded and explorative way. Including actors and governance in the backcasting study also holds the potential of making the scenarios more socio-technically consistent and comprehensive (internal consistency) but also encourages evaluating the scenario's feasibility in different governance or policy contexts (external consistency).

## 3. Governance

Governance is an ambiguous concept which will not be elaborated in any depth here. To some scholars governance is but a synonym to government or steering and is used to point out that there is a diversity of ways through which societal steering can be done [9]. To others governance is interpreted as a specific type of steering, typically implying that there has been or should be transference of steering power to non-state actors [10–12]. In either case governance can be understood as comprising both structure and process. Governance as structure concerns which actors are included and how these are organised, e.g. if the steering is done through hierarchical or horizontal organisations. This also includes how actors are related; in one sense this is implied by the organisational structure and could be seen as a matter of course - without relations there would not be any governance at all. But it is also important to remember that a relation can mean many things and that - even in horizontal models of governance - not all actors are equals in terms of power. As a process, governance can be understood as "*the attempt to achieve a desired outcome*" [12] including agenda setting, policy-making, implementation and follow up. In this paper governance is used in a deliberately wide sense meaning *the steering and management of the production of public purpose*.

#### 4. Four approaches to add actors

In this paper four approaches to ‘add actors’ are presented and discussed. These are by no means aimed at comprising a comprehensive or final account of possible approaches, but are rather to be seen as a first attempt to begin exploring this field of inquiry. The four approaches are briefly introduced below, as is the scenario study through which this methodological development has been undertaken and tested. Each approach is then further described and discussed in separate subsections.

- In the *stakeholder analysis approach* the identification of actors stands in focus and is used as starting-point for exploring the governance in the scenario. This is presented in Section 4.2.
- The *social network approach* highlights and emphasises the relational aspects of governance. This is presented in Section 4.3.

The stakeholder analysis and social network approach can be seen as bottom-up approaches; taken together actors, relations and processes constitute different models of policy-making and governance. But these can also be explored the other way around, i.e. through starting with a policy-making or governance model and top-down letting these decide which actors, relations, and processes to include in the scenario.

- In the *governance model approach*, presented in Section 4.4, the representation of actors and governance in the scenario is outlined according to a model of governance.
- In the *policy and change approach* the procedure is the same but instead takes its starting point in an understanding of how policy and change making processes work. This is presented in Section 4.5.

Indeed, as will be shown, more than one approach can be used in one and the same scenario study, sequentially or iteratively. Moreover, each of these approaches can be used to explore actors and governance from either a theoretical perspective (i.e. testing the consistency of the scenario and its context in terms of a certain model of governance, or as a comparative study explore different governance models), an instrumental perspective (based on theory and/or experience; which actors and governance are needed to make change happen?) or a normative perspective (based on a normative starting-point; which kind of actors and governance should be included?) As pointed out by Reed and colleagues [13] these perspectives are often merged so as to underpin an opinion with arguments of all types; theoretical, instrumental and normative.

##### 4.1. A scenario study of green mobility in Bromma, Stockholm, Sweden serves as example

The add actors-methodology reported on here is part of a meta-methodology developed to explore urban sustainable development through creating a series of socio-technical goal-based scenarios. To exemplify how the different approaches to adding actors in backcasting scenarios could be used, one of these scenario studies, focusing green mobility in the Stockholm City District Bromma, will be used. The scenario study is briefly introduced in the following;

Bromma is a wealthy city district and a suburb of Stockholm, with an urban morphology of low density, and a high share of privately owned apartments and villas. The multi-family buildings are primarily of a smaller scale, except for in the new development area Annedal in which a more city-like urban morphology is being built. Most of the city district is within 20-min by bike to Stockholm City. Due to the low density of Bromma, public transportation and local service are not always easily accessible through other modes of transport than by car [14,15]. The use of private cars is further strengthened by socio-demographical facts such as income [16,17]. To explore how this city district could become less dependent on private cars a focus group of mobility experts was asked to elaborate on a future formulated as:

“Imagine you are being in 2030 and that private mobility practices in Bromma have changed so as to provide the same services but with a minimum of energy-use? What changes have happened, and how and by whom were they brought about?”

The findings were complemented with literature studies and synthesized into a number of scenario elements, each focusing on a certain set of changes. In Fig. 1 one of these elements, ‘Planning for Green Mobility’ is described briefly. This will provide basis for exemplifying the different approaches to add actors presented in this paper.

For more detailed information of the scenario and the meta-methodology for developing this see the full report [18].

#### Planning for Green Mobility

A major urban development project in Bromma is proclaimed as car-free. The new inhabitants provide an especially good opportunity for marketing more sustainable transport alternatives before travel habits have been settled. Part of Bromma gets denser but to a large extent the suburban ‘garden city’ character is kept, to provide also this sort of living close to the city core.

Fig. 1. The scenario element “Planning for Green Mobility”. Adapted from the research report [18].

4.2. The stakeholder analysis approach

Identifying actors to include in the scenario can be made either during the process of scenario development, or afterwards. There are good arguments for the former; through an iterative identification of objects (What) and actors (Who) of change, the scenario can gain in socio-technical consistency. Furthermore such an approach is fruitful for identifying also social objects of change, such as social innovations and business models. Still an iterative approach will not always be possible. It is also true that even when the actors are identified from start, a subsequent analysis can be useful to evaluate the ‘findings’ in terms of e.g. representativity or formative power.

To identify actors to include in the scenario there are a variety of methods used for stakeholder analysis. An extensive overview and categorization of these has been done by Reed and colleagues [13]. These methods can also be used to identify stakeholders or other participants to include in the process of scenario development. Indeed these can be combined so that the identification of actors in the scenario is done participatorily. A participatory approach holds potential benefits of e.g. an increased stakeholder buy-in but could also be problematic. One problem which might occur in such an undertaking is participants being reluctant to point themselves out as responsible stakeholders [19]. However, there are also similar studies from which this kind of phenomenon has not been reported [20].

Before starting off a stakeholder analysis it is important to be clear about on how a stakeholder is to be defined in the scenario study. One common way to define a stakeholder is as any person or organization that can influence, or is influenced by, the situation at hand [13]. If using the aforementioned what-who analysis, all actors identified will be stakeholders in the scenario. With such a definition as starting point the question arises whether all stakes (i.e. objects of change) in the scenario should be included, and all the holders (i.e. agents of change) of these stakes? Even though such an all-inclusive exercise might be doable, it may not be worthwhile. It is possible to delimit both the stakes and the stakeholders included. One way of doing this in a structured way is through a stakeholder categorization. This is commonly based on aspects of *influence* and *attitude*, i.e. whether the stakeholders are affecting, affecting and affected, or affected, or whether they are supportive, neutral or unsupportive [13]. Stakeholder grouping can also be done based on *which role* the stakeholder plays in the scenario (e.g. contractor, politician, or end-user) and on *when in the process* they are most active (e.g. the planning phase, the implementation phase, or the end-use-phase) [21].

4.3. Stakeholder analysis approach - examples from the Bromma study

In the scenario study of Bromma the actors of the scenario were identified iteratively with the objects of change through a “what-who” iteration. Following this, the set of stakeholders to include in the governance network was to a large extent already identified beforehand. In this way the scenario elements could then be further concretized through pointing out the objects and actors of change resulting from the iterative what-who-approach (Fig. 2).

4.3.1. What-who table

Planning for Green Mobility: What-who table	
Object (What)	Actors (Who)
Walking & bicycle paths	City, Developer, Public Transportation Company (SL), County Administrative Board
Parking lots and ditto fees	City, Landlord, Homeowner association
Bus stops, tracks, bus lane, park & ride	City, SL,
Transport habits – travel counselling	City, Landlords, GoSthlm public transport organisation, Households
Local service	City, Landlord, Service providers

Fig. 2. Result from the what-who analysis of scenario element “Planning for Green Mobility” presented in terms of objects and actors of change. Some of the actors are ‘real’ in the sense of being already existing and seen as having the same agency in the scenario as today. Other actors, such as the GoSthlm organisation are invented through the scenario study and can be seen as a social (institutional) innovation. Adapted from [18].

4.3.2. Actor matrix

Here the framework for stakeholder analysis developed in William & Dair’s study on brownfield developments in England [22] has been used and adapted. This framework distinguishes between five different groups of stakeholders based on when in the development process each group is most active, and which kind of influence it can exercise (see Fig. 3).

Planning for Green Mobility: Stakeholder matrix		Time →
Planning phase (Production of and agreements on e.g. plans, programs, or contracts)		
Direct and formal power to influence	City Planning Administration, City Development Administration, Stockholm Public Transport (SL), County Administrative Board	
No direct formal power to influence	Traffic and Waste Management Administration, City Environmental Administration, developers, mobility management consultant, car sharing company	
Implementation phase (Putting the plans into practice)		
Direct but varying influence	Developers, car sharing company, service providers, GoSthlm organization	
Expert advice	City Planning Administration, mobility management consultant	
End-use phase (Using and managing the objects of change, or reluctance to them)		
End-users and managers, direct and indirect influence	Residents, landlords, real estate managers, visitors, service providers, car sharing company, Traffic and Waste Management Administration, City District Administration	

Fig. 3. This stakeholder matrix shows the most active stakeholders for each phase of the unfolding of the scenario element in the Bromma scenario and their role in the dynamic governance network. Adapted from [18] and [22].

This way of differentiating between actors according to active phases also renders it possible to display the scenario as process, in this case an urban development.

#### 4.4. The social network approach

As all human interaction and co-operation, also governance depends on the existence, or creation, and maintenance of well-functioning social networks. Drawing on governance theory [11,23,24] and social network analysis [25] it is argued that it is the relations as much as the separate actors that make governance functioning. Social network analysis (SNA) makes a point in emphasising that it is not only what flows in a network, but also the structure of the network that matters for the network's functionality [25]. The structure of a governance network can basically be described as how the network's inherent actors are connected to one another. This influence e.g. how easily flows are disseminated through the network and thus the network's resilience in case of stakeholder drop-outs or conflicts etc. It can also provide information on how open and inclusive the network is [26]. The relations (or ties) of a governance network are dynamic and can be negotiated, contested, formalized, implemented, dissolved, and also change over time. Further, relations can tell stories about coalitions and conflicts. Elaborating the relations in a governance network can thus also be used as one first step into turning the snapshot-scenario into more of a process-scenario.

Borgotti and colleagues [27] divide ties into four main categories, the first being *similarities* comprising e.g. location, membership in clubs, or being of the same age and gender. The second category concerns *social relations* such as kinship and other roles, as well as affective ties (e.g. likes, distrusts) and cognitive ties (e.g. knows about, sees as helpful). In the third category is found *interactions* (e.g. talked to, had sex with) and the fourth category comprises *flows* of different kinds (e.g. resources, knowledge, beliefs, personnel). Not all of these types of ties might be of immediate interest for the sake of developing a governance network. However, the power of informal ties such as membership in the same club or being of the same age and gender should not be underestimated. Moreover, adding informal ties to a governance network can render the scenario narrative a bit more of zest.

#### 4.5. Social network approach - example from the Bromma study

One way to use the social network approach is to explore and describe formative moments or other phases of special interest in the pathway through snapshot visualisations of the governance network showing which actors, in which constellations, and with which types of ties, are active at that time. In the scenario study of Bromma the snapshots were created through using the SNA-tools Ucinet 6 and Netdraw [28]. Depending on the layout of the network, different

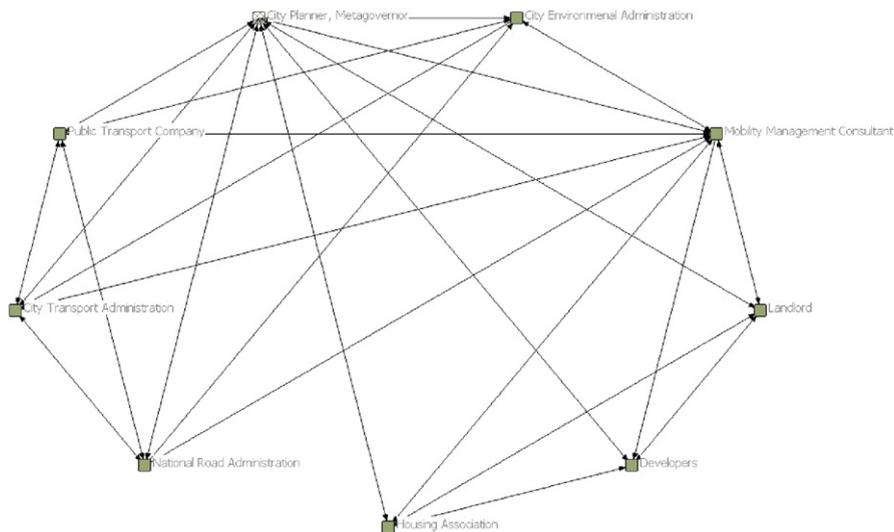


Fig. 4. Snapshot picture of the social network of the governance of the scenario element “Planning for Green Mobility”. Being intended as a basis for discussion on which types of relations that connect different actors, no labels on these have been added to this picture. Adapted from [18].

characteristics are highlighted. In this example the “Circle” layout has been used. This layout is commonly used to visualize which nodes are most highly connected in the network [29] (see Fig. 4).

In the Bromma study the social network approach has been used mainly as a tool for visualization. However, also its analytical qualities can be used to gain further insights on different models of governance in terms of e.g. inclusiveness and robustness.

#### 4.6. The governance model approach

The governance approach can be used to either to develop a certain model of governance in a scenario, or as a way of evaluating the scenario’s feasibility in different governance futures. For both of these purposes a more structured elaboration can be supported through the use of a governance typology, one example being the typology developed by Pierre and Peters [9].

Pierre and Peters [9] distinguish between five different models of governance, placed in a continuum from state autonomy to increasing societal control; *Étatiste*, Liberal-democratic, State-centric, The Dutch governance school, and Governance without Government. The distinction is made based on a number of analytical dimensions concerning which types of actors, processes and outcomes that are included in the governance model. These analytical dimensions comprise e.g. goal selection, resource mobilization, inclusiveness and adaptability (Pierre and Peters [9], pp. 14–17) and other aspects influencing how the governance is performed. Through formulating these aspects in terms of questions (How are goals selected? How is accountability achieved?) these can be used as a reflective framework to further elaborate or explore a representation of governance. Indeed one does not always have to go into detail, depending on the purpose of the study, governance models can also be used in their more composite form.

For many of the models of governance it can be worth reflecting on whether to include any *meta-governance* in the scenario study. Meta-governance is commonly put forth as a way of indirect steering, while still retaining the benefits of the self-regulating governance network [30,31]. The assumed benefits of meta-governance are based on recognition of the need for coordination of activities when aiming for an overarching goal, especially in complex and normative cases such as sustainable urban development. Furthermore, the meta-governor can also be understood as having an important role as a mediator of information, trust and other flows, through facilitating and improving the dissemination of these in the network [26,27,31]. Drawing on Sehested [31] and Throgmorton [32] the metagovernor can also be seen as having a role as an advocate for voice-less stakeholders such as nature or generations to come. From the perspective of governing sustainable urban development it is easy to envisage the planning authority taking the role as meta-governor of the network(s). However, formulating the question of meta-governance more openly allows for considering any actor to shoulder this role, and to explore the pros and cons of different alternatives.

#### 4.7. Governance model approach - examples from the Bromma study

In the Bromma study it was chosen to focus on a state-centric model of network governance [9] understood as “relatively stable, horizontal articulations of interdependent but operationally autonomous actors, who interact through negotiations

which take place within a regulative, normative, cognitive framework that is self-regulated within limits set by external agencies and which contributes to the production of public purpose” [12,30]. It was also chosen to inscribe the planning authority as the meta-governor of the process.

#### 4.7.1. The narrative

With this as starting point the scenario element was developed into a narrative, describing by which actors, through which ways of cooperating, and with which measures, that the changes happened. The basis for the narratives was the short description of the scenario element (Fig. 1) combined with elaborated results from the what-who-analysis (Fig. 2).

#### 4.7.2. The process diagram

To elaborate and visualise the scenario study in terms of a process of change, process diagrams were used, e.g. of the Gantt-chart type. These charts can be designed so as to only comprise the pathway, or to also include the pre-history and/or the end-use of the changed environment. The former can be of use if there is reason to include also some prerequisites, such as the creation of certain institutions or previous decisions. Including an end-use phase facilitates reflecting upon the long-term management and longevity of the changes. The Gantt-chart can also be used to highlight dependencies between scenario activities, as well as key decision points. Through a process diagram the dynamics of the governance network(s) can be addressed; not all actors need to be involved at the same time. Elaborating this also brings in the timing and sequence of events in the scenario; is there lock-ins to avoid, or synergies to exploit? (see Figs. 5 and 6).

##### Planning for Green Mobility: State-Centric Network Governance Narrative

In 2005 the City of Stockholm decides to make the urban development project Annedal into a lighthouse project on green mobility. Drawing on the experience of Hammarby Sjöstad, a project organization is created to which strategically important stakeholders are invited, identified through stakeholder analysis. The different, and sometimes competing, interests of the City are represented by the Planning Administration, the City Development Administration, the Transport and Waste Management Administration, and the Environmental Administration. The main stakeholders in transport, Stockholm Public Transport (SL), and the County Administrative Board which represents the state in matters of urban planning are other self-evident participants. Also the developers, together with their architects and other consultants are included in this project organization, with their influence on the local environment's design in mind. Together these actors develop a plan for how Annedal is to be planned as an area contributing to more sustainable private transports. The plan comprises concrete goals and measures, possible to follow-up and evaluate. Some of the goals, for instance the local car sharing system and other local services, call for including additional stakeholders to the process.

The project organization of Annedal had preferred to see that a car sharing system was started and managed by the resident associations and landlords of the area, but since the former wouldn't 'exist' in any formal sense until very late in the urban development process, it was instead decided to try and make an already existing car sharing system entrepreneur to establish in the area, selected through a competition. This also rendered it possible to include also the car pool entrepreneur's knowledge and experience in the planning process. The car pool entrepreneur was worried about the initial recruitment of members and suggested that a car pool membership could be included in the rent or fee. After negotiating with the developers and landlords about the outline of such an agreement the proposal was presented to the rest of the project organization, which turned the idea down, referring to that such a lock-in would not only give the car pool entrepreneur unreasonable market benefits, but would also prevent any emergence of resident-run car pools. After further negotiation it was decided that the car pool entrepreneur, the developers and the landlords together would finance a reduced member fee for the first months, and that the developers and landlords should promote a car pool membership to new residents. The project group also agreed to reserve a number of parking lots in the area for car pool cars, but emphasised that these would be available for any car pool settling in the area.

Fig. 5. The governance model approach: state-centric network governance narrative for the scenario element “Planning for Green Mobility”. Adapted from [18].

#### 4.8. The policy and change approach

Like the governance model approach, also the policy and change approach brings together stakeholders and events into a bigger whole. But unlike the governance model approach, which takes its starting point in 'ideal types' of governance, the

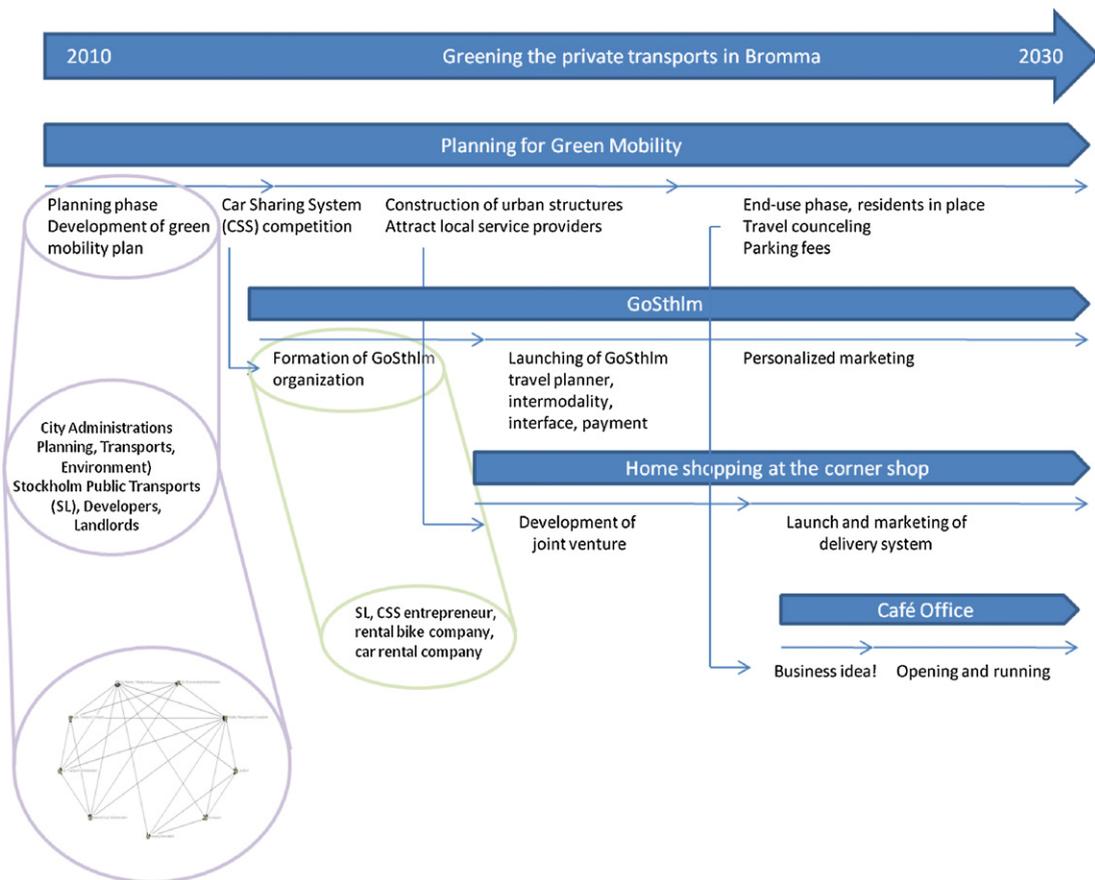


Fig. 6. The scenario elements as process visualised in a process diagram, here including two examples of how actors and governance networks can be depicted. Adapted from [18].

policy and change approach emphasises that actual processes of policy and change making do not always follow these ideals. Moreover, the policy and change approach is wider in that it also includes the pre-history of policy making, e.g. agenda-setting, building of coalitions, and also takes hold on different kinds of socio-technical constraints and resistance which might impede smooth implementation.

Examples of policy and change approaches are John Kingdon's Policy Windows [33], Large Technical Systems Theory as elaborated by e.g. Tomas Hughes [34,35], Strategic Niche Management and Transition Management approaches [36–38], and Actor-Network Analysis [39–41]. Common to all of these approaches is that they highlight the importance of actors but also point at constraints and resistance from other actors and surrounding structures. Note that the key actors, i.e. the policy entrepreneurs [33], systems managers [34,35], niche/transition managers [42] or actants [41], are characterized somewhat differently in these approaches.

#### 4.9. Policy and change approach - example from the Bromma study

##### 4.9.1. Policy window narrative

Drawing on Kingdon [33] the success or failure of change initiatives depends heavily on to which extent the proposed change has been coupled to the three processes of *problem* formulation and recognition, the generation of *policy* proposals, and *political* events and shifts in national moods. At certain times these streams of problems, policies and politics come together and policy proposals “become joined to problems, and both of them are joined to favourable political forces.” (Kingdon [33], p. 20). However, this coupling does not happen by itself but is typically the result of a *policy window* in which one or more policy entrepreneurs attempt to couple their pet solutions (proposed changes) to either a problem at hand or to a political interest: “During the pursuit of their personal purposes, entrepreneurs perform the function for the system of coupling the previously separate streams. They hook *solutions to problems, proposals to political momentum, and political events to policy problems.*” (p. 182, italics in original).

Basically the policy window approach to adding actors and governance to a scenario can be said to be based upon the elaboration of (1) the three streams of problems, policies and politics, (2) a policy window, (3) the coupling of the three

#### Planning for Green Mobility: Policy Window Narrative

When Annedal was being planned, green mobility issues had been discussed for decades and the problems with private transports were widely recognized in society. Numerous alternatives to the private fossil-fuelled car had been developed, both for changing the mode of transport to e.g. bio-fuelled vehicles or public transport, and for decreasing the need for transport in the first place. However, as compared to the car lobbyists the proponents of greener (including decreased) transports were few and discursively weak, and in politics green mobility was not a subject for discussion. However, about fifteen years before, the policy window opened by Stockholm's application to host the Olympic Games had made another urban development project in the City – Hammarby Sjöstad – to be planned for supporting e.g. green mobility. The policy entrepreneurs that time had been a number of engaged politicians. But for Annedal things did not look as hopeful. The problem and policy streams were clearly in place, but the political stream was far from favourable. Then the City of Stockholm had announced that they would enter the European Green Capitol competition and just some days later a car pool company contacted the project manager for Annedal. The company manager, who saw a potential business opportunity in the entering of the contest, wanted to discuss how Annedal through a car pool could be turned into a good example and be used as a strong point in the competition. The project manager, who immediately saw the potential for attractive more resources to the project agreed to have a meeting and also got in touch with colleagues in other administrations. A few months later the necessary political decisions had been made and Annedal was launched as a lighthouse project for green mobility which would include, amongst other things the establishment of a car pool.

Fig. 7. The policy and change approach: policy window narrative for the scenario element "Planning for Green Mobility".

streams, and (4) one or more policy entrepreneur doing this coupling. Here, Kingdon's policy window theory has been used as the basis for developing a narrative of how Annedal came to be a green mobility project in the first place (see Fig. 7).

## 5. Concluding discussion

In this paper four different ways of 'adding actors' have been presented and exemplified; the stakeholder analysis approach, the social network approach, the governance model approach, and the policy and change approach. Drawing on the use of these approaches in the Bromma scenario study they were all found to be fruitful ways of adding actors and governance to a scenario, although with somewhat different outcomes and strengths. The two first approaches, based on stakeholder analysis and social network analysis, put the actors in focus, while the two latter approaches focus the governance. Thus, to get a more comprehensive understanding and outline of the actors and governance it can be recommended to combine two or more of these ways, either in a subsequent or in an iterative way.

This paper started out by proposing that also actors and governance should be included as object of study in backcasting studies and that the potential benefits with such a complement are many:

- Firstly, as many other futures studies approaches, the 'add actors' approach concern opening up mind-sets and contemporary practices for discussions on alternatives, with a focus on agency and governance.
- Secondly, through including also the institutional dimension of change the explored transition can be addressed as socio-technical in a more consistent way.
- Thirdly, this also allows for evaluating the scenario's feasibility and consistency in different governance and policy contexts.
- Fourthly, when the purpose of the scenario study is to contribute to an action plan of any kind, then this kind of approaches can contribute with an idea of which actors are of importance to get things done, and if there are any contemporary stakeholder structures blocking the changes sought for.

As has been reported elsewhere [18], the findings from the scenario study of Bromma further indicates that through focusing on the social dimension, the 'add actors' approach facilitates that also social innovations are evoked in scenario studies, even in areas typically considered as having primarily technical solutions. It seems evident that some sustainability targets can be more fruitfully pursued through social innovations than by technical or physical changes, or that both are needed.

Still, one scenario study does not make a case; additional evaluation is needed, as is more scenario studies in which these, or other approaches with the aim of adding actors, are applied. Future research in the Bromma study comprises evaluating the scenario narratives and visualisations through focus groups comprised by planning practitioners and other users of futures studies. The overall scenario methodology will also be tested and evaluated in respect of its potential to contribute to a more governance aware planning practice.

## References

- [1] W. Bell, *Foundations of Futures Studies: History, Purposes and Knowledge*, vol. 1, Transaction Publishers, London, 2003.
- [2] L. Börjesson, et al., Scenario types and techniques: towards a user's guide, *Futures* 38 (2006) 723–739.
- [3] J. Robinson, Futures under glass: a recipe for people who hate to predict, *Futures* 22 (1990) 820–843.
- [4] K.H. Dreborg, Essence of backcasting, *Futures* 28 (1996) 813–828.
- [5] J. Wangel, Exploring social structures and agency in backcasting studies for sustainable development, *Technological Forecasting and Social Change* 78 (5) (2011) 872–882.
- [6] K. Larsen, U. Gunnarsson-Östling, Climate change scenarios and citizen-participation: mitigation and adaptation perspectives in constructing sustainable futures, *Habitat International* 33 (3) (2009) 260–266.
- [7] A. Wiek, C. Binder, R.W. Scholz, Functions of scenarios in transition processes, *Futures* 38 (2006) 740–766.
- [8] J. Quist, P. Vergragt, Past and future of backcasting: the shift to stakeholder participation and a proposal for a methodological framework, *Futures* 38 (2006) 1027–1045.
- [9] J. Pierre, B.G. Peters, *Governing Complex Societies: Trajectories and Scenarios*, Chippingham and Eastbourne: Palgrave Macmillan, 2005.
- [10] P. Bogason, *Public Policy and Local Governance: Institutions in Postmodern Society*, in: *New Horizons in Public Policy*, Cheltenham: Edward Elgar Publishing Limited, 2000.
- [11] M.A. Hajer, H. Wagenaar, *Understanding Governance in the Network Society*, Cambridge University Press, Cambridge, 2003.
- [12] E. Sørensen, J. Torfing, *Theories of Democratic Network Governance*, Palgrave Macmillan, Hampshire, 2007.
- [13] M.S. Reed, et al., Who' in and why? A typology of stakeholder analysis methods for natural resource management, *Journal of Environmental Management* 90 (2009) 1933–1949.
- [14] R. Camagni, M.C. Gibelli, P. Rigamonti, Urban mobility and urban form: the social and environmental costs of different patterns of urban expansion, *Ecological Economics* 40 (2002) 199–216.
- [15] Stadsbyggnadskontoret, S.s., *Annedal – program för nya bostäder i Mariehäll*. 2005.
- [16] J. Dargay, D. Gately, Income's effect on car and vehicle ownership, worldwide: 1960–2015, *Transportation Research Part A: Policy and Practice* 33 (2) (1999) 101–138.
- [17] USK, C.o.S.S.A. City District Statistics: Bromma. 2011 [cited 2011 May 25th]; Available from: <http://www.usk.stockholm.se/tabellverktyg/tv.aspx?projekt=omradesfakta&omrade=sdo06>.
- [18] J. Wangel, S. Gustafsson, *Scenario Content Outcome and Process: Developing and Testing Methodologies for Goal-based Socio-Technical Scenarios*. Environmental Strategies Research, KTH – Royal Institute of Technology, Stockholm, 2011.
- [19] A. Svenfelt, R. Engstrom, M. Hojer, Use of explorative scenarios in environmental policy-making-evaluation of policy instruments for management of land, water and the built environment, *Futures* 42 (10) (2010) 1166–1175.
- [20] L. Bohunovsky, J. Jäger, I. Omann, Participatory scenario development for integrated sustainability assessment. *Regional Environmental Change*, 2010.
- [21] C.M. Dair, K. Williams, Sustainable land reuse: the influence of different stakeholders in achieving sustainable brownfield developments in England, *Environment and Planning A* 38 (7) (2006) 1345–1366.
- [22] K. Williams, C.M. Dair, A framework for assessing the sustainability of brownfield developments, *Journal of Environmental Planning and Management* 50 (1) (2007) 23–40.
- [23] B. Evans, et al., *Governing Sustainable Cities*, Earthscan, London, 2005.
- [24] R.D. Putnam, *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton University Press, Princeton, 1993.
- [25] S. Wasserman, K. Faust, *Social Network Analysis Methods and Applications. Structural Analysis in the Social Sciences*, Cambridge University Press, Cambridge, 1994.
- [26] A. Toikka, Governance network structures and urban environmental policy making – a case study in Helsinki, Finland, *Boreal Environment Research (Suppl. A)* 14 (2009) 110–121.
- [27] S. Borgatti, et al., Reviews: Network Analysis in Social Sciences, *Science* 323 (2009) 892–895.
- [28] S.P. Borgatti, M.G. Everett, L.C. Freeman, *Ucinet for Windows: Software for Social Network Analysis*, Analytic Technologies, Harvard, MA, 2002.
- [29] R.A. Hannemann, M. Riddle, *Introduction to Social Network Methods*, in On-line textbook.
- [30] T. Nyseth, Network governance in contested urban landscapes, *Planning Theory and Practice* 9 (4) (2008) 497–514.
- [31] K. Sehested, Urban planners as network managers and metagovernors, *Planning Theory and Practice* 10 (2) (2009) 245–263.
- [32] J.A. Throgmorton, Planning as persuasive storytelling in a global-scale web of relationships, *Planning Theory and Practice* 2 (2003) 125–151.
- [33] J.W. Kingdon, *Agendas, Alternatives and Public Policies*, 2nd ed., Longman, New York, 1995.
- [34] T.P. Huhges, *Networks of Power: Electrification in Western Society 1880–1930*, Softshell Books edition ed., The John Hopkins Press Ltd, London, 1983.
- [35] J. Summerton, *Power Plays: the Politics of Interlinking Systems*, in: O. Coutard (Ed.), *The Governance of Large Technical Systems*, Routledge, London, 1999.
- [36] F.W. Geel, J.W. Schot, Typology of sociotechnical transition pathways, *Research Policy* 36 (3) (2007) 399–417.
- [37] A. Smith, A. Stirling, F. Berkhout, The governance of sustainable socio-technical transitions, *Research Policy* 34 (10) (2005) 1491–1510.
- [38] J.-P. Voss, A. Smith, J. Grin, Designing long-term policy: rethinking transition management, *Policy Sciences* 42 (4) (2009) 275–302.
- [39] J.R. Bylund, *Planning, Projects, Practice: A Human Geography of the Stockholm Local Investment Programme in Hammarby Sjöstad*, in Dept. of Human Geography, Stockholm University, Stockholm, 2006.
- [40] M. Callon, P. Lascoumes, Y. Barthe, *Acting in an Uncertain World: An Essay on Technical Democracy*, MIT Press, Cambridge, MA, 2009.
- [41] B. Czarniawska, T. Hernes, *Actor-Network Theory and Organizing*, Liber & Copenhagen Business School Press, 2005.
- [42] M.C.J. Caniels, H.A. Romijn, Actor networks in strategic niche management: insights from social network theory, *Futures* 40 (2008) 613–629.