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The development of environmental visions and strategies at the municipal level: case studies from the county of Östergötland in Sweden

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Abstract

Sweden faces a number of environmental challenges. Municipalities can play an important role in managing these challenges. Using interviews with 13 municipalities in the county of Östergötland, the manner via which environmental visions and strategies were developed and implemented, and the challenges were explored.

Differences were found in the effective development and implementation of both environmental visions and strategies due to a range of factors including the range and level of involvement of different stakeholders, variation in what constituted an environmental strategy, and the time horizons employed for the visions. Suggestions for how best to overcome the barriers are outlined.

Key words:

Environmental sustainability, Backcasting, Participatory approaches

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1. Introduction

The environmental challenges facing Sweden are many and of varying character, including environmental toxins in the lakes and watercourses and poor air quality in cities (Naturvårdsverket, 2015a; 2015b). Thus for some years there has been a realisation of the need for more effort to be invested in enhancing environmental activity in Sweden (SKL, 2012). In addition, there is acknowledgement that measures need to be conducted on multiple levels: European, national as well as local (Miljöövervakning, 2014, Naturvårdsverket, 2015c).

Swedish municipalities can play an important role in addressing these environmental problems (RUS, 2012; 2014). They can determine environmental goals and measures based on different grounds, for instance the national or regional objectives, their own political agenda (RUS, 2012) or their own environmental aspects (RUS, 2014). However, it is common for the municipalities to have both short-term and long-term plans, however, it is rare that they stretch for more than 10-20 years (Milestad *et al.*, 2014).

Using municipalities in the case study county of Östergötland, this study aimed to examine to what extent the municipalities had a vision of a desired future environmental state, and to identify the challenges faced in developing and effectively implementing this vision and the related environmental strategy.

2. Future planning

Cities and regions are crucial to shifts towards a more circular, sustainable and low carbon approach, as these are where the populations tend to live and consumption and production activities are concentrated (EC, 2010). For example, in Europe more than 2/3 of the population lives in cities (Salvia *et al.*, 2015). The development of environmental visions and strategies are important steps in achieving these shifts as a means of setting out guiding principles and processes (Komeily and Srinivasan, 2015; Wangel *et al.*, 2013).

A vision is an aspirational description of what an organisation would like to achieve in the mid or long-term (Merriam-Webster, 2014). An environmental strategy is the “conscious planning and implementation of measures to develop human society in a way that is from an ecological and climatological perspective viable in the long-term” (Pearson *et al.*, 2010:10). Future scenarios can be divided into three groups: what will happen (trend extrapolation), what could happen (forecasting), and what should happen (normative scenarios such as backcasting)

(Vergragt and Quist, 2011; Tuominen *et al.*, 2014). These can also be termed as: probable, possible, and preferable futures (Carlsson-Kanyama *et al.*, 2008).

2.1. Developing and effectively implementing visions and strategies

Potschin *et al.* (2010) suggest that successful planning for the environment should employ holistic and multi-disciplinary visions and also outline the consequences of actions. Thus it should be a paradigmatic approach that combines both a vision and operational components. Various writers (e.g. Sinclair *et al.*, 2009; Petts, 1999), argue for the use of strategic environmental assessment (SEA). SEA is a formalised, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or program and its alternatives. It is based on the notion that the benefits of a more sustainable approach are implemented via a 'trickle down' from policy to plans, programs, and eventually to individual projects (Partidário, 1999). Its effective implementation requires a participative and deliberative approach (Connelly and Richardson, 2005), as well as political will and coordination at the municipal level (Noble, 2006). Effective environmental strategies also require declared and measurable goals, and systems to enable monitoring, auditing and reporting (Berry and Rondinelli, 1998). Van de Kerkhof *et al.* (2005) add that the management of the transitional phases towards the visions should involve not only new insights to addressing problems, but also into the problem itself, as well as into the context in which decision-making occurs.

2.1.1 Stakeholder participation

A participatory approach builds capacity and awareness, promotes dialogue and enhances collaboration (Robinson *et al.*, 2011; Höjer *et al.*, 2011; Fenton *et al.*, 2015). Participation strengthens democratic endeavours and can also sow seeds for long-term innovations (Quist *et al.*, 2011). However, the approach is not without challenges, for example, the dominance of influencing persons with strong opinions (Zimmermann *et al.*, 2012), participants feeling overwhelmed by the complexity of choices to be made (Robinson *et al.*, 2011), and difficulty in recruiting individuals and groups from a wide range of backgrounds (Carlsson-Kanyama *et al.*, 2008; Larsen *et al.*, 2011).

2.1.2 Organisational factors

Various factors about the organisation developing and implementing the environmental visions and strategies are important. For example, studies suggest that the size of the organisation can have an impact, with differing views as to whether smaller organisations are at a disadvantage (Russo and Fouts, 1997; Schaper, 2002) or advantage (Aragón-Correa *et al.*, 2008). The resource-based view posits that it is those organisations that are best able to create

and exploit their resources that are best able to gain advantage (Wernerfelt, 1984; Amit and Schoemaker, 1983; Chandler, 1962). Exploitation of these resources requires strategic planning, a vision, continual learning and innovation, as well as close and dynamic integration with key stakeholders (Hart, 1995; Sharma and Vredenberg, 1998). Organisations need to be dynamic, and innovative in their strategic processes and behaviours, as well as being led by senior managers who are prepared to take risks (Bhupendra and Sangle, 2015).

2.1.3 Using backcasting

Backcasting is about defining a desirable future and then strategising and planning how to get there (Robinson *et al.*, 2011; Phdungsilp, 2011). It is traditionally based on one normative vision, but multiple visions can also be used to explore different future alternatives (Tuominen *et al.*, 2014).

In order to conduct backcasting, scenarios need to be developed of what a desired future might include, challenges and opportunities, and how best to mitigate against uncertainties (Peter and Jarratt, 2015; Wangel, 2011a). While scenarios do not remove the uncertainties, they can increase awareness of unforeseeable events (Svenfelt *et al.*, 2010). They are typically situated a couple of decades into the future so that there is room for major changes, but still short enough to be imaginable (e.g. 50 years) (Höjer *et al.*, 2011). The scenarios can also include target actors and contextual conditions that cannot be directly influenced (Milestad *et al.*, 2014). Indeed, working with scenarios enables the identification and involvement of key stakeholders (Wangel *et al.*, 2013). However, developing scenarios can be challenging, as it can be very difficult to disengage from the present (Vergragt and Quist, 2011; Carlsson-Kanyama *et al.*, 2008), and it is common that planning is based on previous experience and recognised limits (Phdungsilp, 2011).

3 Methods

3.1 The case study region

The research was undertaken in Östergötland, which is one of 21 counties in Sweden. At the time of the study, it consisted of 13 municipalities, each with varying numbers of citizens, ranging from around 150,000 in Linköping, to around 3,660 in Ydre (SCB, 2015). Of the 13, there were two large, three medium and eight small counties.

3.2 Interview procedure

A total of 13 interviews with environmental strategists (or persons with equivalent responsibilities for coordinating the development and implementation of environmental strategies in the municipalities), were conducted. The interviews were undertaken in three main phases: In Phase one, an interview with a best practice case study city was initially conducted. This was done by choosing a European Green Capital City, at random. On this basis, the Slovenian city Ljubljana (awarded European Green Capital 2016) (European Green Capital, 2015) was chosen and draft questions sent by email to the Department of Environmental Protection. Using the feedback from the initial pilot, Phase two consisted of pilot interviews with three Swedish municipalities in other counties, using the revised questions. Two of these municipalities (Umeå and Örebro) were selected from municipalities with high scores in the ranking of Swedish municipality environmental work (European Green Capital, 2014; MiljöAktuellt, 2014). Huddinge municipality was also selected due to its top ranking in 2014 of municipality nature conservation work (Naturskyddsföreningen, 2014). Again the interviews were concluded with questions on how the interview was perceived, and how the questions could be improved. Finally, in Phase three, interviews were conducted with the 13 municipalities in Östergötland county (Länsstyrelsen Östergötland, 2015). These were conducted in person when possible, or via telephone or email. All the interviewees were given an information letter in advance and encouraged to sign a consent form prior to being interviewed. Questions included: is the municipality a member of any environmental organisation? How does the municipality prioritise between various challenges? Is there an environmental management system in place? If so, which standard does it follow? Does the municipality employ environmental strategies and visions? How are the visions and strategies developed and who is involved? What are the key factors considered in developing the strategy? Where in the organisation is the role located? How often are strategies updated? The interview questions on strategies were intentionally posed before those on visions in order not to lead the interviewees into a backcasting reasoning, in case such reasoning was not already in place.

3.3 Data analyses

The narrative information from the interviews was coded and grouped into themes so that data became manageable and possible common phenomena among the municipalities could be identified (Flick, 1998). Validity was added by participant reviewing, whereby all quotes were sent to the person stating them giving the opportunity to clarify the statement and

review the translation to English. Reliability was ensured by checking and rechecking transcripts and codes all the way through the process from interview recordings, through coding, to compilation of the data.

4 Results

4.1 General information on the municipalities

None of the municipalities had implemented an environmental management system (EMS), for example, none noted that they worked according to ISO 14000 or the SS 85 40 00, which was designed for municipalities and counties (SKL, 2013). However, although they did not have an EMS they had other systematic structures for the environmental work. For example, Municipality A stated that the “...environment is implemented in the control system of the municipality”.

Of the 13 municipalities, six took part in an organisation, network or similar to strengthen their environmental work. Examples of such organisations, networks *etc.* were the Swedish Eco-municipalities (Sveriges Ekokommuner), the Climate Municipalities (Klimatkommunerna), the Covenant of Mayors, Local Governments for Sustainability (ICLEI), Union of the Baltic Cities (UBC), and the Aalborg Convention.

In more than half of the municipalities (seven), there was an appointed role and staff to coordinate the environmental strategic work. The role was called an environmental strategist or similar (denominations like sustainability strategist, environmental controller, energy- and environmental strategist also occurred). It was centrally organised in the large and medium municipalities, but in other parts of the administration in the small municipalities. When there was an appointed role, it had been around for up to four years in half of the cases, and in the other half for around 10 - 25 years. In the cases where there was no appointed role/resources, the environmental strategic issues often ended up in the environmental office (a department which was usually a regulatory authority in supervisory matters, or directly in the municipality management).

4.2 Environmental visions

How the interviewees looked at the municipality's visions varied. Almost half (six) stated that there was an environmental vision. Indeed, a scan of the municipalities' websites illustrated

that all had an overall vision, or other overall target document, that included one (or both) of the concepts of the environment or sustainability in an ecological context. However, the outline of its meaning spanned from being very briefly touched upon, to being more thoroughly specified.

4.2.1 The development of environmental visions

Generally, the environmental visions were primarily developed by the municipal officers and politicians (60%), as well as NGOs and property owners (40%). Indeed, the vision was often developed by the municipality's board (consisting of politicians). In some cases, this was followed by interaction with other stakeholders. However, in other instances, the vision was produced by a consultant, but was then implemented within the organisation.

Some of the environmental visions were, more or less, based on the four principles for sustainable development as shown in Table 1 (Robèrt *et al.*, 2012). None of the municipalities included the sustainability principles directly. However, some incorporated aspects that could be interpreted as *in the spirit of* the sustainability principles, for example, related to the manner in which the organisation procured its services.

Table 1: The principles of sustainable development

Sustainability principles
(1) Nature is not subject to systematically increasing concentrations of substances extracted from the Earth's crust
(2) Nature is not subject to systematically increasing concentrations of substances produced by society
(3) Nature is not subject to increasing degradation by physical means
(4) In that society, people are not subject to conditions that systematically undermine their capacity to meet their needs

The time horizon of the environmental visions differed among the municipalities (Fig. 1). The small municipalities tended to have a shorter time horizon than the medium and large municipalities. It is unclear as to whether the untimed visions were simply due to them reaching sometime into the future or whether they simply lacked precision.

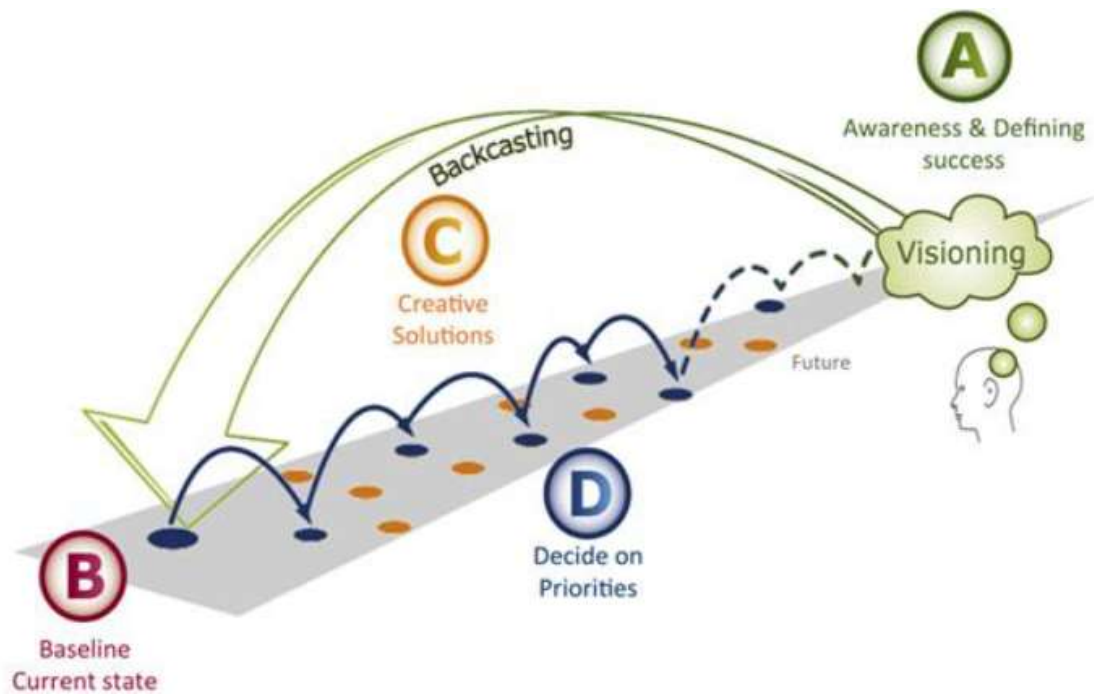


Fig. 1 The ABCD model for developing visions

Source: The Natural Step (2011)

4.3 Environmental strategies

There was significant variation in what was considered to be an environmental strategy. More than half of the municipalities (62%) stated that they had one, however, none had an actual document called 'environmental strategy'. Some of the documents referred to as strategy documents were actually statutory (for instance the waste management plan and the energy management plan) and also existed in other municipalities which did not consider them to be strategy documents. Indeed, there were often different and sometimes conflicting views of what could be considered an environmental document. For example, for some, the land use plan was not an environmental document, while it was regarded to be important for others.

4.3.1 The development of environmental strategies

Unlike for visions, generally, the environmental strategies were developed by the municipal officer and politicians (60%), and municipal administrative staff (40%). There was no correlation between the number of stakeholders involved and the size of municipality ($r_0 < 0.5$), except that it was more common among medium municipalities than large municipalities to involve more than two stakeholders ($r_0 < 0.58$).

As shown in Figure 2, there were four key factors that were considered when choosing strategies, namely: (1) 'national objectives as they are'; (2) 'national objectives with regional adjustments'; (3) 'current status of the environment in the municipality'; and (4) legislation. Other factors considered included 'how activities within the municipality's borders have effects within the municipality' and 'examples of measures in other municipalities'. 'What other municipalities have done', was by far the factor that was least considered, regardless of the size of the municipality.

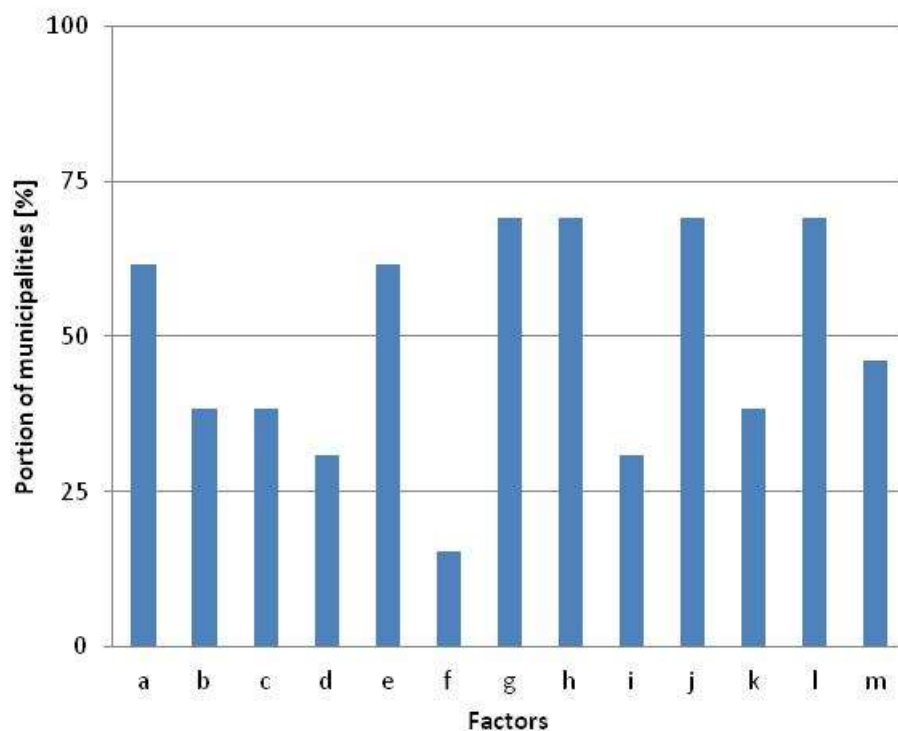


Fig. 2 Factors being considered when developing environmental strategies

- a. How activities within the municipality's borders have effects within the municipality
- b. How activities within the municipality's borders have effects outside the municipality
- c. How activities outside the municipality's borders have effects within the municipality
- d. How consumption within the municipality's borders have effects outside the municipality
- e. Examples of measures in other municipalities
- f. What other municipalities have done, for instance in a competition/ranking, to become better than them
- g. National objectives as they are
- h. National objectives with regional adjustments
- i. National objectives with local adjustments
- j. Current status of the environment in the municipality
- k. A vision of a desired future environmental state
- l. Legislation

m. Other

The number of municipalities in the county considering they had environmental strategies was higher than the overall number among Swedish municipalities, even though this finding has to be contextualised on the basis of differences in definitions even at the county level. All that had environmental strategies (eight municipalities) considered national and regional environmental objectives when developing their environmental strategies. Half of these also considered environmental objectives with local adjustments. The national and regional environmental objectives were the most important factor for small municipalities, while large and medium municipalities also considered several other factors. The national environmental objective system was evidently a great support for small municipalities, as they did not have the resources to be at the forefront of environmental strategic work.

4.4 Challenges faced

In the case of the development of environmental strategies, the documents were often prepared by a working group (sometimes by a consultant). In other cases, there was a political reference group, and in some cases, the strategies were sent to selected stakeholder instances. The involvement of different stakeholders could be comprehensive in some cases and limited in others, even within the same municipality. Each stakeholder could also be involved in the development of one or more strategies for the municipality.

The involvement of different stakeholders (for both the visions and strategies), on equal terms proved a challenge. For example, Municipality B had tried to involve all stakeholders in the development of the vision, but:

" ... there is an over representation of middle-aged white men, that is the way it is, even if we try to involve in every way as it is mostly them who show up and are heard most. But we also did a lot of other activities, we were out in the schools, for example, collecting comments and tried to reconcile them. We tried to seek out organisations, immigrant organisations and so, to get input, we also work with municipal officials... ".

Thus not only did the municipalities face the challenge of varying levels of involvement of stakeholders, they also had difficulties in engaging with a wide cross section of them.

As the visions and strategies were largely led by politicians, the most common factor that formed the basis for priorities was political decisions (rather than environmental concerns), in 23% of the municipalities. It was common for there to be other competing issues (e.g. conflicting goals of environmental protection versus exploitation), that impacted upon priorities and access to resources, including finance (46%), and personnel (23%). This therefore often resulted in limitations in staff and finance, particularly within smaller municipalities. Thus conflicts of interest were common and prioritisation of issues often seemed to be arbitrary and based on political decisions. Therefore while the municipalities were good at considering the current status of the environment, the environmental aspects – how the municipality actually affects the environment – were considered to a lesser extent. Additionally, in around 15% of the cases, the priorities were not being decided until after the strategies were actually in place.

The concepts of an environmental strategy varied, from being seen as an environmental policy, an environmental programme or goals. The documents considered to be environmental strategies also varied. It was therefore difficult for there to be consistency across municipalities, or indeed in some case even within municipalities.

It was also difficult for municipalities to engage private businesses. It was assumed that this was most probably due to the businesses not seeing direct benefits. For example, Municipality B noted that: “The nature conservation programme was actually a bit of an exception... landowners felt concerned, maybe a little threatened, so in that case I think they were quite involved...”.

The time horizon of the strategies differed from being outdated (0 years), up to 15 years. Large municipalities had a longer time horizon than medium and small municipalities (strong relationship, $r_{\Phi} = -0.70$ to $r_{\Phi} = -1$). Most municipalities (62%) updated at least some of their environmental strategies. However, the update frequency varied for different environmental documents, even within the same municipality.

5 Discussion

5.1 General

There were differences in how visions and strategies were developed, interpreted and used. All of the municipalities had a vision, but the manner in which it was developed and implemented varied significantly. Indeed, visions played a limited role in long-term planning. The concepts of an environmental strategy also varied. In some cases statutory documents, for

instance energy and waste management plans, where considered environmental strategic documents and in some cases not. While what different documents are called may not be so important, it is crucial that the various issues are connected if long-term planning is to be effective (Wangel *et al.*, 2013). Not having a thorough environmental vision or strategy makes it more difficult to identify the overall roadmap to effectively manage environmental issues.

Due to the manner in which the organisations worked, there were a number of challenges faced and areas for improvement in practice. These challenges included the range and level of involvement of different stakeholders, variation in what constituted an environmental vision and strategy, and the time horizons employed for the visions. This ‘haphazard’ way of working therefore led to inconsistencies in the focus of the strategies, as well as in the documentation, both between municipalities and also within them. It also meant that visions (even though they were present in all municipalities), as well as the strategies, actually played a limited role in long-term planning. The visions and strategies were largely driven and influenced by political concerns. In addition, wide stakeholder input into the development and implementation of the visions and strategies was limited. As the research was primarily qualitative, it is difficult, however, to state with any degree of certainty which of the factors was most important. This quantification is an area that could potentially be examined in a more detail in future research.

The size of the municipality appeared generally to have limited impact. Evidently, however, smaller municipalities tended to depend more heavily than large and medium size entities on the support provided by national and regional environmental objectives. This reliance by the smaller municipalities appeared to be linked to them possessing fewer resources.

5.2 Overcoming the challenges

The development of the visions and strategies was largely dominated by politicians and political decision-making. This therefore had an impact on the focus and timelines employed. Making greater use of wider stakeholder participation would enable wider input into the process, and the opportunity for greater ownership (Reed, 2008; Fenton *et al.*, 2015; RUS, 2014). For instance consultation via schools as some municipalities mentioned might be a useful approach. Even if public participation cannot reflect the detailed views of each and every citizen, it reflects the environmental values among the public in general.

Evidently, there will be difficulty in getting buy-in from all stakeholders. However, as demonstrated by the case study of the farmers mentioned by Interviewee B, if the relevance of

the subject can be demonstrated, then stakeholders would be more likely to engage (Weddfelt, 2015). The discussion could be adapted for different stakeholders, for instance, focus could be placed on safeguarding natural resources when involving the private sector. Networking between municipalities and exchange of experience in this area would be valuable to include different perspectives to a larger extent.

Both politicians and municipal officials can be seen as representatives of the public, but to increase the influence from a diversity of people, consultation of other stakeholders is crucial. Even if politicians and municipal officials possess some knowledge, in order to facilitate enhanced learning and innovation, a range of stakeholders should be involved to provide their knowledge, expertise and experiences (Hart, 1995; Sharma and Vredenberg, 1998; Salvia *et al.*, 2015). The use of scenario analysis could be considered to identify crucial stakeholders (Wangel *et al.*, 2013). Indeed, Bayulken and Huisingh (2015) suggest that the establishment of truly sustainable cities requires a partnership approach involving a 'heterogeneous mix of actors,' including developers, architects, engineers, politicians, educators, and citizens, in a step wise manner and using education, experimentation and empowerment. The coordination of the networking should be led by the municipal officers and the processes should be transparent and fair.

It is essential that more focus is placed on environmental concerns in the development of the environmental visions and strategies. The use of backcasting would help to ensure that the visions and strategies were developed and based on the environmental needs, rather than on political decisions (Tansey *et al.*, 2002; Phdungsilp, 2011; Neuvonen *et al.*, 2014; Carlsson-Kanyama *et al.*, 2008). Use of backcasting would also provide a framework within which there could be greater consistency in the manner in which the documents were developed. In addition, based on Potschin *et al.* (2010), the construction of these visions and strategies should utilise a holistic approach involving both the vision as well as how it will be actioned. Declared and measurable goals would be able to be set and consistent systems for monitoring and reporting established across the county (Berry and Rondinelli, 1998). This more systematic approach would also allow for more defined definitions of environmental visions and strategies which were lacking at the time of the study. Potentially, an environmental management system could also be employed as a framework. Development and implementation of the visions and strategies should be led by competent and trained municipal officers (Van de Kerkhof *et al.*, 2005; Noble, 2006), rather than by politicians. These officers would also serve as the focal point for development and implementation of the visions and strategies.

Many municipalities had started reviewing their environmental strategic documents every term of office. However, they should be developed together with the citizens and other stakeholders in order to enable more participatory decision-making processes. Regular review may be a good way of keeping a document 'alive', but it is important to involve citizens in the process.

The size of the municipality was not seen to be a barrier to development and effective implementation of visions and strategies. Indeed, even though several of the small municipalities did not have many resources, some were still able to develop a structured environmental strategic framework. However, there should nevertheless be more county level support provided for smaller municipalities. National and regional environmental objectives were fundamental to the municipalities' environmental strategies, particularly among the small municipalities, it is important that approaches are adapted to local conditions.

6 Conclusions

The county of Östergötland and Sweden as a whole face a number of environmental challenges. The municipalities in Östergötland undertook work in environmental issues in different ways, but not all of them had structured long-term action plans.

A sound vision, developed through wide participation should be used to a greater extent across the municipalities in Östergötland and Sweden generally, to ensure more effective development and implementation of long-term sustainability visions. The vision and strategy should incorporate a range of sustainability issues and be embedded within sound environmental principles, rather than political decision-making. Backcasting could serve a useful approach to assisting the municipalities in realising this vision and defining more well-founded strategies and action plans (Carter and White, 2012; Peter and Jarratt, 2014; Wangel, 2011b).

Perhaps one of the most crucial issues was that of wide stakeholder participation. While there was some involvement from stakeholders in the environmental strategic work, there was room for far greater and wider involvement. The exchange of experiences between the municipalities could also be valuable in sharing best practice, building capacities, and also enabling a degree of uniformity across the county.

This study has demonstrated that while municipalities in the county of Östergötland generally already had visions and strategies to manage the environment more sustainably, there were

areas for improvement. Indeed, the use of a more participative and synergistic approach, that incorporated the use of long-term planning in the development of visions and strategies, informed by backcasting, could serve to significantly enhance the existing efforts. Not only would this enable more effective and efficient working within and across the municipalities, but it would also facilitate wide spread engagement and ultimately overcome some of the environmental challenges faced.

References

- Amit, R., Schoemaker, P.J.H. 1993. Strategic assets and organizational rent. *Strategy Man J.* 14, 33 – 46.
- Aragón-Correa, J., A., Hurtado-Torres, N., Sharma, S., García-Morales, V.J. 2008. Environmental strategy and performance in small firms: a resource-based perspective. *J Env Man.* 86, 88 – 103.
- Bayulken, B., Huisingh, D. 2015. A literature review of historical trends and emerging theoretical approaches for developing sustainable cities (part 1). *J Cleaner Prod.* 109, 11 – 24.
- Berry, M.A., Rondinelli, D.A. 1998. Proactive corporate environmental: a new industrial revolution. *Acad Man Exec.* 12(2), 38 – 50.
- Bhupendra, K.V., Sangle, S. 2015. What drives successful implementation of pollution prevention and cleaner technology? The role of innovative capability. *J Env Man.* 155, 184 – 192.
- Carlsson-Kanyama, A., Dreborg, K.H., Moll, H.C., Padovan, D. 2008. Participative backcasting: A tool for involving stakeholders in local sustainability planning. *Futures.* 40, 34-46.
- Carter, J.G., White, I. 2012. Environmental planning and management in an age of uncertainty: The case of the Water Framework Directive. *J Env Man.* 113, 228-236.
- Chandler, A.D. 1962. *Strategy and structure: chapters in the history of the American Industrial Enterprise.* MA. MIT Press. Cambridge.
- Connelly, S., Richardson, T. 2005. Value-driven SEA: time for an environmental justice perspective? *Environ Impact Asses Rev.* 25, 4, 391–409.
- EC (European Commission) 2010. Europe 2020 Strategy. http://ec.europa.eu/europe2020/index_en.htm [Accessed: 17 January 2016]
- European Green Capital 2014. *Expert panel – technical assessment synopsis report European Green Capital Award 2016* [online]. European Commission. Available from: http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2013/02/EGCA-2016-Technical-Assessment-Synopsis-Report_F01.pdf [Accessed: 17 September 2015].
- European Green Capital 2015. *European Green Capital.* Available from: <http://ec.europa.eu/environment/europeangreencapital/> [Accessed: 17 September 2015].
- Fenton, P., Gustafsson, S., Ivner, J., & Palm, J.O 2015. Sustainable energy and climate strategies: lessons from planning processes in five municipalities. *J Cleaner Prod.* 98, 213-221
- Flick, U., 1998. *An introduction to qualitative research.* Sage Publications. London.
- Hart, S. 1995. A natural-resources-based view of the firm. *Acad Man Rev.* 20, 874 – 907.
- Höjer, M., Gullberg, A. & Pettersson, R. 2011. Backcasting images of the future city – time and space for sustainable development in Stockholm. *Tech Forecasting Societal Change.* 78, 819-834.
- Komeily, A., Srinivasan, R.S. 2015. A need or balanced approach to neighborhood sustainability assessments: A critical review and analysis. *Sus Cities Societies.* 18, 32-43.

Länsstyrelsen Östergötland (2015). *Länets kommuner, Här hittar du länkar till Östergötlands 13 kommuner*. The County Administrative Board of Östergötland. Available from http://www.lansstyrelsen.se/ostergotland/Sv/om-lansstyrelsen/om-lanet/Pages/lanets_kommuner.aspx [Accessed: 16 August 2015]

Merriam-Webster 2014. *Vision*. Available from: www.merriam-webster.com/dictionary/vision [Accessed: 24 September 2015].

Milestad, R., Svenfelt Å., Dreborg, K.H. 2014. Developing integrated explorative and normative scenarios: The case of future land use in a climate-neutral Sweden. *Futures*. **60**, 59 - 71.

MiljöAktuellt 2014. *Kommunrankning 2014*. MiljöAktuellt. Available from: <http://www.kommunranking.se/> [Accessed: 23 October 2014].

Naturskyddsföreningen 2014. *Sveriges bästa naturvårdskommuner 2014, En granskning av kommunernas naturvårdsarbete*. The Swedish Society for Nature Conservation, Naturskyddsföreningen. Available from: http://www.naturskyddsforeningen.se/sites/default/files/dokument-media/rapporter/ny_kommunrapport_klar_lw.pdf [Accessed: 23 October 2014].

Naturvårdsverket, 2015a. *Transporter och trafik*. Naturvårdsverket. Available from: <http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Transporter-och-trafik/> [Accessed: 13 September 2015]

Naturvårdsverket 2015b. *Hållbar konsumtion och produktion*. Naturvårdsverket. Available from: <http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Konsumtion-och-produktion/> [Accessed: 13 September 2015]

Naturvårdsverket 2015c. *Miljömålen kan nås lättare med bättre styrning – årliguppföljning av miljömålen 2015*. Naturvårdsverket. Available from: <http://www.miljomal.se/au> [Accessed: 13 September 2015].

Neuvonen, A., Kaskinen, T., Leppänen, J., Lähteenoja, S., Mokka, R., Ritola, M., 2014. Low-carbon futures and sustainable lifestyles: a backcasting scenario approach. *Futures*. 58, 66-79.

Noble, B. 2006. Introduction to environmental impact assessment: a guide to principles and practice. Toronto: Oxford University Press.

Partidário, M.R. 2009. Strategic environmental assessment—principles and potential. In: Petts J., (ed.). Handbook of environmental impact assessment. England: Blackwell Science Ltd, 60–73.

Peter, M.K., Jarratt, D.G., 2015. The practice of foresight in long-term planning. *Tech Forecasting Soc Change*. 101. 49 - 61.

Petts, J. 1999. Environmental impact assessment—overview of purpose and process. In: Petts J., (ed.). Handbook of environmental impact assessment, vol. I. England: Blackwell Science Ltd, 3-11.

Phdungsilp, A., 2011. Future studies' backcasting method used for strategic sustainable city planning. *Futures*. 43, 707-714.

Potschin, M.B., Klug, H., Haines-Young R.H. 2010. From vision to action: framing the Leitbild concept in the context of landscape planning. *Futures* 42, 565 – 667.

Quist, J., Thissen, W., Vergragt, P.J., 2011. The impact and spin-off of participatory backcasting: From vision to niche. *Tech Forecasting Soc Change*. 78, 883-897.

Reed, M.S., 2008. Stakeholder participation for environmental management: a literature review. *Bio Conserv*. 141, 2417-2431.

Robèrt, K.-H., Broman, G., Waldron, D., Ny, H., Byggeth, S., Cook, D., Johansson, L., Oldmark, J., Basile, G., Haraldsson, H., MacDonald, J., Moore, B., Connell, T., Missimer, M., 2012. *Sustainability Handbook, Planning Strategically towards Sustainability*. 1:2. Lund: Studentlitteratur.

Robinson, J., Burch, S., Talwar, S., O'Shea, M., Walsh, M., 2011. Envisioning sustainability: Recent progress in the use of participatory backcasting approaches for sustainability research. *Tech Forecasting Soc Change*. 78, 756-768.

RUS, 2012. *Hur går miljöarbetet regionalt och lokalt?* Regional Utveckling och Samverkan i miljömålssystemet, The County Administrative Boards of Sweden. Available from: <http://www.lansstyrelsen.se/dalarna/SiteCollectionDocuments/Sv/Publikationer/Rapporter-2012/regionalt%20del%201.pdf> [Accessed: 24 September 2015].

RUS, 2014. *Guide till Lokalt arbete med miljömål*. Regional Utveckling och Samverkan i miljömålssystemet, The County Administrative Boards of Sweden. Available from: http://hallbarutvecklingvast.se/system/files/lokalt_arbete_med_mijlomal_web.pdf [Accessed: 24 September 2015].

Russo, M.V., Fouts, P.A., 1997. A resource-based perspective on corporate environmental performance and profitability. *Academy of Man J*. 40, 534-559.

Salvia, M., Di Leo, S., Nakos, C., Maras, H., Panevski, S., Fülöp, O., Papagianni, S., Tarevska, Z., Čeh, D., Szabó, E., Bodzsár, B. 2015. Creating a sustainable and resource efficient future: a methodological toolkit for municipalities. *Rene Sus Energy Rev*. 50, 480 – 496.

SCB, 2015. *Folkmängden efter region, civilstånd, ålder och kön. År 1968-2014*. Statistics Sweden. Available from: http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START_BE_BE0101_BE0101A/BefolkningNy/?rxid=5ed081fb-52b2-44a6-ae98-ee48ee0e2827 [Accessed: 24 April 2015]

Schaper, M., 2002. Small firms and environmental management: predictors of green purchasing in Western Australian pharmacies. *Int Small Bus J*. 20, 235-251.

Sharma, S., Vredenburg, H. 1998. Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. *Strat Man J*. 19, 729 – 753.

Sinclair, A.J., Sims, L., Spaling, H. Community-based approaches to strategic environmental assessment: Lessons from Costa Rica. *Env Impact Assess Rev*. 29, 147 – 156.

SKL, 2012. *Lokala miljömål och nationellt stöd*. The Swedish Association of Local Authorities and Regions. Available from: <http://webbutik.skl.se/bilder/artiklar/pdf/7164-824-2.pdf> [Accessed: 16 August 2015].

SKL, 2013. *Ledningssystem för hållbar utveckling*. Sveriges Kommuner och Landsting / Swedish Association of Local Authorities and Regions. Available from: <http://webbutik.skl.se/bilder/artiklar/pdf/5324.pdf?issuusi=ignore> [Accessed: 8 July 2015].

- Svenfelt, Å., Engström, R., Höjer, M., 2010. Use of explorative scenarios in environmental policy-making-Evaluation of policy instruments for management of land, water and the built environment. *Futures*. 42, 1166-1175.
- Svenfelt, Å., Engström, R., Svane, Ö., 2011. Decreasing energy use in buildings by 50% by 2050 – A backcasting study using stakeholder groups. *Tech Forecasting Soc Change*. 78, 785-796.
- Tansey, J., Carmichael, J., Van Wynsberghe R., Robinson, J. 2002. The future is not what it used to be: participatory integrated assessment in the Georgia Basin. *Glob Env Change*. 12, 97 – 104.
- The Natural Step, 2011. *Applying the ABCD Method*. The Natural Step. Available from: <http://www.naturalstep.ca/abcd> [Accessed: 24 September 2015].
- Tuominen, A., Tapio, P., Varho, V., Järvi, T., Banister, D., 2014. Pluralistic backcasting: Integrating multiple visions with policy packages for transport climate policy. *Futures*. 60, 41-58.
- Van de Kerkhof, M., Wieczorek, A. 2005. Learning and stakeholder participation in transition processes towards sustainability: methodological considerations. *Tech Forecasting & Soc Change*. 72, 733 – 747.
- Vergragt, P.J., Quist, J., 2011. Backcasting for sustainability: Introduction to the special issue. *Tech Forecasting Soc Change*. 78, 747-755.
- Wangel, J., 2011. Exploring social structures and agency in backcasting studies for sustainable development. *Tech Forecasting Soc Change*. 78, 872-882.
- Wangel, J., 2011b. Change by whom? Four ways of adding actors and governance in backcasting studies. *Futures*. 43, 880-889.
- Wangel, J., Gustafsson, S., Svane, Ö., 2013. Goal-based socio-technical scenarios: greening the mobility practices in the Stockholm City District of Bromma, Sweden. *Futures*. 47, 79-92.
- Weddfelt E., 2015. Are Swedish municipalities heading for a sustainable development? MSc Thesis. University of Northampton, UK.
- Wernerfelt, B. 1984. A resource-based-view of the firm. *Strat Man J*. 5, 795 - 815