Fostering a Culture of Sustainability in Municipalities through Effective Training

Jean-Paul Baron-Bonarjee, Rifat Abed Elal, Quynh Van Nguyen

School of Engineering
Blekinge Institute of Technology
Karlskrona, Sweden
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Abstract

Human society as a whole has reached a tipping point in its relationship with the socio-ecological systems upon which it depends. All sectors of society need to be involved in addressing this crucial challenge through a raised awareness of the issues and pro-active solutions to it. This research focuses on small urban towns and cities, where half the world’s urban population lives, and looks at the ways in which local government in these key areas can play an active role in leading sustainability through education and training. Municipalities and communities that use the framework for strategic sustainable development (FSSD) were investigated, and the conditions were identified that helped and hindered training to be really effective. Effective training, in its many forms, was found to be essential in fomenting a common language of sustainability, engaging the community, and bringing concerted strategic actions that together could foster a culture of sustainability.

Keywords

Eco-Municipalities, Sustainability Training, Systems Thinking, Strategic Sustainable Development, Community Engagement, Leverage Points.
Statement of Collaboration

This thesis collaboration has certainly been a journey for all of us involved. We are students completing our MSLS and we come from very different backgrounds and cultures. We came together under difficult circumstances with very different levels of understanding, purpose, and expectations, but through perseverance we managed to overcome the great challenges that we faced. There was significant variance in terms of language, academic background and communications, yet we attempted to combine our different skills, with each member contributing to the best of their ability, providing support and critical feedback to each other’s work, and sharing ideas and insights. Each member contributed as follows.

Jean-Paul, with a background in Electronic Engineering, Social Sciences, Human Ecology and English language teaching, coupled with a deep passion for sustainability, played a highly significant role towards the completion of this project. Being a native speaker, he was responsible for writing and putting together all the various drafts and revisions of this report, compiling and writing the entire final report, as well as doing the referencing. He was responsible for all the email correspondence with our contacts in eight different countries. He researched most of the literature review for the introduction and compiled an extensive list of references for the group to use. He also conducted all twenty-four phone and Skype interviews, helped to transcribe them as well as checked and corrected the accuracy and language of the transcriptions. Moreover, with his eye for detail, he cross-checked, corrected and commented on all the work done by the other team members besides creating a vast amount of the background documents that support this report. Finally, he played a major role in putting together the presentations of the work, compiling data tables and graphs from the online questionnaire conducted, and editing all documents.

Rifat has a background in Civil Engineering and was an active team member, contributing as much as he could and providing valuable research outcomes. With great enthusiasm, he dived early into the work, making initial contact with some of the practitioners in the field of this study, whilst doing his share in the literature review. He contributed in note-taking during the interviews, transcribing and consolidating them. He was also greatly involved in coding interviews, and in tabulating, cross-checking and presenting concise results, which he was responsible for expounding during our presentations. He spent much time and effort in writing, editing and cross-checking the appendices and glossary. Lastly, together with the rest of the team, Rifat helped to design the survey and interview questions.

Van Nguyen, with an academic background in International Economics and Business Administration, contributed her expertise in research and analytical skills. Her contribution was mainly in the research methodology and her advanced typing speed was helpful in taking crucial notes during interviews and discussion. Coding interviews was also one of her core responsibilities, picking out the main themes from the recordings and tabulating them together with Rifat. Likewise, her technical skills helped the group to set up the online survey as did her knowledge of Excel in transferring the survey results into figures and charts for the proposals, final report and presentations.

Jean-Paul Baron-Bonarjee, Rifat Abed Elal and Quynh Van Nguyen.
Karlskrona, June 2013.
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We would like to show our deep appreciation to the following people for helping us realize this thesis:

First and foremost to Dr. Karl Henrik-Robèrt and Dr. Göran Broman, for having created this programme that has been so inspiring and is invaluable in these times of change, where new ways of thinking are required to solve the crises due to an unsustainable societal model.

For this thesis to have borne fruit, it would not have been possible without the support and time given so freely to us by Torbjörn Lahti and Sarah James from IEMEA, and Stanley Nyoni from TNS Geneva: we offer you our most sincere thanks for guiding us along the way and tirelessly answering all our questions.

We are also immensely grateful to all the practitioners who made themselves available for our interviews and gave us such a valuable window into the municipalities and communities they were connected to, especially to Kenneth Gyllinsting, Bert Cohen, Cheeying Ho, Alexa Forbes, Simon Harvey, Linnea Folkesson, John Purkis, Tahirih Smith, Michael Wzdulski, Lori Rissling Wynn, Jerry Hembd, Duke Castle, Steve Sandstrom, Debbie Barr, Larry MacDonald, Ann Green, Nina Danielsson, and Bob Andrews. We would also like to express our deep thanks to Jane Silberstein for connecting us to so many people and providing your writings to support our research. Likewise, a big thank you goes out to Scott Perret for your invaluable feedback when designing our questionnaire.

We would like to express our thanks to the course director and secondary advisor, Tracy Meisterheim, and to the faculty teaching staff including Pierre Johnson, Merlina Missimer, and Zaida Barcena, for their passion, insights and inspiration throughout the preliminary part of this Masters programme. We would also like to extend a big thank you to our primary advisor, Marco Valente for all your constructive guidance, kind support and encouragement throughout this thesis.

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Our gratefulness also extends out to our dear classmates who helped us when the pressure was intense and we really needed their support, guidance and feedback, specifically to Paul Horton, Joe Alsford and Elaine Daly.

Last but not least, without the constant support of our families and friends, this effort would not have been possible.

Thank you!
Executive Summary

Introduction

Over the past couple of centuries, human society has transformed the natural world dramatically since the advent of industrial production. The Industrial Revolution that took place in Europe around 200 years ago transformed life and affected the entire planet through humans’ actions, leading to a new era called the anthropocene, dominated by human activity (McLamb 2011; Steffen, Crutzen, and McNeill 2007). As vast amounts of energy were required to make this possible, the new industrial civilization had profound impacts on the natural environment. The biosphere is being systematically degraded as a result of human activity, thus constraining people’s ability to meet their needs and making society more vulnerable to unforeseen consequences (Robèrt 2000).

Cities and towns are crucial areas of focus to help moving human society towards sustainability. Due to the forces of globalisation and its effects in terms of economic opportunities and investment, there has been a huge re-location of people away from the countryside and into towns and cities.

At the Earth Summit in Rio de Janeiro in 1992, it was agreed that the best starting point for implementing sustainable development was at the local or municipal level involving local communities and councils in establishing strategic actions towards creating a sustainable future. The concept of eco-municipalities, or ECMs, originates in Scandinavia and applies to a city or town that aspires to develop an ecologically, economically, and socially healthy community for the long term, using the Framework for Strategic Sustainable Development (FSSD) to move towards sustainability (Lahti and James 2005).

The purpose of this study is to investigate the crucial role that effective training can play insofar as bringing a culture of sustainability at the municipal level, thus helping to integrate sustainability planning and actions in ECMs moving towards sustainability.

Research questions

Primary research question:
How can effective education and training foster a culture of sustainability inside eco-municipalities?

Secondary questions:

i. What is an effective training session?
ii. What are the factors that enable training sessions to be effective?
iii. What are the factors that hinder the effectiveness of training sessions?
iv. How are trainings evaluated to make them more effective?
v. What are the key benefits of holding effective training sessions?
Research design

Maxwell’s *Interactive Model for Research Design* was selected for this study together with the FSSD and Doppelt’s *Wheel of Change* as conceptual frameworks. There were four phases to this study that were divided as follows:

**Phase 1:** Literature review was carried out to get some background about ECMs and engagement. Five exploratory interviews were conducted to find out what was happening in ECMs as regards stakeholder and community engagement, tools to measure success, enablers and barriers. This phase helped to scope down the focus of the study.

**Phase 2:** Six further exploratory interviews were conducted with some of the same and new experts and firesouls. Further literature review was carried out on sustainability education and training to narrow down the scope to training factors.

**Phase 3:** Thirteen semi-structured interviews were conducted with grassroots organizers, ECM representatives and ECM practitioners, and a questionnaire designed from the research questions was sent out to 130 people representing municipalities in seven countries. Forty responses were received of which twenty-one completed surveys that could be used for analysis. Data from the semi-structured interviews was also coded during this phase.

**Phase 4:** The coding was processed to extract themes based on the research questions. After that, the themes were cross-checked by all group members. The statistics for the findings from the questionnaire were processed online and then used for analysis to compare them with the results from the interviews.

Results

The results are presented according to the part of a training session to which they are connected, i.e., before (B), during (D) or after (A), or a combination of these. Additionally, themes are categorized as *internal* and *external* to the trainings. The following gives a snapshot of the results obtained from interviews:

**SRQ1: What is an effective training session?**

Many descriptions were recorded containing a variety of themes which were then distilled down to fifteen areas and listed as ‘factors’

<table>
<thead>
<tr>
<th>Stage in training:</th>
<th>Internal/External to training</th>
<th>Factor</th>
<th>Factors linked to effective training</th>
<th>ECM Practs</th>
<th>ECM Plann</th>
<th>Grass roots</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>External</td>
<td>1</td>
<td>Involving the right people</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>B+A</td>
<td></td>
<td>2</td>
<td>Making training part of a programme</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>B+D</td>
<td></td>
<td>3</td>
<td>Suitable group size and good use of time</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>D</td>
<td>Internal</td>
<td>4</td>
<td>Training relevant to participants</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Varied instructional approaches,</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>
SRQ2: What are the factors that enable training sessions to be effective?
The experts mentioned over twenty-five enablers which were then distilled down to fifteen, with similar enablers being grouped together under one heading.

<table>
<thead>
<tr>
<th>Stage in training:</th>
<th>Internal/External to training</th>
<th>Factor</th>
<th>Enablers</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroots reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Internal</td>
<td>1</td>
<td>Political support</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>B</td>
<td>External</td>
<td>2</td>
<td>Involving the right people</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td>External</td>
<td>3</td>
<td>Commitment from individuals/ dept./org.</td>
<td>1</td>
<td>3</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

SRQ3: What are the factors that hinder the effectiveness of training sessions?
The experts mentioned almost twenty barriers which were then distilled down to twelve, with similar barriers being grouped together under one heading.

<table>
<thead>
<tr>
<th>Stage in training:</th>
<th>Internal/External to training</th>
<th>Factor</th>
<th>Barriers</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroots reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Internal</td>
<td>1</td>
<td>Lack of political support</td>
<td>4</td>
<td>1</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>External</td>
<td>2</td>
<td>Lack of financial resources</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>External</td>
<td>4</td>
<td>Time constraints, logistics</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>11</td>
</tr>
</tbody>
</table>

SRQ4: What are the key benefits of holding effective training sessions?
Nine key benefits were distilled from a larger original list with similar benefits being grouped together under one heading.

<table>
<thead>
<tr>
<th>Number</th>
<th>Benefits</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroots reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supports decision-making for planning and leads to actions</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>Provides clear understanding of sustainability issues and benefits</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>

SRQ5: How are trainings evaluated to make them more effective?
Ten ways were identified, similar ways were grouped together under one heading. They are listed in ascending order according to how many times they were mentioned by different experts.

<table>
<thead>
<tr>
<th>Number</th>
<th>Method of Evaluation</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroots reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Evaluation forms</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Follow-up on participants, orgs, departments</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
The term eco-municipalities was only used by the municipalities in Sweden and the United States, not in Canada and New Zealand.

There were mainly two types of sustainability training which can be divided into ‘formal’ and ‘informal’. The former is interpreted as a planned session facilitated by a professional trainer and including the introduction of new concepts and tools (e.g. FSSD, ABCD, etc.). The latter refers more to sustainability education gatherings, workshops, study circles, and so forth that are often held in community spaces, with new concepts and tools introduced here too.

The approach which was applied in different municipalities is divided into three categories namely municipality-driven, community-driven, and mixed approach. Municipality-driven had a more institutional approach to sustainability and did not engage the community significantly. Community-driven was an approach in which sustainability initiatives and ‘training’ seemed to be more active at the community level. The mixed approach involved both the municipal structures and the local communities in the sustainability training, planning and actions to move towards the town’s vision of success.

**Discussion**

There are many factors that affected the effectiveness of training. One of the key ones which influenced the likeliness of it taking place at all was political support. Training sessions should be well-planned and involve a range of instructional and engagement methods. Making sure that there is enough time for the trainings was a crucial point as municipal employees usually have very busy schedules and planning is therefore essential. For training to be effective, it needs to be linked to planning actions and their implementation as a follow-up to the trainings while other follow-ups such as more advanced training, public events and coaching were also emphasized.

In the interviews, there was an overlap between many of the enablers mentioned and the descriptions of effective training. Likewise, several barriers that were stated were often the opposite of enablers.

Insofar as measuring the effectiveness of trainings, benchmarking learning outcomes to concrete actions coming out of the trainings could lead to methods of gauging the success of the sessions in a concrete way. Various forms of feedback such as forms and surveys could help to improve the quality of the trainings and get a notion of their educational and transformational impacts on the participants.

There were seven leverage areas within the organisational structure that could be shifted through effective training and the benefits it could bring. These addressed Doppelt’s seven sustainability blunders and the ways in which they can be solved. For example, the parts of the system can be re-arranged through getting cross-sector and cross-departmental collaboration in a climate of co-creation and co-learning fomented through a common understanding of sustainability from a systems perspective.
There were several strengths and limitations to this research pertaining to the research design, making contact with representatives from municipalities, conducting and coding interviews and in designing and carrying out the survey.

Various areas for further research are proposed amongst which investigating the actual return on investment that can be obtained through having sustainability education standing out as a highly relevant area.

**Conclusion**

Sustainability training can lead to a culture of sustainability given the right conditions and institutional support. Currently, however, there is still a long way to go in many (eco-) municipalities insofar as implementing and integrating the FSSD into sustainability planning that involves all the departments, key stakeholders and the broader community. The FSSD’s systems approach based on a common understanding of sustainability together with the benefits that accrue from effective training could go a long way in changing that, helping to foster a culture of sustainability in making progress towards creating sustainable cities and towns.
Glossary of Terms

**ABCD Planning Process:** A four-step planning process designed to implement the FSSD (see definition below) by way of backcasting from a vision of success of a sustainable future, bounded by the four sustainability principles, and comparing this to the current reality in order to create strategic step wise actions to move towards this vision (Ny et al. 2006).

**Backcasting:** A strategic tool to enable planning from success principles or scenarios, by starting with the desired outcome in mind and then determining the steps required to achieve the outcome (Robinson 1990; Robèrt et al. 2010).

**Barrier:** Something that generates undesirable feedback loops, which limit or hinder the process.

**Benefit:** A positive or advantageous outcome.

**Biosphere:** Literally the ‘place where life exists’ is the zone of global ecosystems stretching from the top of the lower atmosphere to the lowest layers of the soil and ocean’s sediments (Huggett 1999).

**Capacity Building Centre:** A learning centre with a variety of learning materials, resources and courses which contribute to strengthening people’s knowledge, skills and abilities.

**Civil Society:** The collection of non-governmental organizations and institutions who represent the interests and will of citizens in a society.

**Community:** A social group of any size with geographical proximity amongst its members, such as a neighbourhood, town, district or city where people can interact face-to-face.

**Complex System:** A system that is made up of a relatively large number of parts that interact in complex ways producing behaviour that can be counterintuitive and unpredictable (Robèrt et al. 2010).

**Culture of Sustainability:** “A culture of sustainability is one in which organizational members hold shared assumptions and beliefs about what sustainability means for their organization, where the organization stands today in relation to that understanding, and what they are doing to bridge the gap” (Bertels et al. 2011).

**Early Adopters:** The first people to adopt a new idea and thus to set a new trend.

**Eco-municipality:** A city or town which aspires to develop an ecologically, economically, and socially healthy community for the long term (SEkom 2013).

**Eco-municipality Practitioner:** An expert with extensive experience in the eco-municipality concept and/or the TNS framework and who works with municipalities as a consultant and/or an external trainer.

**Eco-municipality Representative:** A person who works either in the sustainability planning department, the environmental department or a senior staff member in an eco-municipality.
**Enabler:** A condition or event that creates a positive or desired outcome

**Engagement:** Participation, involvement and interaction of individuals in decision-making, activities and leadership (Gurr, McCurdy and Robert 2012).

**Firesoul:** A person with a burning interest and passion to bring sustainable development to their local context (James and Lahti 2004).

**Five Level Framework (5LF):** A conceptual framework that aids in analysis, decision-making and planning in a complex system and that consists of five distinct, interrelated levels - System, Success, Strategic, Actions and Tools (Robèrt 2000).

**Forecasting:** A planning approach that extrapolates from current trends and situations to help planners predict the future (Robèrt et al. 2010).

**Fossil Fuels:** Fuels that are taken from natural resources which were formed from biomass in the geological past as well as any secondary fuel thereof (IEA 2005).

**Framework for Strategic Sustainable Development (FSSD):** The FSSD is a five-level conceptual model for analysing, planning and decision-making towards global socio-ecological sustainability in complex systems, utilizing a whole-systems approach and science-based Sustainability Principles.

**Funnel Metaphor:** The funnel is a metaphor used to describe society’s current degradation of the socio-ecological system due to its unsustainable activities, and the subsequent reduced options to deal with the problems created thereof (Robèrt 2000).

**Grassroots Representative:** A person who is a member of the community or a firesoul (see definition above) who is active in the community and has a connection with the municipality.

**Greenhouse Gases:** Gases in the atmosphere that reduce the loss of heat radiated from the Earth’s surface back into space. Emissions of greenhouse gases are the main driver of human induced Climate Change.

**Human Needs:** Max-Neef identifies nine fundamental human needs: subsistence, idleness, protection, affection, creation, identity, understanding, participation, and freedom. These needs are universal throughout time and culture and may be satisfied in different ways according to context (Max-Neef 1991)

**Leverage Point:** A place within a complex system where a small shift in one thing can produce big changes in everything (Meadows 2009).

**Paradigm Shift:** A change from one way of thinking to another: a type of revolution, transformation, or a sort of metamorphosis in the dominant world view (Kuhn 1970).

**Political Buy-in:** Commitment and active support from the elected leaders (e.g. council, mayor, city manager, etc.).
Silo(ed) Approach: An approach to planning based on focusing in depth in one particular area or department without communicating with the other areas or departments.

Social Capital: The interpersonal interactions, networks and customs that contribute to stronger community fabric (e.g. community cohesion, trust, tolerance, compassion, patience, etc.) (Roseland 2005, 9).

Skype: A voice-over-IP application for real-time speech and video calls over the Internet.

Stakeholder: A person or group that can affect or be affected by an organization’s actions.

Strategic Sustainable Development (SSD): An approach for conceptualizing and planning for sustainability that is designed to deal with the complexity of the global system (Holmberg and Robert 2000).

Sustainability: A state where the four sustainability principles are not violated (Ny et al. 2006).

Sustainability Practitioner: A person whose primary professional function is to facilitate the movement of individuals, groups, organizations, institutions and/or society at large towards socio-ecological sustainability, or who has otherwise built sustainability into the core of his/her profession or organization.

Sustainability Principles: A set of basic scientifically-approved conditions for the successful continuation of the socio-ecological system (Robèrt et al. 2010). Notably, in a sustainable society, nature is not subject to systematically increasing:

1. Concentrations of substances extracted from the Earth’s crust
2. Concentrations of substances produced by society
3. Degradation by physical means

And in that society...
4. People are not subject to conditions that systematically undermine their capacity to meet their needs (Ny et al. 2006, 64)

Sustainable Development: Human development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Bruntland 1987).

System Conditions for Sustainability: see Sustainability Principles.

Systems Thinking: A way of thinking that changes the focus from substances to organization, from basic components to complex units that form a whole, and from aggregates forming objects to systems embedded in other systems and composed by other systems (Morin 1977).

The Natural Step (TNS): A non-profit organisation created by the founders of the FSSD that helps organisations and individuals understand and make meaningful progress towards sustainability (Robèrt et al. 2010; TNS 2013).
Transformational Change: “Transformation is what happens when people see the world through a new lens of knowledge and are able to create an infrastructure, never before envisioned, for the future” (Daszko and Sheinberg 2005, 2).

Treehugger: An informal term to describe someone who wants to protect the environment, especially forests, mostly used in a derogatory way (The Free Dictionary 2013).
List of Abbreviations

5LF       Five Level Framework
BTH      Blekinge Institute of Technology (Blekinge Tekniska Högskola in Swedish)
CLD     Closed Loop Diagram
ECM   Eco-Municipality
EU     European Union
FSSD  Framework for Strategic Sustainable Development
GHG  Greenhouse Gas
G/root.  Grassroots
IEMEA Institute for Eco-Municipality Education and Assistance
LA21     Local Agenda 21
LIP    Local Investment Programme for Ecological Sustainability
NGO Non-Governmental Organisation
OECD  Organisation for Economic Co-operation and Development
Plans. Planners
Practs. Practitioners
Reps.  Representatives
ROI     Return on Investment
SD     Sustainable Development
SEkom Swedish Eco-Municipality Network (Sveriges Ekokommuner in Swedish)
SRQ Sub-Research Question
SSD    Strategic Sustainable Development
Sust. Sustainability
TNS    The Natural Step
UN     United Nations
US     United States
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1 Introduction

1.1 The Sustainability Challenge

1.1.1 Entering the Anthropocene

The Industrial Revolution that started in Britain and then swept through Europe around two centuries ago transformed life not only in that continent, but came to affect the entire planet (McLamb 2011). It had dramatic impacts on all aspects of human life, namely increasing the standard of living, changing ways of life and accelerating urbanisation (More 2000). It was also a major turning point in human being’s relationship to the natural environment.

As economic output increased due to vastly improved efficiency in industrial production, consumption levels rose alongside human populations. In a little over 200 years, global human population increased more than seven-fold, rising from roughly 1 billion in 1800 to just over 7 billion today (PRB 2013). Humanity’s Ecological Footprint is now 50% greater than the Earth’s carrying capacity, and consumption levels in the industrialized countries of Western Europe and North America with only 12% of the world population accounts for 60% of private consumption (WWF 2012). Meanwhile China and India are rapidly catching up accounting for 20% of the global total, with the consumer class in other developing countries growing rapidly. Private consumption has thus quadrupled since 1960, exacerbating pressures on the biosphere through widespread resource extraction and degradation of natural environments such as forests, oceans and rivers (Worldwatch 2013). This unprecedented increase of consumption in an economy based on unlimited growth must be considered within the context of a finite planet with relatively slow regeneration rates of ecosystems (Daly 2005).

The Earth has entered a new epoch called the Anthropocene, shaped by human activity as a global geophysical force (Steffen, Crutzen, and McNeill 2007). This has had an unprecedented impact on the Earth’s regenerative systems, through the physical, chemical and biological changes resulting from industrial society (Zalasiewicz et al. 2010). Anthropogenic climate change due to the unprecedented levels of greenhouse gas (GHG) emissions, contaminated soils and water systems, and species extinctions 100-1000 times higher than background levels are just some of the effects associated with modern industrial civilization (Mace et al. 2005; Rockström 2009).

1.1.2 The Funnel Metaphor

The biosphere is being systematically degraded as a result of human activity, thus constraining people’s ability to meet their needs and making society more vulnerable to unforeseen backlash (Robèrt 2000). Some waste products from society are disrupting the flow of elements in the ecosystems, while others are poisoning soils and rivers and consequently entering the food web. As human society as a whole continues along an unsustainable path, systematically degrading the natural support system upon which it depends, it can be seen to be moving through a funnel, whose closing walls represent the declining capacity of the socio-ecological system to support it. Figure 1.1 represents the funnel metaphor which is at the heart of the sustainability challenge with the blue line charting out the trajectory that must be taken in order for human society to avoid the
catastrophic effects entailed by ‘hitting the wall of the funnel’ (Robèrt 2000). The central part
of this funnel represents the desired sustainable society in which this systematic degradation
of the socio-ecological system will have stopped. Thenceforth, remedial action on a global
scale may be able to strengthen the biosphere’s resilience and harmonize the social system,
restoring balance and bringing regeneration.

![Funnel Metaphor](Figure 1.1. The Funnel Metaphor)

The path towards creating a sustainable society can be referred to as sustainable
development. The most widely accepted definition of this comes from the Bruntland Report,
and states that for development to be considered sustainable, it must meet the needs of the
present generations without compromising the ability of future ones to meet their own needs
(Bruntland 1987).

### 1.2 Small cities and towns

Cities and towns are crucial areas of focus if we want to move human society towards
sustainability. Globally, despite occupying less than 2% of the earth’s surface, urban
settlements concentrate 80% of economic output, 60-80% of energy consumption, and
approximately 75% of CO₂ emissions (Kamal-Chaoui and Robert 2009; UN Population
Division 2011). Due to the forces of industrialisation and globalisation and their effects in
terms of economic opportunities, investment, etc., there has been a dramatic re-location of
people away from the countryside and into towns and cities. Since 1950, urban populations
have risen dramatically, climbing from 0.75 billion inhabitants, or just under a third of global
population, to 3.6 billion in 2011, or just over a half of the world population. At current
growth rates, over 6 billion people, or 67% of the global population, will be living in urban
areas in 2050. This surge in urban populations will drastically increase the demand for food,
land, energy, and other resources to sustain them (UN Population Division 2012).

Although megacities of over 10 million people are on the rise, more than half of the world’s
urban populations have lived in settlements smaller than 500 000 people for the past few
decades (UN Population Division 2012). This indicates that small cities and towns are an
important starting point when addressing the sustainability challenge from an urban perspective.

1.3 Starting at the local level: Municipalities

At the Earth Summit in Rio de Janeiro in 1992, it was agreed that the best starting point for implementing sustainable development was at the local or municipal level involving local communities and councils in establishing strategic actions towards creating a sustainable future. This blueprint for sustainability for the 21st century came to be known as Agenda 21 and the part of it to be implemented by local authorities as Local Agenda (LA21). The stated goal of this latter strategy is to ensure a better quality of life both now and in the future, by focusing on the social, economic and environmental challenges, and by providing guidelines to deal with the problems of poverty, hunger, resource consumption and the deterioration of ecosystems. Additionally, sustainable development is considered to be a community issue and as such should therefore involve as many stakeholders who are part of it as possible. (UN Sustainable Environment 1992; Sustainable Environment 2013)

There are various initiatives that have been created in order to address sustainability at the local level and to try to achieve the goals set out by LA21. These include EcoDistricts, Transition Towns, Sustainable Cities, Green Cities, the EU Reference Framework for Sustainable Cities, and Eco-Municipalities, to name but a few.

The EcoDistricts initiative is a model for public-private partnership, developed by the City of Portland, Oregon (US), that emphasizes innovation and deployment of district-scale best practices to create the neighbourhoods of the future - resilient, vibrant, resource efficient and just (Ecodistricts 2013). The Transition Network is a grassroots network of communities that has been working to build resilience in response to peak oil, Climate Change, and economic instability. Additionally, it plays an important role in inspiring, encouraging, connecting, supporting and training communities as they self-organise around the transition model, creating initiatives that rebuild resilience and reduce CO₂ emissions (Transition Network 2013). The Sustainable Cities and Towns Initiative combines the expertise of eight local government networks towards sustainability and is based on the ten Aalborg Commitments. These are a guide for the development of a sustainable city that lists the main focus areas to concentrate on, namely: governance; urban management; natural common goods; responsible consumption; planning and design; better mobility; local action for health; sustainable local economy; social equity and justice; and, local to global (Sustainable Cities 2013a). Green Cities for Municipalities and the Environment is a binding partnership agreement between municipalities that work to ensure sustainability through agreed upon objectives, and is based on environmental benchmarks which are set up for each objective (GreenCities 2013). The EU Reference Framework for Sustainable Cities is an online toolkit for European local authorities working towards integrated SD which values the diversity of European cities, is easily adaptable to local challenges and processes, offers access to exchange and support, and promotes cooperation, instead of competition (RFSC 2013).
1.4 Eco-municipalities

The concept of eco-municipalities, or ECMs, originates in Scandinavia and applies to a city or town that aspires to develop an ecologically, economically, and socially healthy community for the long term. The concept of ECMs looks at the sustainability challenge from a systems perspective inside a principle-based sustainability framework called the Framework for Strategic Sustainable Development, or FSSD. This concept of ECMs, first introduced in 1980 by Suomussalmi local authority in Finland, was brought to Sweden in 1983 when the local council of Övertorneå (5 000 inhabitants) decided to adopt it. (SEkom 2013; Lahti and James 2005)

The eco-municipality model spread to various cities and towns in Sweden and a network was created as a way of providing support and assistance to cities and towns undertaking ecological community planning. There are now 88 eco-municipalities (ECMs) throughout Sweden, varying in size between villages of 300 people to cities of 800 000, such as Stockholm. Other towns and cities across the world use the ECM concept, located mainly in Canada and the US, but also in the Netherlands, Ireland, Italy, New Zealand, Chile and Kenya. Figure 1.2 shows a simple conceptual representation of eco-municipalities as connected to society and the biosphere.

![Figure 1.2. Eco-municipalities as connected to the biosphere](image)

1.4.1 Municipalities as complex systems

The Earth is a dynamic complex system due to the fact that there are many interconnected parts (atmosphere, biosphere, lithosphere, etc.) that interact in complex and often unpredictable ways (Donner 2009). Cities and towns and their municipal governments, which are a part of human society, are complex systems too (Harvey 1973).

Municipal/local governments are responsible for urban planning, regulatory activities, and other functions, besides the provision of a wide range of services. They can therefore be thought of conceptually as trees with many branches representing all the different functions and services (such as housing, land use, educational facilities, natural resources, etc.) connected to the trunk which is the socio-ecological system of a municipal area. The smaller
branches and leaves represent the subsidiary functions and areas linked to one particular function. For example, the main branch of housing has building design, site design, and affordability as sub-systems or branches, and the leaves might be materials, water, electricity, labour, etc... Such a representation helps to get a picture of the complexity and sense of interrelatedness in the different spheres that pertain to local government. (James and Lahti 2004)

Beyond the complex functions they play, municipalities are also forms of organisations representing complex social systems (Doppelt 2003). These organisations are made up of internal communities, namely the different departments and sub-departments, and these in turn consist of people. There are also external communities that are linked to municipalities which are referred to broadly as the ‘community’. In this community, external to the one that takes part in the operational workings of local government, there can be found many sub-communities which are linked through geographical zones, common interests, culture, jobs and businesses, education, religion, etc... These two broad sets of communities form an extremely complex human system that in turn has a wide array of different relationships to natural or ecological systems for the continuity of their existence. The whole can be seen as the municipal (community) and the community (at large) as shown in Figure 1.2.

1.4.2 Using a framework to plan strategically for sustainability

A framework specifically tailored for planning strategically in a complex environment and avoiding reductionist solutions is required when approaching sustainability planning in a municipal context (Thompson and Rechsteiner 2013). The Five Level Framework, or 5LF, is such a framework.

The 5LF is a conceptual framework that was originally developed through a consensus process by a group of Swedish scientists and later elaborated by a non-profit organisation called The Natural Step (TNS). Its strength lies in the fact that it provides a mental model that allows people to simplify and categorize a complex issue in a way that is easy to understand and thus enables decision makers, planners, etc., to solve complicated problems strategically in a complex system (Robet et al. 2010). When the 5LF is applied in the context of sustainability, it is referred to as the Framework for Strategic Sustainable Development, or FSSD. The 5LF consists of five interconnected levels which although are presented sequentially work simultaneously together. The five levels are: Systems, Success, Strategic, Actions and Tools (Figure 1.3) are defined as follows:

I. The Systems level defines the system that is being studied.

II. The Success level, which is at the heart of the planning process, defines the overall goal that needs to be achieved to enable a planning process to be successful. The definition of success should be clear, widely agreed upon and bound by basic principles.

III. The Strategic level consists of the strategic guidelines for choosing concrete actions as part of an overall strategic plan to achieve the defined success.

IV. The Actions level consists of the concrete actions chosen to move towards the desired goal.
V. The Tools level identifies the tools that support planning and implementation to reach the overall goal, both in terms of assessing whether actions are moving towards success, as well as in measuring the whole system. Tools that can help build capacity among planners also fall into this category.

![The Five Level Framework (5LF)](image)

**Figure 1.3. The Five Level Framework (5LF)**

### 1.4.3 Reaching success using backcasting

In the context of sustainability, success consists of stopping the unsustainable actions threatening the socio-ecological system and identifying them upstream, at their source, in order to squarely face the full scope of the sustainability challenge and avoid simply taking incremental corrective measures using a linear approach.

In order to reach success, strategic planning is required especially since the municipal system, just like the socio-ecological one, is complex. So as to avoid issues that arise due to a lack of a shared planning language, uncoordinated responses, and dead end investments, an approach known as backcasting is used. This method consists of building a vision of success in the future and asking what is needed today in order to reach it (Robinson 1990). One of the strengths of the backcasting approach is that it aims to envision a desirable rather than a likely sustainable reality in the future. Another is that, as compared to the common approach of forecasting, it doesn’t constrain the possible options for the future by not depending on solutions based on the ideas and technologies available today (Holmberg and Robèrt 2000).

There are two types of backcasting approach, namely backcasting from scenarios and backcasting from principles. The latter provides constraints or basic principles to define success, therefore making it easier to reach consensus, deal with the uncertainties of the future, and to gain the full benefits of future innovations. It is non-prescriptive and success can be achieved in a variety of ways contrary to backcasting from scenarios, which entails defining scenarios for the future to guide planning. (Holmberg and Robèrt 2000)
1.4.4 Backcasting from Sustainability Principles

When planning strategically towards sustainability using a backcasting approach, there are four sustainability principles (4SPs) that need to be respected, namely:

In a sustainable society (in this case municipality), nature is not subject to systematically increasing:

1. Concentrations of substances extracted from the Earth’s crust or lithosphere
2. Concentrations of substances produced by society (e.g. synthetic chemicals, air pollution, etc.)
3. Degradation by physical means (e.g. deforestation, land-filling, etc.)

And:

4. People are not subject to conditions that systematically undermine their capacity to meet their needs. (Ny et al. 2006)

This principle-based approach of defining success allows municipal planners together with stakeholders and the community at large, to use a shared language when planning strategically using backcasting in moving towards sustainability.

1.5 Using the ABCD Planning Process

The ABCD Strategic Planning Process was designed in order to implement the FSSD in a real organisational context. This is a four step process that can be used to trigger creativity in team-based workshops with the end goal being to come up with compelling actions that can lead to the vision of success (Ny et al. 2006). Figure 1.4 represents the ABCD process.

![Figure 1.4. The ABCD Planning Process (TNS 2011)]

In the A step, a vision of the organisation in a sustainable society is conceived in compliance with the 4SPs. This vision can change throughout the initial as well as subsequent ABCD planning workshops. In the B step, a baseline analysis of the organisation’s current reality is performed, assessing both the ways in which the organisation is aligned and misaligned with the SPs. In the C step, a long list of possible actions is brainstormed, so as to bridge the gap...
between the current reality and the vision. Actions can range between small- and large-scale goals, varying in implementation period from small- to long-term. In the D step, the actions in C are analysed and prioritised based on the three prioritisation questions found in the Strategic level of the FSSD, namely: 1) Does the action leads in the right direction (towards the vision of success?; 2) Can it serve as a flexible platform for future improvements; 3) Does it provide sufficient return on investment (ROI)? Other prioritisation criteria specific to the organisation can also be added. (Ny et al. 2006; Robèrt et al. 2010)

Upon completing an ABCD process, the planning team will create an action plan for the implementation of the prioritised actions, starting with the low hanging fruit that can be implemented in the short term and additionally provide high ROI (Robèrt et al. 2010).

1.6 The importance of education for a successful change process

As previously mentioned, municipalities that have adopted the ECM model plan their sustainability efforts using the FSSD (or TNS framework), and the ABCD planning tool. A great deal of work has been done to date by various non-profit organisations that work with the TNS framework in municipalities moving towards sustainability. Two of these actors are the Institute for Eco-municipality Education and Assistance (IEMEA) founded by Sarah James in the US and Torbjörn Lahti in Sweden. The other is The Natural Step Canada which is the national branch of TNS in Canada.

According James and Lahti (2004), there are certain principles or steps for a successful change process in a municipality and the wider community in concretizing actions when moving towards sustainability. Although presented sequentially, these steps can occur in parallel with some of them taking several years to complete or they may even fade and come back, but importantly, they need to be adapted to each particular context. They are the following (summarized from James and Lahti 2004):

1. **Finding the firesouls:** Finding the people with a burning interest to bring SD to the local context.
2. **Education - Raising awareness:** Connecting the local context to the global trends by having a broad education initiative involving the political and community leaders, then later municipal employees, stakeholders, and other members of the community.
3. **Official endorsement of sustainability operating principles:** Getting the endorsement of sustainability principles (as defined by TNS) by top officials in the municipality for the change process to succeed.
4. **Involving the implementers:** Involving the people from the relevant municipal departments, agencies and organisations who are going to implement the changes, as well as the community implementers and ‘early adopters’.
5. **Applying the compass:** Fomenting a common language for sustainability amongst municipal official, staff and citizens through the use of the TNS framework in sustainability education and using the ABCD process for planning.

---

1 This refers to both economic and social ROI.
2 The TNS framework refers to the FSSD and is used throughout this paper as this is the way most practitioners interviewed referred to it.
6. **Whole plan endorsement:** Getting the action plans developed by municipal departments, agencies, citizen working groups, etc., approved by the officials and thus including them into municipal policies.

7. **Keeping it going:** “A critical part of continuing both sustainable practices and the overall change process in the municipality and larger community is ongoing education, training, and efforts to raise awareness about the importance of sustainability and sustainable development” (James and Lahti 2004). This includes the use of indicators and other ways to measure progress.

From the above principles, it can clearly be seen that sustainability education is mentioned three times, suggesting that it is a key ingredient in the change process. Moreover, according to a report compiled by TNS Canada and collaborating partners about ways to embed a culture of sustainability inside municipal government, training, education and raising awareness were mentioned as some of the key factors (Bertels et al. 2011).

### 1.7 Purpose

The purpose of this study is to investigate the critical role that training as a form of sustainability education can play in developing a culture of sustainability in municipalities aiming to become sustainable. The study aims to define what an effective training session means, both in terms of the session itself and its outcomes.

Moreover, the factors that enable and hinder training from being effective are sought in order to get a complete picture about how an effective sustainability training session/workshop can be designed. The advantages for a municipality of holding trainings are also sought, in terms of the concrete actions that can move the municipality towards sustainability, as well as others such as creating a common language (of sustainability), any transformative changes that take place, etc..

Finally, any methods to evaluate trainings are investigated as well as ways to measure their effectiveness and success.

### 1.8 Research questions

*Primary research question:*
How can effective education and training foster a culture of sustainability inside eco-municipalities?

*Secondary questions:*
- What is an effective training session?
- What are the factors that enable training sessions to be effective?
- What are the factors that hinder the effectiveness of training sessions?
- What are the key benefits of holding effective training sessions?
- How are trainings evaluated to make them more effective?
1.9 Scope and audience

To scope down the breadth of this study, municipalities that use the TNS framework and are called eco-municipalities (ECMs) were chosen. Since they can be found throughout the world, the authors decided to focus on ECMs specifically in Sweden, Canada, the United States, and New Zealand, which are all industrialised countries with relatively similar standards of living and are members of the OECD.

Since cities and towns of vastly varying sizes use the ECM concept, ranging in size between villages of 500 inhabitants and cities like Stockholm, with roughly 800 000 inhabitants, it was decided to set an upper limit to urban settlements with around 100 000 inhabitants. There was no lower limit.

This study is designed for strategic planners in municipalities, trainers, and ECM practitioners, as well as for community leaders and firesouls.
2 Research design

This study looks at interactions within a complex social system in a real-world setting and as such calls for the use of qualitative research. This is so as to gain the depth and descriptive richness provided by direct contact with the human sources of the data in a holistic manner (Bodgan and Taylor 1975). Additionally, qualitative research seeks to preserve the form, content and context of social phenomena thus analysing their qualities; this is done in a methodological rather than mathematical way (Lindlof 1991). The methodology is flexible and any type of strategies, tools or empirical materials that can best approach the subject matter is used making the qualitative researcher a type of *bricoleur*³ (Becker 1998).

In order to carry out this type of research in which any component of the design may need to be reconsidered or modified, given that research design should be a reflexive process throughout the project, a suitable model was required (Maxwell 2005; Hammersley and Atkinson 1995). This model should not be linear or sequential as qualitative research does not depend on a fixed starting and finishing point, with the different components aligned accordingly (Maxwell 2005). That was the impetus that led the authors of this work to choose Maxwell’s *Interactive Model for Research Design* (Maxwell 2013). An essential feature of this interactive model is that it helps to understand the structure of the study as well as to plan it (Maxwell 2005).

This model is flexible and consists of five interrelated components as shown in Error! Reference source not found.. Each component addresses a different set of issues that are essential to the coherence of the study (Maxwell 2013). For this study, they are as follows:

2.1 Goals

2.1.1 Personal goals

There was a strong interest in citizen engagement in cities and towns that brought the authors to choose this area of research, as those are the places they reside in and where the greatest sources of unsustainability seemed to lie. Coming from different backgrounds and having experienced the urban sprawl, pollution, high consumption and wastage in these settlements, there was a desire to find ways to address how citizen engagement in municipal planning could lead to more sustainable, habitable urban settlements that could meet people’s needs⁴.

2.1.2 Practical goals

The practical goals, which were developed in the introduction, were initially to find the ways in which citizen and stakeholder engagement could lead to success in eco-municipalities moving towards sustainability. These changed over the course of the research to finding the key factors to success in ECMs and then how training factors could lead to success.

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³ A *bricoleur* is a French term that describes a person who uses whatever is available, the odds and ends at hand, to make do and to adapt these to the situation (de Certeau 1984; Harper 1987).

⁴ See Manfred Max-Neef’s ‘Human Scale Development’ where he expands upon his theory of nine fundamental human needs (Max-Neef 1991)
Eventually, the topic of finding how effective training could lead to a culture of sustainability in municipalities was the final one on this iterative journey.

### 2.1.3 Intellectual goals

These consisted in understanding the meaning of the situations, contexts, unanticipated influences, processes and causal links that were relevant in the study of eco-municipalities especially insofar as getting a clear understanding of sustainability education and training (adapted from Maxwell 2013).

![Maxwell’s Interactive Model for Research Design (Maxwell 2013)](Figure 2.1)

### 2.2 Conceptual frameworks

This looks at the system of theories, concepts, assumptions, beliefs, etc., that informed the research and in what way they were connected (Maxwell 2005; Miles and Huberman 1994). Two frameworks were used in this research, namely the FSSD and the Wheel of Change.

#### 2.2.1 The FSSD

The main framework chosen was the FSSD. As seen earlier, it incorporates a systems approach combined with sustainability principles, thus helping to give a clearer and more strategic perspective to the research issue. Additionally, the five levels of the framework were used to position effective training, a culture of sustainability in eco-municipalities, and eco-municipalities themselves, and showing how they are connected to one another within the greater context of the global sustainability challenge (Figure 2.2). Sustainability training could either be seen as a tool or an action but for the sake of simplicity, it was positioned at the Tools level of the FSSD.
2.2.2 The Wheel of Change

Various conceptual models were encountered such as Bloom’s Taxonomy that looks at the cognitive depth of learning sessions (Anderson and Krathwohl 2001), Sterling’s model about the transformative possibilities of a learning experiences (Sterling 2003) and Kirpatrick’s framework for evaluating training sessions (Kirkpatrick 1994). In this study, however, the focus was not primarily on the training sessions themselves but rather on the role of training in bringing about organisational change towards sustainability. This led to choosing Doppelt’s model for organisational change as a secondary conceptual framework (Doppelt 2003).

According to Doppelt (2003), the culture of an organisation is one of the key leverage points identified that can bring successes in implementing sustainability initiatives. Moreover, organisations that failed to achieve success in implementing such initiatives did so due to committing one or more of seven big errors or ‘blunders’. Conversely, by intervening in those seven areas, also known as leverage points, the change process could start ‘rolling’, hence the name given to this conceptual model: The Wheel of Change (Error! Reference source not found.).
Intervening in one area only is not enough as one solution cannot bring successful change, and given that each solution affects and is affected by every other, interventions should therefore be made in all of the seven areas (Doppelt 2003). Although change is not linear, each intervention or action provides a building block for the next, and change comes from moving from one intervention to the next in a sequential way. Moreover, there are three change modules, namely: creating a new organisational mental model and organising framework - categories 1-3; establishing the means to design and test new ways of thinking and operating - categories 4-5; and, providing the means to make sustainability grow and stick over the long term - categories 6-7 (Doppelt 2003, 88). Finally, since the change process is circular, organisations can start interventions anywhere along the wheel.

2.3 Research questions

The research questions (i.e. what was trying to be understood and determined), are at the heart of the research design and the only component which connected all the others (Maxwell 2013). As the main research question changed throughout the research, so did the other components respond and adapt accordingly.

2.4 Methodology

The research was initially divided into three phases but with the iterative changes with regards to the area of investigation that took place, the boundaries between them became increasingly blurred. Eventually a fourth phase was added to account for the changes in direction that were encountered during the first one. During each phase methods were linked to the research questions, moving from an exploratory and unstructured phase to a semi-structured one, eventually ending with two more structured phases. Purposeful sampling was used in all phases of the qualitative parts of this research, with experts being chosen or
referred to the authors based upon their specific connections to a municipality and the relative homogeneity in the entire sampling group. This was in order to be able to establish comparisons and derive the reasons for the differences between settings (Maxwell 2005). All contact with experts prior to interviews was made by email. The four phases of the research can be categorized as follows (Figure 2.).

![Figure 2.3. Research phases](image)

**2.4.1 Phase I**

In this phase the research question: ‘What are the factors that can lead eco-municipalities to successfully engage with the different stakeholders in moving towards a commonly shared vision of sustainability?’ was investigated. This phase consisted in a broad literature review, exploratory interviews and scoping down on the focus.

**Literature review**

This part consisted in reviewing literature from different sources such as past theses, books, peer-reviewed journals, professional articles, and academic publications in order to give the authors a better background of ECMs, engagement and later on sustainability education and training. Google Scholar, Summon, the BTH database (Libris) and library, were some of the research tools which were accessed.

**Exploratory interviews**

In total, five exploratory interviews were conducted with experts connected to sustainability work in ECMs. The experts were consultants from the Natural Step, IEMEA and ECM representatives and were chosen specifically because of their extensive experience with eco-municipalities, as planners, coordinators, external trainers, consultants and community organizers. These interviews lasted between 60-180 minutes and were conducted face-to-face (2) and by Skype call (3). The interviews were conducted by one group member while the other two took notes. These open-ended discussions with those individuals helped the authors to gain insights into what was happening with ECMs in general as regards stakeholder and community engagement, successes in moving towards sustainability, tools to measure these, and the enablers and barriers to progress being made.

**Scoping down**

During this phase, different factors were unearthed that contributed to success in moving towards sustainability and the assumption that successful engagement would necessarily lead to progress by ECMs moving towards sustainability was dropped. Instead it was seen as one of the factors that could lead to success. The compiled list of factors found in this phase eventually produced a list of between five and seven key factors (see Appendix N for the connection between different factors). Moreover, the exploratory interviews helped to
identify the gaps between knowledge acquired from the literature review and the current situation in ECMs situated in different regions (Sweden, Canada, and the US).

2.4.2 Phase II

In this phase, the research question became: ‘What are the factors that can lead to successes in eco-municipalities around a commonly shared vision of sustainability?’ To get a better picture of the impact of these factors and related enablers, barriers, etc., an additional six exploratory interviews were conducted with some of the same experts as before as well as with new eco-municipality practitioners and firesouls (grassroots organizers in this case). More literature review was carried out and by the end of this phase, the area of focus and derived research question were scoped even more with the new area of focus being training factors.

2.4.3 Phase III

The new research question produced in the last phase became: ‘How can training factors help ECMs move strategically towards sustainability?’ In this phase, a mixed methods approach was used consisting of qualitative data collection through semi-structured interviews, and quantitative collection through an online survey. Some data was also collected in email responses where the respondents were not available for an interview. This mixed approach was to deepen the breadth and depth of understanding and corroboration of the data gathered by getting both a detailed understanding from a small group of people, and a more generalized one from a larger one (Johnson, Onwuegbuzie and Turner 2007; Creswell and Plano Clark 2011).

Semi-structured interviews

Semi-structured interviews were conducted with grassroots organizers, representatives from ECMs, and ECM practitioners. The interviews began by the authors giving some background to the research being done, followed by the opportunity to get some background about the interviewee within their context, in connection with their municipality and community. After that, interviewees were asked to describe a typical training session or their contextual equivalent and were given plenty of space to describe that in detail. The research questions were then asked but in a focused and creative way, responding to the situation that was being described by the interviewee, so as to collect a good data collection (Maxwell 2005). The questions were often rephrased, for example when probing into the meaning of effective training, one way of asking this was: ‘What would you say effective training means in........?’ Also, the research questions were not necessarily asked sequentially and plenty of space was given to the interviewees to answer as broadly and deeply as possible. In many cases, the question did not need to be asked directly as data related to the research questions would often surface from the interviewees’ stories. Nonetheless, in those cases, for the sake of validity, the questions were asked afterwards in a way related to the research questions to verify that the data noted was associated to the correct theme. Depending on how the interview was going, several additional questions could be asked in case any clarifications were needed, or if possibilities arose to investigate certain points more deeply. For example, the question ‘What are the characteristics of a good facilitator?’ was asked on several occasions.

Importance should be given in deciding the sample size based on the study purpose, how the research results will be used and what resources and time the researchers have for the study
(Patton 1990). For this research, the authors contacted over thirty experts but only managed to carry out thirteen interviews in total, of which six were with ECM practitioners, three with ECM representatives, and four with grassroots organizers/firesouls. In order to give the interviewees time to ‘digest’ the questions, a brief introduction about the content of the thesis topic and a list of interview questions was sent out normally at least two days in advance (see Appendix O for the questions). All the interviews were between 60-90 minutes and recorded digitally with the permission of the interviewees. These recordings turned out to be invaluable for data transcription and coding during the analysis phase. During the interviews, one group member was responsible for facilitating the dialogue and asking the questions, while the other two members took down notes. All the interviews were conducted online through Skype or telephone since it was not possible to travel to those ECMs.

In the case where some of the contacted practitioners were interested in being part of the research but were unavailable for interviews, the questions were sent and returned via email (see Appendix P for the questions). Four such cases for collecting data arose.

**Survey**

A questionnaire was created in this phase as a quantitative means to support the data collected from the interviews, as collecting information through another data source can increase the reliability of a study (Maxwell 2013). The questions were designed from the research questions and the choices offered informed by information that was collected during the semi-exploratory interviews in phase II and some of the earlier structured interviews in phase III (see Appendix Q for the complete survey questions). The Qualtrics online survey platform\(^5\) was used to create the questionnaire due to its functionality, multiple features, and ease of use.

In order to check the suitability of the survey with respect to the introduction, layout, content, length, and wording, the questionnaire was piloted with colleagues and some ECM practitioners who had formerly been in contact with the authors. Through the piloting process, plenty of valuable feedback was received with regard to content and wording, and this enabled the questionnaire to be more clear, readable and accurate before distributing it.

After piloting the questionnaire, it was sent to a little over 130 contacts\(^6\) in seven countries, on lists provided by existing contacts in the respective countries or through web searches. The respondents mostly consisted of ECM practitioners and representatives (mostly strategic sustainability planners), and grassroots organizers/firesouls. The survey was kept open for almost three weeks, and reminder emails were sent twice to respondents who had already started the questionnaire but not yet completed it.

**2.4.4 Phase IV**

In phase IV, data analysis was carried out on all the information collected from the interviews, emails, and surveys. This phase is divided into interview coding and questionnaire analysis.

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\(^5\) www.qualtrics.com  
\(^6\) Of these, almost 90 came from Sweden, just over 30 from the US, 9 from Canada, 4 ECM practitioners from other parts of Europe, and two from New Zealand.
**Interview coding**

The purpose of coding in qualitative research is to “fracture” the data, as opposed to counting it, in order to find the main patterns and separate them into different categories or themes (Strauss 1987; Maxwell 2005). To assure the effectiveness of coding, the coding process started almost directly after the first interviews were conducted to help to sharpen the focus of subsequent interviews and observations (Coffey and Atkinson 1996; Maxwell 2005).

Coding was done in such a way as to extract themes based on the research questions, one interview at a time. In the first round of coding, key words were highlighted as ‘pre-code’ and grouped under different themes, for example, when the interviewees gave a description of a typical training, the following terms were used as regards to one of the factors that enabled training to happen: political support, support from the council, political buy-in, support from the elected leaders, etc... All these were then clustered together under one theme, namely political support and categorized as an enabling theme. In the second round, checking was done to make sure that no important points were ignored or forgotten. After that a matrix was created with different rows containing the categories based on the research questions, with different themes inside each category, and with each column dedicated to the data from one interviewee. The interviews were transcribed and coded by two of the authors, then checked by each other, followed by cross-checking from the third group member for the sake of triangulation.

The number of times certain themes appeared was counted. Great care was required here as some respondents gave various descriptions that could fall under one theme, but if each description was counted as a separate theme, this would skew the overall weighting of this theme. For example, one ECM practitioner mentioned the importance of Giving people the chance to discuss issues that matter and also cited Acknowledge what people say: these were linked under one theme, namely the enabler Meaningful engagement and dialogue, and as such this theme was counted only once for this interviewee (Purkis 2013). Subsequently, themes were tabulated according to the stage in training they corresponded to, either before, during, or after the training. For example, Involving the right people was considered as a theme that came before training while some themes such as Making training relevant to participants was both linked to before and during the training. These stages of the training to which themes were connected were further divided into either external or internal, with before and after in the former category, and during linked to the latter.

**Questionnaire analysis**

The statistics for the findings from the questionnaire were done by Qualtrics online and a report was published on the website containing graphs and charts for each question. These were then used for analysis in the results.

### 2.5 Validity

#### 2.5.1 Researcher bias

Researcher bias refers to ways in which data collection or analysis is distorted by the researcher’s values, theory, or preconceptions (Maxwell 2005). Since bias is impossible to totally eliminate in qualitative research, looking for and finding solutions to deal with bias is most important (Maxwell 2013). In this study, the authors did not pick an area of research to
which they had any previous connection with; this was believed to reduce the possibility of preconceived ideas regarding the types of responses that would be hoped for.

Moreover, different methods of collecting data were employed such as interviews, a survey, and email responses, in order to reduce bias and this increase the validity. In phase three, to minimize the possible bias which could undermine the validity of the results, interview coding was carried out by all three members of the group. Both of these techniques of triangulation reduced the risk of chance associations and systematic bias (Maxwell 2005).

### 2.5.2 Reactivity

Reactivity is understood as “the influence that a researcher has on a setting or individuals in a study” (Maxwell 2005, 108). At the beginning of the process, the thesis topic and research questions were introduced beforehand to the interviewees by email. This could have influenced the interviewees’ answers during the interviews. According to Maxwell (2013), it is almost impossible to eliminate the influence of the researcher on the interviewees. However, the authors tried to avoid this by attempting to use neutral language when posing questions and not reacting to responses given in any overtly positive or negative way.
3 Results

The exploratory interviews (11) carried out with nine different ECM practitioners and representatives based in Sweden, Switzerland, Canada and the US provided a wealth of insights as to the factors that were fundamental in bringing success in eco-municipalities.

The meanings for the short-hand labels given in the various tables for the themes/factors from the semi-structured interviews can be found in the appendices (F-J). In each table in the following sections, similar themes were clustered together from longer initial lists.

Of the 130 surveys sent out, 40 were answered, of which 21 complete surveys were registered. Only the data related to the research questions was analysed, while other data was discarded. In some of the graphs, there is a discrepancy between the total number of respondents for the question (between 17-19) and each individual category/factor. This was most likely due to some of the respondents not answering the complete question.

The results are presented in each section according to which part of a training session they are connected, i.e., before, during or after, or a combination. Additionally, the themes are categorized as internal (during) and external (before and after) to the trainings. The number of times each theme was mentioned by a separate expert is listed in the tables and the totals tallied. Given that there are many themes in each table, not all are discussed but especially those mentioned at least twice. Interviewees often referred to the FSSD as the ‘TNS framework’ which has been left that way in the relevant quotes.

3.1 SRQ 1: What is an effective training session?

3.1.1 Effective training according to interviews

In order to gauge what an effective training session might look like, interviewees were asked the question ‘How would you describe an effective training session?’ In the cases where there was no formalized training taking place, but for example educational forums or workshops, the question was rephrased accordingly. Other ways of asking this were: ‘How do you design an effective training session?’ and ‘What are the key ingredients that can make a training session effective?’ The following fifteen themes were found (Error! Reference source not found.).

<table>
<thead>
<tr>
<th>Stage in training:</th>
<th>Internal/External to training</th>
<th>Factors linked to effective training</th>
<th>ECM Practs.</th>
<th>ECM Planners</th>
<th>Grassroot Reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>External</td>
<td>1 Involving the right people</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>B+A</td>
<td></td>
<td>2 Making training part of a programme</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3.1. Factors linked to effective training (interviews)
“It’s so important to have an effective training session as you must put this in the context of a municipality (that) mostly has a lack of money, resources, etc., so there’s a requirement from the municipality and (ECM) practitioners that (a training) must be effective.” (Lahti 2013)

a) Before the training – External
When looking at the pre-training factors, involving the right people was mentioned by experts from all three categories. This point refers to having the people in the training who can have the greatest impact in terms of decision-making and application to real-life actions in the municipality and community. They include the mayor and municipal committee members, strategic planners, community leaders, and firesouls, amongst others. “We measure our effectiveness by getting the right people round the table, people who can actually make a difference” (Forbes 2013).

In terms of suitable group size, 25-30 participants was seen to be the best group size for effective training, although it was specifically addressed by only one expert but implied by many others. This point was linked to manageability and flexibility in facilitation approaches: “It’s much more effective if you can work with smaller groups: if you have 100 people, you need more facilitators and you can’t change things that much and you’ve really got to stick to your design a lot more.” (Purkis 2013)

Another factor that was only formally mentioned once but was implied by other experts was making training part of a programme. Both Steve Sandstrom and Jerry Hembd who are trainers explained how they taught ongoing training programmes that ran over 4-6 month cycles and stressed the effectiveness of these. Meanwhile Torbjörn Lahti from IEMEA outlined how running a community workshop, before any training took place, involving key members of the municipality and community could lead to designing a capacity development process made up of learning, planning and doing processes. “For me (training) is more...
(from) a pedagogical perspective: it must be important in the change process, so it must be all put in a project, a programme, a process, so that it makes sense.” (Lahti 2013)

b) During the training – Internal

Looking at themes connected to the start of the training, making the training relevant to the participants was mentioned by four experts. “The first thing is to start by going round the room..., and I will ask them (the participants) what do they want to get out of this training?” (Castle 2013) John Purkis also specified doing a survey with municipality staff before the training to find out about the commitment to sustainability (Purkis 2013).

Using a variety of instructional approaches including working in small groups was deemed important especially by grassroots representatives. “Engaging the participants both intellectually and emotionally” was mentioned (Cohen 2013) as well as having participatory and hands-on exercises (Hembd 2013). Starting the session with an exercise was also key (Lahti 2013) as was “having attractive and compelling Powerpoint presentations” (Hembd 2013). “Following the introduction, we would go into different types of exercises...and when we design an exercise or activity, we always use this approach: ‘Anchor, Add, Apply, Away’.” (Purkis 2013)

Providing a clear understanding of sustainability was mentioned by experts in all three categories as an important aspect of any training. Specifically Lahti stated that “if people get the big picture and the understanding about what sustainability is about, they also take the first small step into the new paradigm” (Lahti 2013). Cheeying Ho also mentioned “getting a better understanding of what it all means and how it applies to daily planning” (Ho 2013b), which linked a clear understanding to being able to integrate it afterwards into planning.

Understanding the FSSD and its relevance to Strategic Sustainable Development was also seen to be part of an effective training session by both ECM practitioners and representatives. Duke Castle mentioned introducing the concepts behind the TNS framework (Castle 2013), while ECM planner Lori Rissling Wynn emphasized “the need to make the framework (FSSD) tangible to someone in their day-to-day activity” (Rissling Wynn 2013). Purkis (2013) went through the steps of what would happen after the key concepts have been introduced: “Once key concepts (of the TNS framework) have been reviewed, we would unpack them and create space for discussing them,...then we would (get people to) apply them to a case study or example”

Two closely related factors of importance that were seen to influence the effectiveness of training were having a high level of engagement and a high level of dialogue. Lahti (2013) recommended always starting a session with dialogue, while Alexa Forbes from Queenstown in New Zealand underlined the need “to have an inclusive environment in the room where everyone’s welcome at the table” (Forbes 2013). Lahti went on further in saying that “All training must be connected to their (the participants’) own reality, also the theoretical part must be connected, to get engagement” (Lahti 2013).

Various experts noted the need for training sessions to be transformative and that was seen by some to be of key significance. TNS consultant Stanley Nyoni emphasized the role of empowerment and stated that “participants should leave the training feeling transformed and ready for action” (Nyoni 2013) while John Purkis also referred to “the transformational change that could come from an effective training” (Purkis 2013). This point also addressed behaviour change linked to taking action (Smith 2013) and participants “leaving the training
with clear intention for actions” (Cohen 2013b). In a municipal context, Linnea Folkesson talked about “having the participants walk out the training with a clear understanding of their role in helping their ECM reach environmental goals” (Folkesson 2013). The role of bringing enthusiasm to participants in order to empower them to take action was also highly stressed (Lahti 2013).

By the end of a training session, learning objectives should have been met both in terms of what was planned and what participants expected to get out of the training (Sandstrom 2013, Castle 2013).

c) After the training - External
Making sure that the training is part of the planning and implementation process in an ECM moving towards sustainability, and linked to taking action on both the municipal, collective and personal levels was the area that was most mentioned in the interviews. According to Lahti, planning is part of a cycle that needs to be repeated regularly and consists of learning, planning and doing (Lahti 2013). Harvey (2013) talked about the need for more of a practical aspect than a theoretical one in what he saw as training workshops rather than sessions, and emphasizing the need to integrate training and create actions. Karl van Lith mentioned the application of the training to a specific project on a participant’s job (van Lith 2013) while ECM representative Lisa McKinnon explained how “the implementation and completion of projects created in the trainings should be tracked according to city programmes” (McKinnon 2013). Another factor closely related to this one raised by Forbes (2013) was the acceptance of planning reports by local government for implementation.

3.1.2 Effective training according to survey
In response to the question ‘How would you describe an effective training workshop? (Please select all the options that apply)’, the following answers were given, shown in Figure 3.1.

![Figure 3.1. Bar chart of factors that lead to effective training (survey)](image)

3.1.3 Areas covered in training
In response to the question ‘Which of the following areas were covered in the trainings? (Please select all the options that apply)’, the answers recorded were as follows (Figure 3.2).
3.1.4 Skills of a competent trainer

In answer to the question ‘What are the necessary skills of a competent trainer / facilitator? (Please select all the options that apply)’, the recorded answers were as follows (Figure 3.3).

For the answer ‘other’, the following answers were given: flexibility to shift approach midstream to accommodate the specific learning style and needs of the participants; ability to listen as much as speak; overall understanding of how the democratic system works, how to connect latest science and practical planning; and outstanding listening ability. The relative importance of these is hard to determine given that they were open-ended answers, thereby not ‘tested’.
3.1.5 Meaningful training from survey

To the open-ended question ‘What are two things that made trainings meaningful to you?’ many responses were recorded that matched very closely the themes for effective training from the interviews in 3.1.1.

Linking training to planning and actions was mentioned six times. As one respondent noted, “Having participants leave with solid plans and strategies for next steps and implementation of those next steps.” Transformational change/empowerment was hinted at four times as the following statement attests to: “Seeing others getting involved and working collectively for the good of the community.” Having skilled trainers was mentioned a total of four times with one response indirectly stating this as follows: “Inspiring participants to act.”

Other themes were either mentioned once or twice, such as engagement which could be extracted as a theme from the statement “(Meaningful training is) to listen to other staff members of the organisation’s priorities.” For training to be meaningful, systems thinking was clearly underpinned: “Helping to get people out of their silos and working together / seeing the common needs and challenges.” Similarly, getting the right people involved pointed to both involving the politicians and reaching firesouls as the two following statements denote: “The possibility to engage the politicians to extend their knowledge” and “Developing many/dozens of local, competent and motivated champions.” Varied instructional approaches, social capital, follow-up, clear understanding of sustainability, etc., are some of the other which could be extracted (See Appendix K for all the responses given).

3.2 SRQ 2: What are the factors that enable training sessions to be effective?

3.2.1 Enabling factors from interviews

In order to determine what the factors that enabled a training session to be effective might be, experts were asked the question ‘What are the typical enablers for a municipality to holding an effective training session?’ This was also re-phrased to ‘In the trainings, what can you identify as being the key enablers to make the trainings go smoothly?’ Over twenty-five enablers mentioned were distilled down to fifteen (Table 3.2).

<table>
<thead>
<tr>
<th>Stage in training: before (B), during (D), after (A)</th>
<th>Internal/External to training</th>
<th>Enablers</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroot reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td></td>
<td>Political support</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Involving the right people</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Commitment from individuals and</td>
<td>1</td>
<td>3</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
“The art of creating a good class/workshop is like writing a poem, making a painting or composing a song. There needs to be something you feel passionate about and then you need to structure processes that engage the students/participants emotionally, intellectually and in ways that connect to everyday living” (Cohen 2013).

a) Before the training - External factors

Political support is the first enabler to stand out amongst the pre-training ones, impacting upon the possibility of training taking place at all. This was the single most important enabler with thirteen of the seventeen experts citing it explicitly. All the municipal planners were unanimous in identifying this factor as a key enabler, with Folkesson (2013) mentioning the fact that “in order to meet the environmental goals set by the municipality, political buy-in is required to enable training of the relevant planners responsible for meeting them”. Purkis (2013) talked about the need for commitment on the part of the city manager and elected representatives so as to have training programmes running at all.

Involving the right people was mentioned by seven experts and stands out as being an important enabler. Lahti (2013) expounded the need to get the leaders and key stakeholders involved in the very first municipal training workshops, and this was supported by Debbie Barr who talked of getting the major institutions that people respect in the community involved Barr (2013). The need to get the firesouls and citizen groups lobbying city council involved was expressed (Castle 2013), as well as the presence of businesses (Forbes 2013). This enabler points to getting the right people on board in being the early adopters and drivers of sustainability in the municipality.
Various themes were grouped together under the title resources due to the way in which they could impact training, and included resources such as financial, educational, time convenience and an inspiring location. The area of having enough financial resources, linked to political buy-in, was mentioned as it enabled training to happen at all: “Having the resources to cover the costs is part of the commitment at the executive level, otherwise the training wouldn’t work...it’s definitely critical” (Purkis 2013). Regarding educational resources, Castle mentioned that “we always have a workbook that goes with our workshops (as) some people like to read, some like to listen, some people like to look at pictures” (Castle 2013) while Folkesson (2013) addressed the need to have up-to-date educational resources: “we use the Natural Step but we also look at quite a lot of the new research being done, how can we relate to what’s in the newspapers, so we get the base for the education and the training from quite a lot of different sources”. As regards the theme of having an inspiring location, Castle (2013) stressed that “the room location is critical: you don’t want to be in a dingy basement with no light”.

Another commonly-cited enabler was having skilled facilitators and trainers. On hiring TNS to give training to municipal planners in Canmore, Rissling Wynn (2013) emphasized that “they’ve got great, committed, well-trained staff that are passionate about what they’re doing (and) that was attractive to us”. Without skilled trainers, other key areas like dialogue, engagement, well-planned trainings, meeting people where they are at, and empowering them will be neglected as they all depend upon the quality of the facilitation (Lahti 2013). “In a group it helps to have (trainers/facilitators) with people skills and who know the dialogue process” (Cohen 2013). Furthermore, Lahti talked about the need for flexibility on the part of trainers and to know their audience (Lahti 2013) while Simon Harvey voiced the role of being pragmatic in facilitation and training (Harvey 2013).

Another enabler that was significant was having a need for the training. It should be connected to the local challenges, and not just the global challenge (Lahti 2013). “The training should be meaningful and relevant to the participants: I think the (other) key is to really understand what the value is (what sustainability can bring to the organization). Why would we spend time in the municipalities to understand and develop the skills in capacity and sustainability?” (Purkis 2013) Likewise, understanding the needs within the employee base or the community (van Lith 2013) and addressing the areas that matter to people would also increase the dialogue and engagement (Castle 2013). Tahirih Smith from Lawrence Township explained what happened in that town before starting even began: “We started (by) going around the community and asking people (in the community): what would it take for you to live, love, and thrive in this town” and went on to highlight the need to connect the economic benefits of sustainability to the training, especially in light of the economic crisis that began in 2008 (Smith 2013).

b) During the training – Internal factors
A meaningful start and meeting participants where they are at were two themes mentioned by many ECM practitioners to be integral to an effective training. Starting with dialogue was seen by many of the experts to be the best way to begin a training session, namely by Ho (2013b), Nyoni (2013), Castle (2013) and Smith (2013). “The first thing is to start by going round the room and finding out who’s there, having people introduce themselves, and I will ask them what they want to get out of this training” (Castle 2013). Another connected theme, namely finding common values was likewise given special attention: “I think the absolute,
most important thing is finding common values: in this country (the US), we have a very strong division between liberal and conservative political ideas...when you able to start out by understanding what they (conservatives) value, sometimes you can spark the connection (between those values and sustainability)” (Sandstrom 2013). Furthermore, the connection between a meaningful introduction and empowerment was underpinned (Nyoni 2013).

A high level of engagement and dialogue was also cited as an important internal theme by many of the experts. “It’s important to give people the chance to discuss issues that matter” (Castle 2013). Furthermore, Rissling Wynn (2013) connected facilitation to engaging different types of people: “It’s really important as facilitators to engage the whole room in a way that makes people comfortable, both introverts and extroverts”.

c) After the training – External factors
A final set of enablers that are relevant to post-training was having a follow-up to the training sessions in one of a variety of ways. In the context of community, Smith (2013) mentioned “the need to have volunteers who attended the training to take responsibility and keep track of the projects that were decided upon”. Moreover, having a widespread series of events and workshops to connect more people and also to provide them with information and knowledge would also foment the value of sustainability education and training (Smith 2013). Lahti (2013) underlined “the need for continuity of training and making it part of an ongoing process to bring a culture of organizational change and sustainability” to the municipality and wider community. In this respect, Jerry Hembd asserted the effectiveness of holding public showcases after a 5-month long training programme to share with the community what was achieved by the participants during that time (Hembd 2013). Another way of following up on training was to communicate the successes achieved through the trainings back to the public (MacDonald 2013).

One more post-training enabler considered crucial by Lahti of IEMEA, linked to the previous point of having a follow-up after training, was setting up a capacity-building centre. “In the ideal case, one goal of the learning process must be that you can see that you can continue (it), (so) you will need to secure some kind of a capacity centre” (Lahti 2013).

3.2.2 Enabling factors from survey - External

In the survey the question that was posed to determine the external enablers to effective training was ‘Which of the external conditions below helped to make the training workshops more effective?’ The responses are shown in the graph below in order of importance.
Figure 3.4. Bar chart of external enablers to effective training (survey)

As shown in Figure 3.4, the three most important external conditions that affected the effectiveness of training were: skilled trainers, support from municipal leaders, and convenient time schedule. Next came planning actions integrated into training, appropriate length of trainings, and good educational resources. An inspiring location was given considerably less importance by the respondents. Other responses that were offered were: stringent teachers/workshop leaders, personal contact before the training, group selection, and practicality of themes.

3.2.3 Enabling factors from survey - Internal

In the survey the question that was posed to determine the internal enablers to effective training was ‘Which of the internal factors below helped to make the training workshops more effective?’ The responses to these are shown in the graph below with the five different sets of weightings, ranging from Extremely Important to Not Important Figure 3.5 shows the results from the survey.

Figure 3.5. Bar chart of internal enablers to effective training (survey)
According to the survey, the most important external factors that affected the effectiveness of training were: *empowering participants to take action*. Next came *connecting participants to local challenges*, followed closely by *good interaction between trainer and participants* which was closely linked to *effective participant engagement*. Connecting participants to *global challenges*, *starting the workshop with dialogue* and *a suitable group size* were also mostly rated as either important or very important, but not crucial. Another response offered was *clarifying additional values for participants*.

### 3.2.4 Improving sustainability training workshops (survey)

One of the final questions in the survey was an open-ended one which asked respondents: *‘In your opinion, how could sustainability training workshops be improved?’* This elicited many responses which were similar to the enabling themes from the interviews in 3.2.1 (Go to Appendix M to see the full list of suggestions).

The most cited way to improve trainings was to have them more regularly and this was suggested by four respondents. As one respondent noted, *“Have training workshops more often/regularly, as personnel and politicians change.”* Involving the right people, especially the managers, was mentioned thrice. One respondent wrote: *“(There should be) mandatory training for managers.”* Another point that was mentioned three times was the need for more time, although it was implied twice that it was more to do with actually making the time by prioritising training: *“Lack of time for department heads is always the excuse by the municipality although they have adopted the four Natural Step principles.”* The lack of financial resources and consequent need for more funding was mentioned twice, one of the times linking this point to having a bigger budget to hire skilled trainers. Not having trainings in the first place was a grievance that was also recorded twice. One comment pointed to the Town Manager refusing to have trainings even though there was an offer from Sarah James (from IEMEA) to give a series of them.

Another suggestion was to have more change agents and therefore home-grown trainers to diffuse the message of sustainability more widely: *“We need to enhance our "train the trainer" concept to allow for more change agents to conduct their own training and initiate their own projects in their particular community or group.”* Other recommendations included having more employees getting trained, creating a link between the municipality and the community, increasing the number of trainers, having joint trainings involving different municipalities and linking training to measurable outcomes in order to increase the engagement.

A strongly emphasized point was connecting everyday problems to planning directions towards sustainability and thus gaining the economic benefits of being sustainable. A point connected to this spoke of people’s mental barriers as regards sustainability: *“The misconception is that good life is not compatible with sustainability.”* On this point of mental barriers, one respondent wrote: *“Training is not the real issue. It is getting people to move beyond "denial" that there is a real problem.”*
3.3 SRQ 3: What are the factors that hinder the effectiveness of training sessions?

3.3.1 Hindering factors from interviews

In order to determine what the factors that hindered a training session to be effective might be, experts were asked the question ‘What are the typical barriers for a municipality to hold an effective training session?’ This was also re-phrased to ‘What are the factors that prevented trainings from being effective, both during the sessions, and before and after?’

The experts mentioned almost twenty barriers which were then distilled down to twelve, with similar barriers being grouped together under one heading as shown in Table 3.3.

<table>
<thead>
<tr>
<th>Stage in training:</th>
<th>Internal/External</th>
<th>Number</th>
<th>Barriers</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroot reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>External</td>
<td>1</td>
<td>Lack of political support</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>2</td>
<td>Lack of financial resources</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>3</td>
<td>Sustainability not integrated in education system</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>4</td>
<td>Time constraints, logistics</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>5</td>
<td>Lack of sustainability personnel/trainers in ECMs and poorly-skilled trainers</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>B+D</td>
<td></td>
<td>6</td>
<td>Mental frameworks and barriers (including political divisions, etc.)</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Internal</td>
<td>7</td>
<td>Poor understanding of sustainability issues and benefits</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>8</td>
<td>Difficulties with TNS framework</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>9</td>
<td>Lack of connection to local reality</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>10</td>
<td>Lack of engagement</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>External</td>
<td>11</td>
<td>Training not integrated with planning, taking actions and implementation</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>12</td>
<td>Lack of follow-up trainings and regularity of training</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

a) Before the training - External factors

The first two barriers that affected the occurrence and effectiveness of training are interconnected, namely lack of political support and financial resources. Most of the ECM practitioners identified the crucial barrier that a lack of political buy-in posed: “Without the support of the municipal leaders in taking sustainability seriously, this will cause a tension in the participants as they see no point in doing it” (Purkis 2013). Also, if there has been an introductory training there is little chance that there will be a budget to go deeper into the...
concepts in a more advanced session (Purkis 2013). Therefore continued interest and support from the elected leaders is key (McKinnon).

The next decisive area that severely restricted the effectiveness and likelihood of training taking place was time constraints and logistics, being mentioned by eleven of the experts from all three categories. This obstacle referred to both the length of time dedicated to a training session as well as the regularity of the trainings (Lahti 2013). Many of the experts pointed to busy schedules and other priorities as being limiting factors. “People want to do the right thing (but their) time is incredibly tight in terms of what they can do or wanna do” (Cohen 2013a). Lori Rissling Wynn (2013) also highlighted the fact that people are not in the mental space to find the time for training while upper management and frontline staff are tied up with busy portfolios. Meanwhile, Folkesson (2013) made the link between logistics to time: “Finding the logistics to sending 15 of your staff off for half a day, that can be a trick, and to make it a priority to find the time.”

b) During the training – Internal factors

During the trainings, some participants’ mental frameworks and barriers could be a huge drawback insofar as getting across to them and enabling the sessions to be transformative (Castle 2013). Cohen (2013a) spoke of reductionist/siloed mindsets as being a big obstacle, using the metaphor of a tree (system) as opposed to the individual leaves (silos) to make this point: “People have different perceptions of the issues, and some people get very much fixated on a leaf, and that needs to be done, and you can get some people arguing about what leaf to do, but to get people to work from a systems point of view is not easy, that’s a very big task”. Other such barriers that could be huge impediments especially at the start of the trainings included the presence of non-believers (in Climate Change), and lack of positive investment in the success of the training and scepticism (Hembd 2013; Cohen 2013b). These barriers would be compounded by having a poorly-skilled facilitator who would not know how to deal with them (Lahti 2013). Another barrier arose from community members who were not house owners and therefore did not feel a sense of ownership with regards to taking actions for sustainability (Smith 2013).

Poor understanding of sustainability issues and benefits was another huge obstacle which could fail to attract participants in joining trainings in the first place, but that otherwise affected how open and receptive they would be once during the sessions. ECM practitioners were almost unanimous on this point with Cheeying Ho stating that most people associated sustainability with environmentalism (Ho 2013b). Not only is the term sustainability misunderstood, with many people associating the term with ‘treehuggers’ (Sandstrom 2013), but “it takes a long time for people to understand the complexity of the issues involved and be able to use the knowledge gained from the training sessions effectively” (Castle 2013).

Difficulty in using the TNS framework was cited as an impediment mainly by ECM practitioners. “Most people don’t like a prescribed solution,...(while) some people see the framework as a sort of a doctrine, rather than an educational process or set of tools” noted Simon Harvey in New Zealand (Harvey 2013). Steve Sandstrom commented about the scientific approach being too rational and not connecting to people’s emotional side (Sandstrom 2013).
c) After the training – External factors

Lastly, training not being integrated with planning, implementation and actions was a common theme voiced by many of the experts. To penetrate the organizational structure, the training needs to be linked to actions and here the level of commitment on the part of the municipal leaders, departments and participants is crucial (Hembd 2013; Purkis 2013). Likewise Harvey (2013) stressed that “the reality is that when you’re in a situation working with a council and local people, they don’t want to sit around for half a day or a day and learn stuff, they want to come up with practical things that they believe will be useful in moving forward”.

3.3.2 Barriers from surveys: External

In the survey the question that was posed to determine the external challenges or barriers to effective training was ‘What are the external challenges that hindered training sessions from being effective?’ The responses to these are shown in the graph below (Figure 3.6).

![Figure 3.6. Bar chart of external barriers to effective training (survey)](image)

The challenges that were given the most importance were lack of time in busy workday, planning and implementation not integrated with training, and mental resistance to new ways of thinking. All the other factors were also widely seen to be either important or very important. Other factors mentioned were that leadership was not supportive of staff attending, sustainability was a low priority issue for many, big egos in the room trying to be funny, and no trainings taking place.

3.3.3 Barriers from survey: Internal

In the survey the question that was posed to determine the internal challenges or barriers to effective training was ‘What are the internal challenges that hindered training sessions from being effective?’ The responses are shown in the graph below (Figure 3.7).
A poor understanding of sustainability was the most important internal challenge to effective training, followed by limited participation and lack of participant engagement, being closely linked themes. A lack of dialogue (again connected to the previous two) and poor facilitation received important ratings too. The least important barrier was having an unsuitable group size. Other responses offered were incomplete follow-up and a limited commitment from the municipality.

### 3.3.4 Biggest challenges to having trainings from survey

To the open-ended question ‘What are the two biggest challenges that you identified in the trainings?’ many responses were recorded that matched very closely the factors that hindered training from the interviews in 3.3.1. By far the most commonly mentioned factor was time constraints followed by poor understanding of sustainability issues, poorly-skilled trainers, lack of political support, lack of personal commitment and training integrated with actions and implementation (See Appendix L for the complete responses given).

### 3.4 SRQ 4: What are the key benefits of holding effective training sessions?

#### 3.4.1 Benefits from interviews

To determine the benefits of holding training sessions, experts were asked either ‘What are the benefits of holding training sessions?’, ‘What would be the benefits of holding an effective training?’, or ‘What benefits can be gained because of training?’

Nine key benefits were distilled down from a larger original list with similar benefits grouped together under one heading. They are listed in ascending order according to how many times they were mentioned by different experts in Table 3.4 below.
Some of the more important benefits are expounded here even though several others were also voiced in the interviews, but due to space constraints the discussion shall be limited to the most frequently mentioned ones.

One of the most important benefits of effective training mentioned by over half the interviewees was that it supported decision-making for planning and led to actions being taken. It was also noted that it created the “domino effect to get things moving” (MacDonald 2013) and it encouraged practical actions to come out of the trainings (Harvey 2013) rather than ‘just the usual complaining’ (Purkis 2013). Meanwhile, in a municipal planning context, it clearly helped in reaching sustainability goals and targets as Rissling Wynn (2013) explained: “If we’re gonna send staff to a one-day training on sustainability, it means that we’re serious about it and we really want them to take that information and use it in the decisions that they make in the workplace...and as things roll out in the things that we do, in terms of the services we provide to the community, it will help us to meet our sustainability goals.”

Another highly recognized advantage was having a clear understanding of sustainability issues and benefits. Almost all ECM practitioners agreed that effective training helped people understand the different aspects of sustainability and the fact that it is not only about environmental issues, but is also concerned with economic benefits and social equity (Sandstrom 2013). As Smith (2013) explained, “Our job consists of connecting sustainability lingo into economic lingo”. Likewise, it was noted that it helped to develop the awareness and the build capacity of municipal staff (Purkis 2013).
A closely-related benefit was having a shared language of sustainability from a systems perspective. It was seen as being one of the biggest successes from an effective training: “(Creating a shared language through) a system perspective helps (people) to see the interconnections between the decision and the role they play in their jobs within their organizations, and in the community they are living in” (Purkis 2013).

Several of the experts cited how an organisational culture of sustainability could be attained through effective training. Notably, Torbjörn Lahti suggested that an ongoing training programme could keep the sustainability planning process going in a municipality and that would help to speed up the transition to a sustainable society (Lahti 2013). Likewise most “participants are committed to longer-term changes and are continuing to work on those...most (participants) feel that they are part of a sustainability movement, something’s happening, and that grows...I think that’s a huge benefit.” (Hembd 2013)

On a personal level, effective training was seen to lead transformational change and empowerment. On the transformative side, participants can start seeing themselves as part of the process of change through understanding the problems (Castle 2013). As Harvey (2013) noted: “Training changes people’s perception and that means they start to think about doing some things differently.” They are also empowered to contribute to the planning process, and they can take back some of the governance control and be more engaged in it (Forbes 2013).

Inside the trainings themselves, several interrelated assets were to be gained from an effective session. Assisted by skilled facilitation, interest and engagement would develop (Harvey 2013) leading to co-learning, co-sharing and co-creating through the participants’ enjoyment of the creative process (Forbes 2013). Furthermore, social capital would be built as trust in the group was fostered (Cohen 2013a) helping build good relationships that would create connections between people (Harvey 2013; Hembd 2013). Likewise, cross-sector and cross-department collaboration was bolstered by broad participation from different municipal departments and organisations and the resulting cross-pollination and cross-education (Folkesson 2013; Hembd 2013). “We will know the general awareness of the city because we’ve talked to everyone, and we are building contacts between departments for new environmental goals.” (Folkesson 2013)

Lastly, a clear understanding of the TNS framework and how to apply it was another important benefit to be derived. Forbes (2013) noted how it forged a common language among the participants, while Rissling Wynn (2013) mentioned how it provided a commitment to using it as it related to people’s day-to-day work. “Fairly quick, organizations realize some cost savings of applying the TNS framework....they learn the value of applying a framework of this type.” (Hembd 2013)

### 3.4.2 Benefits from survey

In order to identify what the most beneficial outcomes of an effective training might be, the question that was posed was ‘What are the key benefits of holding an effective training workshop?’ Respondents could choose from a rating that ranged between Extremely Beneficial and Not Beneficial. The following bar chart was plotted from the responses (Figure 3.8).
Figure 3.8. Bar chart showing the benefits from effective training (survey)

Raising awareness about sustainability was the advantage that was rated as extremely beneficial by the greatest number of respondents, followed by creates a shared language for sustainability and leads to cross-sector collaboration. Reaching the people who will be the most effective and leads to creative ideas and solutions were seen to be very beneficial assets derived from effective trainings. All the other advantages varied in value but fell in the range of beneficial to very beneficial.

3.5 SRQ 5: How are trainings evaluated to make them more effective?

3.5.1 Evaluation methods of training sessions from interviews

According to the interviews, the ways in which an effective training session can be evaluated are listed in Table 3.5.

Table 3.5. Methods of evaluating training sessions (interviews)

<table>
<thead>
<tr>
<th>Number</th>
<th>Method of Evaluation</th>
<th>ECM practs.</th>
<th>ECM planners</th>
<th>Grassroots reps.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electronic feedback</td>
<td></td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Evaluation forms</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Follow-up on participants, orgs, departments</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Informal feedback</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

37
3.5.2 Evaluation methods from surveys

In answer to the question ‘How are the training workshops evaluated?’ the following responses were given as shown in Error! Reference source not found.. As can be noticed at first glance, the use of evaluation forms was the most widespread method of evaluation, followed by informal chats.

Other methods for evaluating trainings were as follows: follow up, public events, training reports, send feedback from evaluation to participants, review from steering group and final discussion, which were all mentioned as open-ended answers.

3.6 Similarities and differences between municipalities

In this section, clarifications are made about the use of the term eco-municipality, Local Agenda 21, and the source of the impetus towards sustainability actions and education in the different municipalities interviewed.
3.6.1 Eco-municipalities

Although at the start of this report, it was assumed that municipalities\(^8\) that used the Natural Step framework used the classification label *eco-municipalities*, as it turned out, the ones interviewed in Sweden and the United States did, but not the ones in Canada and New Zealand. Those latter ones used the Natural Step framework for their sustainability planning. Both Sweden and the US have a network grouping all the eco-municipalities “under one roof” while in the other two countries, that was not found to be the case.

3.6.2 Local Agenda 21

At the beginning of this research, it was assumed that the goals identified by Local Agenda 21 were one of the anchor points in municipalities moving towards sustainability. Unfortunately, amongst the interviewed municipalities, there was little proof of this.

In the Swedish context, in the early 1990s there seemed to have been a large focus on implementing the goals set out in LA21 in municipalities (Gyllinsting 2013; Baker and Eckerberg 2007). The government then introduced a funding programme called the Local Investment Programme for Ecological Sustainability (LIP). The aim of this programme was to promote ecological sustainable development and to find locally-inspired initiatives, while creating ‘green’ jobs; it was meant to support the implementation of the objectives set out by LA21 which stipulates wide engagement and participation using more of a bottom-up approach (Baker and Eckerberg 2007; UN Sustainable Environment 1992). LIP came to be perceived instead as more of a top-down central government initiative focused on technical environmental solutions as opposed to LA21’s objectives that encompassed social change, well-being, and quality of life issues, at the local government level (Eckerberg 2001; Baker and Eckerberg 2007). In many Swedish municipalities, the position of LA21 coordinators disappeared and came to be replaced by LIP coordinators, mostly focused on the environmental aspect of sustainability (Keskitalo and Liljenfeldt 2012; Gyllinsting 2013; Baker and Eckerberg 2007).

In the US context, LA21 was not made use of, at least in name, for sustainability planning according to some of the interviewees, as there was a lot of bad publicity and conspiracy theories surrounding Agenda 21 in general, with some states in the US going as far as banning it (James 2013; Celock 2013). There also seemed to be a growing movement against this UN initiative, according to some reports, with anti-Agenda 21 activists in some parts of Wisconsin attacking Green Tier sustainability initiatives (Lueders 2012).

From the interviews with practitioners in Canada and New Zealand, meanwhile, little was ascertained as to the use of LA21 objectives for sustainability planning and integration at the municipal level.

\(^8\) From this point on the word ‘municipalities’ will replace ‘eco-municipalities’ since not all municipalities involved labelled themselves in that way and the discussion becomes now more general.
3.6.3 Municipal planning, training and engagement with the wider community

The level of engagement of the community in planning as well as in sustainability training varied greatly from one municipality to another. In some municipalities, there was some type of ‘formal’ sustainability training that was given to strategic planners and other staff (Folkesson 2013). In some municipalities, the staff attended trainings outside the municipal structure with staff from other organisations, mainly business (Rissling Wynn 2013; Hembd 2013); in others there was no training taking place for municipal staff or they had been one introductory training in the TNS framework when the municipality had become an ECM (Green 2013). Meanwhile in others, there were study circles, forums, and workshops, and these were generally grassroots-driven (Cohen 2013a; Smith 2013). By formal training, what is meant is a planned session facilitated by a professional trainer and including the introduction of new concepts and tools for sustainability planning (e.g. FSSD, ABCD, etc.). ‘Informal’ trainings, on the other hand, refers more to sustainability education gatherings, workshops, study circles, etc., that are not necessarily lead by a professional trainer and are often held in community spaces, cafes, etc., rather than in the municipality’s offices, although new concepts and tools were introduced here too. The distinction between whether the trainings were formal or informal seemed to depend to a great extent upon the community’s involvement in sustainability efforts in the locality. Three categories are described here, namely municipality-driven, community-driven, and mixed approach.

Municipality-driven
In the Swedish ECM of Helsinborg, for example, sustainability planning was done by strategic planners and staff from different departments, as well as having co-operation agreements with local companies. These same actors were the participants in the trainings. Meanwhile there were public sustainability education and discussion forums in the city library for the community, but not linked to municipal sustainability planning (Folkesson 2013). In Canmore, Canada, the situation was similar in some respect: senior staff and the planning department were involved in sustainability planning and likewise were sent to sustainability training sessions run by TNS Canada. New staff received a brief introduction to the internal sustainability goals and the TNS framework and could take an e-course from TNS Canada, but unless they had a special interest in sustainability, they didn’t general attend formal training sessions (Rissling Wynn 2013). Deluth (part of Sustainable Twin Ports) in the US would fit into this category too as would Karlskrona in Sweden. In these types of municipalities, the impression was that there was more of an institutional approach to sustainability that did not engage the community significantly, although various stakeholders were often involved in the trainings.

Community-driven
In eco-municipalities such as Lawrence Township, New Jersey and Concord, Massachusetts, the sustainability efforts and adoption of the TNS framework was brought by firesouls who were members of the community. Initially, TNS training was given to municipal leaders and some staff members at the time of adoption and a vision was created, however, subsequent sustainability training efforts spread out into the community, being spearheaded by grassroots organizations. Local NGOs such as ConcordCAN and Sustainable Lawrence were formed early on and have been raising awareness and planning actions involving the community through a widespread series of events, study circles, workshops, courses, fairs, sustainable coffees, etc... Speakers and experts were invited to give talks and presentations but these
would be better classified as informal trainings. In these types of municipalities, sustainability initiatives and ‘training’ seemed to be more active at the community level.

**Mixed approach**

In a third type of municipality such as in Porstmouth, New Hampshire and Queenstown, New Zealand, the municipalities there adopted the TNS framework and then involved the local communities in the sustainability training, planning and actions to move towards the town’s vision of success. NGOs and other third parties played a decisive role in fomenting the dialogue and strengthening social capital between the various actors in the municipal context, namely elected leaders, municipal staff, local leaders and members of the community as well as key stakeholders (Cohen 2013a; Forbes 2013).

In Porstmouth, Bert Cohen who was one of the firesouls in sparking sustainability efforts and has been involved in sustainability education for over 20 years, was involved in bringing together the grassroots, consisting of Sustainable Portsmouth and the Piscataqua Sustainability Initiative, and the local government by means of a volunteer-run NGO called Porstmouth Listens to act as convener to create the dialogue. He compared this balance between the three to a three-legged stool. (Cohen 2013a)

Meanwhile, Alexa Forbes brought the Natural Step to her hometown of Queenstown and together with the Centre for Sustainable Practice at the Otago Polytechnic, connected the community and local government around the issues of sustainability. They were involved in creating a vision for the town through consultation and meetings, and trainings have taken the form of forums which are open to the public and look at particular issues of importance such as energy and are connected to projects. (Forbes 2013)

In this approach the training could be more formal as the forums in Queenstown or less formal as in the study circles in Portsmouth.
4 Discussion

In this section of the report, reflections are made on the results and their implications. Then the benefits derived from effective training are weighed up using Doppelt’s Wheel of Change model to gauge the extent to which organisational change can be brought. Subsequently, the strengths and weaknesses of this research are discussed and in the final part, areas for further research are presented.

4.1 Reflections on results

At the outset, this research aimed to determine the role of sustainability education and specifically training in helping to create and foster a culture of sustainability in municipalities. The ways in which the answers to the research questions obtained from the research can help to address this are discussed here.

4.1.1 What is effective training?

“The term training...refers to the creation of interactive learning environments and continuous learning opportunities rather than simple classroom based teaching and instruction...implementing organisation becomes a learning organisation.” (Thompson 1995, 1523)

As presented in the results, there were many ‘factors’ that were pertinent insofar as making training effective, but it seems that there was no single definition of effective training given the diversity of municipalities interviewed and surveyed. Certain points can however be seen to apply to all contexts.

In a municipal-driven context, support from the municipal leaders (political buy-in) was seen to be critical insofar as getting training to ‘get off the ground’. So if the leaders could be the first ones trained and convinced about the need for sustainability, then the chances of training taking root and spreading were significant. In a community-driven context, the same role was filled by firesouls, or the members of the community ones with the burning desire and willingness to take the necessary initiative, who lead the forged forward.

Training sessions should be well planned in every way possible way, through having highly skilled facilitators/trainers with a range of approaches, doing a needs analysis, giving enough time to the sessions to get to a certain depth of understanding and co-learning, having plenty of room for dialogue, having a significant practical aspect, engaging people on many levels, and quite critically being prioritised in busy work schedules.

Following up is crucial and training should be linked to actions and their implementation, but there should also be other ways to follow up the training. Various levels of training, different types of sessions, coaching, public showcases, sub-groups meeting up regularly, etc., are some of the ways that can keep the lessons alive in people and maintain the focus on sustainability in the organisation/community.
Devising ways of measuring success and communicating it back, and gauging the impact of sessions (both on participants and in terms of subsequent actions taken) are also key ways to keep track of the effects of training. This can help to fine-tune it and tailor it to specific audiences while helping to disseminate it more widely through the municipal structure as well as reaching key stakeholders and members of the wider community (e.g. early adopters).

### 4.1.2 Overlap between enablers, barriers and effective training

In the descriptions given of ‘effective training’, there was an overlap with many of the internal enablers and the opposite of most of the internal barriers, i.e. a High level of dialogue (effective training) and a High level of engagement (enabler) (see Table 4.1). Likewise, Difficulties with the FSSD (barrier) was counter to Understanding the FSSD and making it relevant to SSD (effective training). However, financial resources, time constraints, political support, or skilled trainers were not highly mentioned for effective training, which could be linked to either interviewees focusing more on the trainings themselves rather than what ‘made them happen’, or to some of these factors being implicit in other themes: e.g. for effective training, Varied instructional approaches and Reaching learning objectives can logically be connected to having a skilled trainer/facilitator.

Moreover, many of the themes that could be barriers to training were conversely enablers, such as Political support and Resources (mostly time and financial resources), and vice versa

<table>
<thead>
<tr>
<th>Effective Training</th>
<th>Enablers</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common language for sustainability from a systems</td>
<td>Political support</td>
<td>Lack of political support</td>
</tr>
<tr>
<td>perspective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varied instructional approaches</td>
<td>Resources (financial, educational, time, location)</td>
<td>Time constraints, logistics</td>
</tr>
<tr>
<td>Understanding the FSSD and making it relevant to SSD</td>
<td>Skilled facilitators and trainers</td>
<td>Difficulties with the FSSD</td>
</tr>
<tr>
<td>Training relevant to participants</td>
<td>Having a need for the training</td>
<td></td>
</tr>
<tr>
<td>High level of dialogue and engagement</td>
<td>Meaningful dialogue and engagement</td>
<td>Lack of engagement</td>
</tr>
<tr>
<td>Training integrated with actions and implementation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.3 Measuring effectiveness and success?

The effectiveness of sustainability training like any other type of training should be able to be assessed but in order to do that, the broad effects of training need to be defined. Beyond the
descriptions of effective training presented above, ways need to be devised to somehow be able to gauge how effective sessions were: in the short term, i.e. what impacts did they have on the participants upon leaving the trainings; in the medium term, i.e. what actions and behaviour changes did they help to foment; and in the long term, i.e. what broader paradigm shift and organizational changes did they lead to. Unfortunately, it was beyond the scope of this research to answer these questions but the following insights can be offered. Both quantitative and qualitative sides of the training process are looked at.

**Insights from results**

Quantitatively, benchmarking learning outcomes to concrete actions coming out of the trainings could lead to methods of gauging the success of the sessions in a concrete way. In some of the interviewed municipalities, such as Helsinborg and Canmore, targets and goals had to be met and these required good understanding of the TNS framework and creative ideas that could be generated in trainings.

On the qualitative side, forms of feedback mentioned earlier could improve the effectiveness of trainings as the facilitators would know what worked and what didn’t, while people’s reflections after trainings would also help to bring transformational change at the individual level.

**Indicators**

No indicators were found to measure the effectiveness of training but it is suggested that the outcomes derived from training could be benchmarked against the areas mentioned below under the Wheel of Change. From the literature, various indicators were found to measure the effectiveness of trainings, but it is recommended that each municipality develop their own according to their specific context.

### 4.2 Linking effective training to organisational change

This research set out to investigate to what extent effective training could lead to a culture of sustainability in municipalities, which as noted earlier, is one of the key leverage points identified that can bring successes in implementing sustainability initiatives (Doppelt 2003). According to the results of this study, training can be a leverage point to bring that particular culture. Here, Doppelt’s sustainability blunders and the solutions suggested to overcome these are compared to the benefits that can be derived from effective training.

Table 4.2 shows the ways in which this can happen.

---

9 Doppelt has additionally created tools in the form of questionnaires that can be used on a regular basis to assess an organisation’s sustainability blunders, governance system and sustainability change initiative (Doppelt 2003). These can be used on a regular basis to assess how the culture of sustainability is changing in the organisation (municipality).
Table 4.2. Linking effective training to organisational change (adapted from Doppelt 2003, 88)

<table>
<thead>
<tr>
<th>Sustainability Blunder</th>
<th>Solution</th>
<th>How Training links to this solution</th>
</tr>
</thead>
</table>
| 1. Patriarchal thinking that leads to a false sense of security | Change the dominant mindset that created the system | - By training the leaders and getting the key leaders involved right from the start  
- By getting grassroots involvement to change the way things are done  
- By empowering participants  
- By introducing a paradigm shift  
- By fomenting systems thinking |
| 2. Rearrange the parts of the system, i.e. get out of the ‘silod’ approach | Organise deep, wide and powerful transition teams | - By getting the right people involved in trainings, the ‘movers’  
- By getting the firesouls involved  
- Through cross-sector, cross-department cooperation and co-planning  
- Through co-creation and co-learning  
- Through a common understanding of sustainability based on systems thinking |
| 3. No clear vision of sustainability | Alter the goals of the system by creating an ideal vision and guiding principles of sustainability | - By creating a common language for sustainability  
- By using the FSSD which is based on creating a vision and is a principled approach to SSD |
| 4. Confusion over cause and effect | Restructure the rules of the system through operational and governance change strategies | - By linking training to planning and implementation  
- By using the FSSD for strategic planning towards sustainability  
- Through broad engagement (of the community and different sectors, departments, etc.) |
| 5. Lack of information | Shift the information flows of the system, by tirelessly communicating need, vision and strategies for achieving sustainability | - By engaging people during training, reaching common values, having plenty of dialogue and seeing what matters to people  
- By integrating regular training and other sustainability education into every part of the municipal system and community  
- By using a common language for sustainability  
- By measuring quantifiable successes from training and communicating these back to the community  
- By evaluating training, finding the gaps and improving the ways in which it reaches people |
| 6. Insufficient mechanisms for learning | Correct the feedback loops by encouraging and rewarding learning and innovation | - By having formal and informal trainings, workshops, study circles, forums, etc...
- By implementing creative actions from trainings into the ‘real world’ (linked through planning)
- By establishing a capacity-building centre for sustainability training and education |

| 7. Failure to institutionalise sustainability | Adjusting the parameters of the system by aligning systems, structures, policies and procedures with sustainability | - By getting political support or ‘buy-in’
- By getting personal, departmental and organisational commitment through involving the right people and using a framework for planning that creates a common language for sustainability
- By supporting decision-making for planning, leading to actions
- Through a common understanding of sustainability based on systems thinking |

It can be seen from the table that effective sustainability training can intervene in these seven key areas and consequently make the organisation’s ‘wheel’ turn towards fostering a culture of sustainability. The various economic benefits that can be derived from achieving this can thus realised (Willard 2002).

### 4.3 Strengths and limitations

#### 4.3.1 Research design

The research process took an iterative course starting by looking at the factors that could lead to the success of citizen engagement in eco-municipalities which later changed to stakeholder engagement. As considerable research had been undertaken in those areas, through exploratory interviews, and literature review, several key factors or ‘leverage points’ were identified that could lead to successes in ECMs. The aim was then to look at how these leverage points could bring about considerable changes in municipalities. Due to time constraints, the decision was taken in the group to choose just one of these factors, namely training, and study it more deeply. This whole process limited the time that was then available to get as broad a picture as possible of the research area, as it was hoped originally to be able to organize focus groups from the participating municipalities.

#### 4.3.2 Making contact

Altogether, ten exploratory and semi-exploratory interviews were carried out and thirteen structured ones. A contact list for Swedish ECMs was provided by the coordinator of SEkom, Kenneth Gyllinsting. Many emails were sent out to the contact people but only a few responses were received. This could either have been due to language barriers since the emails were in English and the recipients may not have felt comfortable to communicate in a language outside their mother tongue, or due to high workloads, or they could have been on holiday. For municipalities in the US, Canada and New Zealand, contact people were initially provided by primary contacts in Sweden, then others were referred to the authors via email. Yet others were found through internet searches. Out of the many people who were contacted directly by email, a considerable number of replies were received. Some responses were
negative as some people were too busy, on holiday, or about to leave on vacation. Others did not reply as they may have been occupied with other things.

4.3.3 Conducting interviews

The interviews were conducted in English by the same group member who is a native speaker. Most interviewees were also native but some in Sweden struggled at times to express exactly what they wanted to say due to English being a second language. That seemed to not be a significant limitation. In the semi-structured interviews, interviewees were given the space to recount what had been happening in the municipality they were connected to before any questions specifically linked to the research questions were asked. This allowed the conversations to be more candid and to flow better. The time limits were agreed upon with the interviewees and generally ranged between 45-90 minutes.

4.3.4 Coding interviews

As noted earlier, the interviews allowed plenty of space for the conversations to flow and therefore coding and grouping information correctly according to themes proved challenging. However, due to triangulation and plenty of cross-checking of information, redundancy errors were reduced to a minimum, and accuracy and validity augmented. For example, some interviewees emphasized a point by explaining it in different ways; rather than noting all these as separate themes, they were grouped under a single one. In conversation with Castle (2013), ‘Ask people to write a list on a piece of paper and take it away with them and read it again a year later and see if they’ve carried out these actions’ and ‘Keep in touch and follow them’ were both placed under the theme follow up after training and counted once. Similarly, some statements could be linked to two different research questions, e.g. effective training and enablers to training (SRQ1 and SRQ2). In this case, the point was added and counted for only one of the themes to which it was most closely related, but not to both.

4.3.5 Survey

The questionnaire for the survey was designed after carrying out several semi-structured interviews about the role of training in moving municipalities towards sustainability, together with other information from the exploratory interviews, literature review, and intuitive reasoning on the part of the authors. While the questions were scrupulously formulated and several colleagues and experts checked the survey before publishing it, unforeseen challenges did arise that may have posed validity threats¹⁰.

One key challenge was that it was assumed that there was ‘one’ type of training which could be categorized as ‘typical.’ This could pose a huge validity problem especially for trainers who gave different types of trainings tailored depending on the audience. Likewise, the wording ‘sustainability training (workshops)’ may have put off certain respondents as formal training was not offered in some municipalities, but rather informal sustainability education in various forms took place.

Yet another challenge was that some of the options to the questions may not have been comprehensive enough in view of the number of enablers, barriers and benefits that came up

¹⁰ This was partly due to the impetus of publishing the questionnaire in a timely fashion.
in the interviews of which some were not in the survey responses. This may have skewed the validity insofar as the importance of these missing factors which could be included in the open-ended answer provided, but assuming that each respondent thought of it at the time. Likewise, the choices to describe an ‘effective training’

A further point was the possible bias in the answers as it was assumed that the choices provided were all somehow important and therefore a non-balanced rating scale was chosen by the authors. Another issue was that many respondents opened the questionnaires but did not complete the questions, possibly due to trainings not taking place in some municipalities, language barriers and lack of time.

Finally, there were many questions in the survey and it was only realized in hindsight that it would be very complicated to make sense of all of them insofar as answering the research question. Therefore, several questions were not analysed but still add value in terms of completeness.

4.4 Areas for further research

This study was extremely interesting and stimulating especially in being able to try and grasp different realities in municipal and community contexts. There are a few interesting avenues that could be followed from here by anyone interested in connecting more of the dots together between training, political buy-in, social capital, engagement, etc. Here are some suggestions:

*Researching the actual return on investment that can be obtained through having sustainability education:* According to Doppelt (2003) and Willard (2002), an organisation that has developed or adopted a culture of sustainability, can make considerable financial savings and can additionally find new sources of revenue through implementing sustainability initiatives. Research into this economic return on investment as well as the potential social and environmental returns could help to make a more compelling case for integrating and embedding broader sustainability education initiatives across the municipal structure.

*Investigating the link between sustainability education and building social capital:* One of the important themes that surfaced in several interviews was the building of trust and resulting social capital that was built during the training sessions (Harvey 2013; Sandstrom 2013). It brought people from different departments, sectors and areas of the community at the same table and could thus be a catalyst for addressing this arguably crucial area of social sustainability.

*Looking at how civil engagement can be stimulated by a variety of sustainability education initiatives:* The ECMs in the US that had a large input from grassroots NGOs in bringing about sustainability initiatives seemed to have made great progress in involving a wide cross-section of the community in many types of informal (and formal) sustainability education and projects (Cohen 2013a; Barr 2013; Smith 2013; Forbes 2013). Many municipalities that
struggle with engaging the community possibly due to fixed hierarchical structures could learn from these examples.

Investigating the ways in which the FSSD could be made more appealing for municipalities to adopt this framework for sustainability planning: One of the barriers to using the FSSD was firstly that it could put people off due to the highly scientific descriptions of the principles, the very rational nature of it, and the use of the word sustainability, which could be off-putting in some places like New Zealand (Sandstrom 2013; Forbes 2013). This was especially the case when trying to present it to non-scientifically inclined people (Sandstrom 2013). Also, many ECMs were not using it in its fullness, meaning with the ABCD process, and this was the case especially in Sweden (Lahti 2013; Gyllinsting 2013).
5 Conclusion

“Education is a social process; education is growth; education is not preparation for life but is life itself” - John Dewey

The aim of this study was to ascertain the role of effective training and sustainability education in being able to foster a culture of sustainability inside municipalities. It seems from the results of this research that if training can take place in a municipality, the potential benefits are desirable insofar as achieving this objective thus helping to move strategically towards sustainability. At this current point in time, few municipalities were found that were able to meet the challenge of having integrated sustainability training into their operations, with some notable exceptions. Conversely, those that had been able to do so were making considerable progress not only in reaching sustainability targets but also in involving the wider community in a significant way. Key challenges do remain, however, not least the lack of time, actual or perceived, that is available for Sustainability Education but also the support and commitment that is required from the elected officials and municipal departments to make training programmes take place and for them to be regular and effective.

Training municipal employees from all the different departments, key stakeholders and the wider community in the FSSD could help to bring a common understanding of sustainability from a systems perspective. Together with the other benefits of well-led, engaging and practical training sessions, sustainability planning in municipalities could potentially become more integrated. Subsequently, implementation of actions at all levels of the municipality, related businesses and wider community could help to make towns and cities beacons of progress in the much needed changes required in meeting the sustainability challenge, and avoiding hitting the metaphorical walls of the funnel\(^\text{11}\) and strategically moving towards a sustainable future.

It is the hope of the authors that more work on this subject may be uncovered so as to be able to check and develop further the findings made in this research. Moreover, it is hoped that the conclusions of this report can be used to help guide practitioners and all those active in the community and in municipalities on the road to strategic sustainable development.

\(^{11}\) See the Funnel Paradigm in the Introduction.
References


Daszko, Marcia and Sheila Sheinberg. 2005. Survival is Optional: Only leaders with new knowledge can lead the transformation. 


SEkom (Sveriges Ekokommuner or The National Association of Swedish Eco-
(accessed 19th January, 2013)


Statistics Sweden. 2013. Sustainable Development Indicators.
http://www.scb.se/Pages/Product____21323.aspx (accessed 18th May, 2013)


## Appendices

### Appendix A: List of municipalities

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Country</th>
<th>Number of interviews conducted</th>
<th>Number of surveys received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Älmhult</td>
<td>Sweden</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Bayfield, WI</td>
<td>USA</td>
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<td>1</td>
</tr>
<tr>
<td>Canmore</td>
<td>Canada</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Concord, MA</td>
<td>USA</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dane county, WI</td>
<td>USA</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Eindhoven</td>
<td>Netherlands</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Enköpings</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
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<td>Falkenberg</td>
<td>Sweden</td>
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<td></td>
</tr>
<tr>
<td>Halmstads</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
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<td>Haninge</td>
<td>Sweden</td>
<td>1</td>
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<tr>
<td>Hällefors</td>
<td>Sweden</td>
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<tr>
<td>Helsingborg</td>
<td>Sweden</td>
<td>1</td>
<td></td>
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<tr>
<td>Jokkmokk</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jönköping</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Karlskrona</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Kramfors</td>
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<td>1</td>
<td></td>
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<tr>
<td>Ludvika</td>
<td>Sweden</td>
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<td>Machakos</td>
<td>Kenya</td>
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<tr>
<td>Morbegno</td>
<td>Italy</td>
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<td></td>
</tr>
<tr>
<td>Trosa</td>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Uppsala County</td>
<td>Sweden</td>
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</tbody>
</table>
### Appendix B: List of grassroots organizations

<table>
<thead>
<tr>
<th>Grassroots orgs.</th>
<th>Municipality</th>
<th>Country</th>
<th>Number of interviews conducted</th>
<th>Number of surveys received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alliance for Sustainability Chequamegon Bay</td>
<td>Chequamegon Bay area, Wisconsin</td>
<td>US</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Piscataqua Sustainability Initiative, Portsmouth Listens, Sustainable Portsmouth</td>
<td>Portsmouth, New Hampshire</td>
<td>US</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ConcordCAN</td>
<td>Concord, Massachusetts</td>
<td>US</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Shaping our Future (project)</td>
<td>Queenstown Lakes District, Otago</td>
<td>New Zealand</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sustainable Twin Ports</td>
<td>Twins Ports (Duluth and Superior), Wisconsin</td>
<td>US</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sustainable Lawrence</td>
<td>Lawrence Township, New Jersey</td>
<td>US</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Appendix C: Exploratory interviews list

<table>
<thead>
<tr>
<th>Interviewee’s name</th>
<th>Municipality</th>
<th>Connection</th>
<th>Country</th>
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</thead>
<tbody>
<tr>
<td>Ann Green</td>
<td>Hällefors</td>
<td>ECM rep.</td>
<td>Sweden</td>
</tr>
<tr>
<td>Bert Cohen</td>
<td>Portsmouth</td>
<td>Grassroots rep.</td>
<td>US</td>
</tr>
<tr>
<td>Bob Andrews</td>
<td>Concord</td>
<td>Grassroots rep.</td>
<td>US</td>
</tr>
<tr>
<td>Cheeying Ho</td>
<td>Whistler</td>
<td>ECM pract.</td>
<td>Canada</td>
</tr>
<tr>
<td>Kenneth Gyllinsting</td>
<td>SEKOM</td>
<td>ECM pract.</td>
<td>Sweden</td>
</tr>
<tr>
<td>Michael Wzdulski</td>
<td>Haparanda</td>
<td>ECM rep.</td>
<td>Sweden</td>
</tr>
<tr>
<td>Nina Danielsson</td>
<td>Karlskrona</td>
<td>ECM rep.</td>
<td>Sweden</td>
</tr>
<tr>
<td>Sarah James</td>
<td>IEMEA</td>
<td>ECM pract.</td>
<td>US</td>
</tr>
<tr>
<td>Stanley Nyoni</td>
<td>TNS</td>
<td>ECM pract.</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Torbjorn Lahti</td>
<td>IEMEA</td>
<td>ECM pract.</td>
<td>Sweden</td>
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### Appendix D: Semi-structured interviews list

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<th>Interviewee’s name</th>
<th>Municipality</th>
<th>Connection</th>
<th>Country</th>
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</thead>
<tbody>
<tr>
<td>Alexa Forbes</td>
<td>Queenstown</td>
<td>Grassroots rep.</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Debbie Barr</td>
<td>Concord</td>
<td>Grassroots rep.</td>
<td>US</td>
</tr>
<tr>
<td>Duke Castle</td>
<td>Pacific NW</td>
<td>ECM pract.</td>
<td>US</td>
</tr>
<tr>
<td>Jerry Hembd</td>
<td>Duluth, Ashland</td>
<td>Grassroots rep.</td>
<td>US</td>
</tr>
<tr>
<td>John Purkis</td>
<td>TNS</td>
<td>ECM pract.</td>
<td>Canada</td>
</tr>
<tr>
<td>Linnea Folkesson</td>
<td>Helsingborg</td>
<td>ECM rep.</td>
<td>Sweden</td>
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<tr>
<td>Lori Rissling Wynn</td>
<td>Canmore</td>
<td>ECM rep.</td>
<td>Canada</td>
</tr>
<tr>
<td>Larry MacDonald</td>
<td>Bayfield Mayor</td>
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<td>US</td>
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<tr>
<td>Simon Harvey</td>
<td>TNS</td>
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<tr>
<td>Steve Sandstrom</td>
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<td>Tahirih Smith</td>
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<tr>
<td>Torbjorn Lahti</td>
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### Appendix E: Email response list

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<tr>
<td>Bert Cohen</td>
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<td>Grassroots rep.</td>
<td>US</td>
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<tr>
<td>Cheeying Ho</td>
<td>Whistler</td>
<td>ECM pract.</td>
<td>Canada</td>
</tr>
<tr>
<td>Lisa McKinnon</td>
<td>Madison</td>
<td>ECM rep.</td>
<td>US</td>
</tr>
<tr>
<td>Karl van Lith</td>
<td>Madison</td>
<td>ECM rep.</td>
<td>US</td>
</tr>
<tr>
<td>Effective training</td>
<td>Explanation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building trust and making personal connections</td>
<td>The training session provides participants a chance to get to know each other through sharing and relating personal stories and building trust amongst them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common language for sustainability from a systems perspective</td>
<td>People have a shared understanding about sustainability that they should have a new paradigm of thinking and it includes not only the environmental aspect but also the social and economic aspects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creates an organisational culture of sustainability</td>
<td>Creates a culture of sustainability in which organizational members hold shared assumptions and beliefs about what sustainability means for their organization and this in turn affects how it can move forwards.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow up after training session</td>
<td>Keep in touch and follow up on the participants after the training through coaching, events, public showcases, follow-up trainings, etc...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitable group size and good use of time</td>
<td>Reaching the learning objectives within the constraints of the time available for the training session by having a suitable group size of participants in the training session.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High level of dialogue and engagement</td>
<td>The participants are engaged emotionally, intellectually in the training session and they are addressed through dialogue and discussion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involving the right people</td>
<td>Having the right people present (e.g. community leaders, firesouls, etc.), who can make a difference and/or the people who are both directly affected and can have an effect as well as those who are indirectly affected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leads to transformational change</td>
<td>Participants leave the training feeling transformed and ready for action.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linked to planning, taking actions and implementation</td>
<td>Training is connected to reality and to the practical aspect through planning, taking actions and then tracked by implementation and complementation after the training is finished.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making training part of a program</td>
<td>Training is a part of a planned process and it is connected to a context so it made sense to participants, to training planners and to the process itself.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political support</td>
<td>Government support for the running of trainings and the recommendations that come out of them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reach learning objectives</td>
<td>Reaching the learning objectives which made the training happened and the learning objectives that made participants joined this training.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training relevant to participants</td>
<td>The training session should be relevant to participants so they can apply it in their workplace and day to day activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding the TNS framework and</td>
<td>Complete understanding of what the TNS framework and how it applies for Strategic Sustainable Development.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>its relevance to SSD</td>
<td>Varied instructional approaches, working in small groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Using different a variety of instructional approaches and educational resources and working in small groups to build teamwork amongst the participants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ways to measure success</td>
<td>Different methods to evaluate the success of a training, including evaluations, etc...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Appendix G: Glossary of terms to explain *Enablers***

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addressing common values</td>
<td>Finding common values to unite people especially non-believers who resist sustainability issues as well as people with different value systems and political outlooks.</td>
</tr>
<tr>
<td>Broad participation</td>
<td>Having a wide range of people in the training session is a critical way to gain lots of ideas and perspectives. Those participants should include all the key stakeholders in the community.</td>
</tr>
<tr>
<td>Commitment from department/org. and individuals</td>
<td>Before starting the training, commitment should be made by the relevant departments or organizations. Individuals should also be dedicated to creating positive outcomes out of the training.</td>
</tr>
<tr>
<td>Connecting participants to local reality, stories of success</td>
<td>Connecting people to what’s happening in their area as regards sustainability issues and making use of success stories from people and organizations that have made positive changes through putting knowledge into practice.</td>
</tr>
</tbody>
</table>
| Resources (financial, educational, time, location) | These include:  
- **Financial resources** for running trainings and logistics.  
- **A range of educational materials** to support participants in learning.  
- **Convenient timing and scheduling** for (busy) participants. |
<p>| Follow-up to training sessions | Keep in touch and follow up on the participants after the training through coaching, events, public showcases, follow-up trainings, etc... |
| Having a need for the training | Understanding the needs within the employee base or the community and addressing the areas that matter to people. |
| Involving the right people | Getting the right people, e.g. local leaders, who can make a difference and/or the people who are both directly affected and can have an effect as well as those who are indirectly affected. |
| Meaningful start, meeting participants where they are at and finding common values | Starting with a meaningful introduction, hearing why people are present and trying to find some ways to unite the people in the room. |
| Meaningful engagement and | The participants are engaged emotionally and intellectually, and there’s plenty of space for dialogue and sharing of ideas. |</p>
<table>
<thead>
<tr>
<th>dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-prescriptive nature of TNS framework</strong></td>
</tr>
<tr>
<td><strong>Political buy-in</strong></td>
</tr>
<tr>
<td><strong>Setting up a capacity-building centre</strong></td>
</tr>
<tr>
<td><strong>Skilled facilitators and trainers</strong></td>
</tr>
<tr>
<td><strong>Training integrated with planning, creative actions, and implementation</strong></td>
</tr>
<tr>
<td><strong>Understanding the value of sustainability and new ways of thinking</strong></td>
</tr>
</tbody>
</table>

### Appendix H: Glossary of terms to explain Barriers

<table>
<thead>
<tr>
<th><strong>Barriers</strong></th>
<th><strong>Explanation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulties with TNS framework</td>
<td>Difficulties due to technical nature of TNS language as the difficulties with backcasting concept within the constraints of the sustainable principles.</td>
</tr>
<tr>
<td>Lack of connection to local reality</td>
<td>Training does not relate to the local situation and challenges in the city, town or village.</td>
</tr>
<tr>
<td>Lack of engagement</td>
<td>The participants are not engaged emotionally and intellectually in the training session.</td>
</tr>
<tr>
<td>Lack of financial resources</td>
<td>Lack of budget for training to take place.</td>
</tr>
<tr>
<td>Lack of follow-up trainings and regularity of training</td>
<td>There are no actions or contact that takes place once the training ends. The training happens only once or very seldom.</td>
</tr>
<tr>
<td>Lack of sustainability personnel/ trainers in ECMs and poorly-skilled trainers</td>
<td>There is a lack of or a limited number of existing staff and internal trainers who deal with sustainability issues within the municipalities and trainers lack the right skills.</td>
</tr>
</tbody>
</table>
| Lack of political support | Lack of commitment and active support from the elected leaders (e.g. council,
| Mental frameworks and barriers (including political divisions, etc.) | Pre-existing perceptions or mental models of sustainability (e.g. different political perspectives, values, etc.) can increase scepticism and diminish engagement, acceptance and understanding. |
| Poor understanding of the economic benefits of sustainability | Some people’s perception that switching to more sustainable options is more expensive. |
| Poor understanding of sustainability issues | Lack of getting the big picture and the interconnectedness of sustainability issues, the paradigm shift based on systems thinking and the benefits can be gained from being sustainable. |
| Sustainability not integrated in education system | Sustainability topics are not included within the instructional curriculums within the education system such as in schools. |
| Training not integrated with planning, taking actions and implementation | Training is not connected to reality and to practical aspect through planning, taking actions and then tracked by implementation after the training is finished. |
| Time constraints, logistics | A lack of time due to busy agendas or scheduling clashes, or lack of logistics for participants to reach the training venue. |

Appendix I: Glossary of terms to explain **Benefits**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creates an organizational culture of sustainability</td>
<td>Creating a culture of organizational change for sustainability by keeping the sustainability planning process going and maintaining commitment to long-term change.</td>
</tr>
<tr>
<td>Creates a shared language for sustainability from a systems perspective</td>
<td>The whole systems perspective offered by the TNS framework creates a common language among the participants so everyone understands and uses the same language for sustainability issues.</td>
</tr>
<tr>
<td>Helps broad participation and reaches the firesouls</td>
<td>Helps to get as wide a cross-section of the community involved in trainings as possible, including the firesouls and key stakeholders.</td>
</tr>
<tr>
<td>Leads to cross-sector collaboration, connections and building social capital</td>
<td>Leads to collaboration between different departments of the municipality and other sectors (such as business, NGOs, etc.), which leads to better relationships built on trust in the municipality and broader community.</td>
</tr>
<tr>
<td>Provides clear understanding of sustainability issues and benefits</td>
<td>Helping participants to understand the different dimensions of sustainability as well as the various benefits that can be gained from becoming more sustainable. For instance, it's not only about environmental issues but also about the social and economic benefits.</td>
</tr>
<tr>
<td>Provides clear understanding of TNS framework, how to apply it and commitment to use it</td>
<td>Provides a clear understanding of the TNS framework and related concepts and how it can be used and as a result of that the municipality leaders committed to use TNS framework with their planning and decision making processes.</td>
</tr>
<tr>
<td>Provides high level of engagement including co-learning and co-creation</td>
<td>Empowering participant cooperation and contribution throughout the full planning cycle by gathering ideas, thoughts, and perspectives produced through dialogue during the training session, which leads to cross-pollination, cross-education and cross sharing.</td>
</tr>
<tr>
<td>Supports decision-making for planning and leads to actions</td>
<td>Training is one of the integral components, supports planning through using the framework to reach sustainability goals and targets through practical actions that come out the training.</td>
</tr>
<tr>
<td>Transformational change, paradigm shift and empowerment.</td>
<td>Helping people to develop an understanding of the complex, interconnectedness of living systems (including social systems) in order to empower them to deal with the challenges they face.</td>
</tr>
</tbody>
</table>

**Appendix J: Glossary of terms for Evaluation Methods**

<table>
<thead>
<tr>
<th>Ways of evaluation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic feedback</td>
<td>Feedbacks from participants after they done the training to evaluate the session through an electronic way such as: a website or social media like: facebook, twitter, etc...</td>
</tr>
<tr>
<td>Evaluation forms</td>
<td>Evaluation sheets are completed by the participants after each training session to evaluate the training session and how much this session added value to them.</td>
</tr>
<tr>
<td>Follow-up on participants, orgs, departments</td>
<td>Keeping in touch with the participants and find out what they are doing and how they are using the knowledge they got within their organizations and departments.</td>
</tr>
<tr>
<td>Informal feedback</td>
<td>Informal chats to discuss the training session after it ends, having food or a drink after</td>
</tr>
<tr>
<td>No evaluation</td>
<td>No evaluation is done after the training session is completed.</td>
</tr>
<tr>
<td>Send feedback from evaluation to participants</td>
<td>Once the evaluation of the training session is done, feedbacks to participants are sent</td>
</tr>
<tr>
<td>Survey</td>
<td>Survey sent out to participants to evaluate the training session they attended after the training or both before and after the training is completed</td>
</tr>
</tbody>
</table>
## Appendix K: Open-ended responses for ‘meaningful training’ from survey

<table>
<thead>
<tr>
<th>Response</th>
<th>Connected to theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Developing many/dozens of local, competent and motivated champions</td>
<td>Reaching the firesouls</td>
</tr>
<tr>
<td>2  Clear methodology</td>
<td>Clear instructional approaches</td>
</tr>
<tr>
<td>3  Helping to get people out of their silos and working together / seeing the common needs and challenges</td>
<td>Systems perspective</td>
</tr>
<tr>
<td>4  Having participants leave with solid plans and strategies for next steps and implementation of those next steps.</td>
<td>Linked to planning and actions</td>
</tr>
<tr>
<td>5  Ability to connect with other sustainability professionals</td>
<td>Making connections</td>
</tr>
<tr>
<td>6  Inspiration for a path forward, i.e. next steps</td>
<td>Transformational change</td>
</tr>
<tr>
<td>7  An energized group</td>
<td>Engagement, enthusiasm and good facilitation</td>
</tr>
<tr>
<td>8  An energized group that creates meaningful impact</td>
<td>Linked to planning and actions</td>
</tr>
<tr>
<td>9  Awareness that my action can make a difference</td>
<td>Empowerment</td>
</tr>
<tr>
<td>10 The feeling that the employer means sustainability is important to the organisation</td>
<td>Departmental support, buy-in</td>
</tr>
<tr>
<td>11 Bringing new knowledge</td>
<td>Learning new concepts</td>
</tr>
<tr>
<td>12 (Bringing) understanding to the participants</td>
<td>Engagement</td>
</tr>
<tr>
<td>13 Enthusing the participants</td>
<td>Skilled trainer</td>
</tr>
<tr>
<td>14 Building social capital</td>
<td>Building social capital</td>
</tr>
<tr>
<td>15 Deepening possibilities for sustainability actions.</td>
<td>Linked to planning and actions</td>
</tr>
<tr>
<td>16 Empowerment</td>
<td>Empowerment</td>
</tr>
<tr>
<td>17 Sharing ideas and information</td>
<td>Co-creating, co-learning</td>
</tr>
<tr>
<td>18 Training is a strategy to make other professions understand the need of systemic perspective</td>
<td>Systems approach</td>
</tr>
<tr>
<td>19 Consensus on the need to plan within planetary boundaries.</td>
<td>Clear understanding of sust.</td>
</tr>
<tr>
<td>20 Good lecturers</td>
<td>Skilled lecturers</td>
</tr>
<tr>
<td>21 Support from management</td>
<td>Buy-in</td>
</tr>
<tr>
<td>22 High level of expertise by trainers</td>
<td>Skilled trainers</td>
</tr>
<tr>
<td>23 Mix of group and individual activities to build on what we know and what to do next</td>
<td>Varied instructional approaches, linked to planning and actions</td>
</tr>
<tr>
<td>24 Inspiring participants to act</td>
<td>Skilled trainers</td>
</tr>
<tr>
<td>25 Giving them a clear understanding of why they need a scientifically based framework to guide their sustainability efforts</td>
<td>Clear understanding for need of TNS framework</td>
</tr>
<tr>
<td>26 Local communities have lots of answers to their own problems that sustainability is relative. It means a lot different to so many people and communities</td>
<td>Connecting to the local context</td>
</tr>
<tr>
<td>27 Participation of politicians and decision makers</td>
<td>Involving the right people</td>
</tr>
<tr>
<td>28 Concrete proposals for concrete action as outcome</td>
<td>Linked to planning and actions</td>
</tr>
<tr>
<td>29 Seeing others getting involved and working collectively for the good of the community</td>
<td>Co-creating, empowerment</td>
</tr>
<tr>
<td>30 The possibility to engage the politicians to extend their knowledge.</td>
<td>Involving the right people</td>
</tr>
<tr>
<td>31 To listen to other staff members of the organisation’s priorities</td>
<td>Engagement and dialogue</td>
</tr>
<tr>
<td>32 The translation of concepts into doable actions with accessible resources for the majority of participants</td>
<td>Linked to planning and actions, follow-up</td>
</tr>
<tr>
<td>33 The creation of a “community” or “network” of participants that can then share resources and compare results.</td>
<td>Follow-up</td>
</tr>
</tbody>
</table>
### Appendix L: Biggest challenges to having trainings from survey

<table>
<thead>
<tr>
<th></th>
<th>Response</th>
<th>Connected to theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indifferent approach by politicians - the whole aspect of sustainability is misunderstood or underestimated</td>
<td>Lack of political support / Poor understanding of sustainability issues and benefits</td>
</tr>
<tr>
<td>2</td>
<td>Lack of customized solutions to fit local settings</td>
<td>Not connected to local reality</td>
</tr>
<tr>
<td>3</td>
<td>Municipal buy-in</td>
<td>Lack of political support</td>
</tr>
<tr>
<td>4</td>
<td>Employee buy-in</td>
<td>Personal commitment</td>
</tr>
<tr>
<td>5</td>
<td>Time crunches and competing responsibilities</td>
<td>Time constraints</td>
</tr>
<tr>
<td>6</td>
<td>Getting folks to commit to time to be at trainings.</td>
<td>Time constraints / Personal commitment</td>
</tr>
<tr>
<td>7</td>
<td>Finding time and timing</td>
<td>Time constraints</td>
</tr>
<tr>
<td>8</td>
<td>Time change.</td>
<td>Time constraints</td>
</tr>
<tr>
<td>9</td>
<td>To gather all the participants under a specific time schedule. They are always occupied by something more important</td>
<td>Time constraints</td>
</tr>
<tr>
<td>10</td>
<td>Getting key people to attend</td>
<td>Not having the right people attending</td>
</tr>
<tr>
<td>11</td>
<td>Getting key people to stay full time</td>
<td>Time constraints / Commitment</td>
</tr>
<tr>
<td>12</td>
<td>To make the necessary/key persons attend. The ones that think they know, but don’t. And the ones who don’t know that they don’t know.</td>
<td>Not having the right people attending</td>
</tr>
<tr>
<td>13</td>
<td>Effective trainers</td>
<td>Lack of skilled trainers and facilitators</td>
</tr>
<tr>
<td>14</td>
<td>Scheduling because of participant’s number and commitments initially</td>
<td>Time constraints</td>
</tr>
<tr>
<td>15</td>
<td>Limited number of skilled facilitators</td>
<td>Lack of skilled trainers and facilitators</td>
</tr>
<tr>
<td>16</td>
<td>Lack of knowledge of principles of sustainability</td>
<td>Poor understanding of sustainability issues and benefits / No common language</td>
</tr>
<tr>
<td>17</td>
<td>Sustainability still a low prioritized issue compared to many others</td>
<td>Poor understanding of sustainability issues</td>
</tr>
<tr>
<td>18</td>
<td>Lack of understanding regarding the benefits (what’s in it for me?)</td>
<td>Poor understanding of sustainability benefits</td>
</tr>
<tr>
<td>19</td>
<td>Not having a practical implementation requirement come out of the workshop for the trainees to commit to working on together.</td>
<td>Training not integrated with planning, taking actions and implementation</td>
</tr>
<tr>
<td>20</td>
<td>To connect knowledge with practical planning and strategies how to go ahead.</td>
<td>Training not integrated with planning, actions, implement.</td>
</tr>
<tr>
<td>21</td>
<td>Returning to work after the workshop and being overwhelmed with other short term issues that supersede concern to take action on sustainability</td>
<td>Lack of time / follow-up</td>
</tr>
<tr>
<td>22</td>
<td>Engaging community in reducing energy consumption and building a healthy, humane food system</td>
<td>Lack of (community) engagement</td>
</tr>
<tr>
<td>23</td>
<td>Communicating the TNS framework for SSD - the language is often too esoteric for many staff to understand; making sustainability relevant to all departments</td>
<td>Difficulties with TNS framework and language</td>
</tr>
<tr>
<td>24</td>
<td>The lack of community diversity. We need to reach out to more communities.</td>
<td>Lack of broad engagement</td>
</tr>
<tr>
<td>25</td>
<td>Lack of follow up. We need to establish a good, sustainable system to follow up with participants and projects to measure</td>
<td>Lack of follow-up to trainings / Ways of measuring success</td>
</tr>
<tr>
<td>26</td>
<td>To follow up and to come back in the same objects to receive key-numbers that are vital for the projects.</td>
<td>Lack of follow-up to trainings / Connected to implementation</td>
</tr>
<tr>
<td>27</td>
<td>Translating the big picture to tangible examples on the ground.</td>
<td>Lack of connection to the local reality</td>
</tr>
<tr>
<td>28</td>
<td>Sensing if there is an energy drain in group/topic and act on that</td>
<td>Lack of skilled trainers and facilitators</td>
</tr>
</tbody>
</table>

**Appendix M: Improving sustainability training workshops (survey)**

- Increased engagement might come from a more concerted effort to communicate the connections between the trainings and successful, measurable outcomes. Not sure if this would be the result but perhaps it could help.
- 2-3 hour training for municipal officials and department heads by highly skilled facilitator (this has been very hard to do...the current Sustainable Coffees are attended by different people and focus on a particular topic and experts). Lack of time for department heads is always the excuse by the municipality although they have adopted the 4 natural step principles.
- Greater frequency. More funding.
- Having the financial resources to hire qualified trainers
- Have training workshops more often/regularly, as personnel and politicians change.
- Just having them to start with.
- In every way! ;-) As there has not been any for long time. I think it is beneficial to connect the "everyday problem" as most people see it, unemployment, lack of funds...to the necessary planning directions towards sustainability. It is a complex situation in a municipal with a history of being dependent and not self-dependent. Small municipalities tend to go along with the strive for economic growth as the problem-solving method. Instead this kills them even quicker. All means drains to "hot spots" even faster. They hope for a new mining era as a solution to unemployment and decreasing population, work opportunities in the short perspective is more important than sustainability on the long run. The misconception is that good life is not compatible with sustainability. Then what is good life? Planning and politics has to realise it is for people, not global enterprises, they work and represent.
- People need to get time to attend them...
- Financial support for planning and carrying out of trainings regional and national programmes certificates for participants on a regional or national standard joint trainings for several municipalities together
- More employees need training
- Tailor it to different parts of organization: Strategic, Tactical and Operations
- Training is not the real issue. It is getting people to move beyond "denial" that there is a real problem.
- Massively increase number of trainers, in all settings for all stakeholders groups
- Mandatory training for managers
- First, this should be done as frequently as possible create a link between municipal and community engage the politicians more
- By having them. The Town Manager refuses to have formal Nature Step type trainings even though we had an offer by Sarah James to come do a series of trainings in our Town. She would not do it without Town Manager approval and he would not even talk about it. He felt his employees understood sustainability well enough and no further training was needed, nor did they have time for it, in his mind. I disagree. I don't think they are anywhere near
understanding what real sustainability means.

- We need to improve our outreach to diverse communities. Improve our follow up and evaluation practices to keep in touch longer and facilitate the progress of individual projects. Most of all, we need to enhance our "train the trainer" concept to allow for more change agents to conduct their own training and initiate their own projects in their particular community or group.
Appendix N: CLD showing link between different factors related to success in an eco-municipality
Appendix O: Sample questions for Semi-Exploratory Interviews

General questions
i. What is your connection to the municipality (staff, trainer, community member, etc.)?
ii. How long has your municipality adopted the eco-municipality concept?
iii. What progress has the municipality made in becoming more sustainable?

Training sessions
i. Have you attended/given any sustainability training sessions? If so, what type(s) of training were/was they/it?
ii. How long is a typical training session?
iii. How regularly are training sessions held?
iv. Where do the training session(s) take place?
v. How many people attend, on average?
vi. How do people find out about the trainings?
vii. Who is present (stakeholders, municipal staff, community, etc.)?
viii. How would you describe an effective training session?
ix. What are the typical learning objectives?
x. What are the typical enablers for a municipality to holding an effective training session?
xi. What are the typical barriers for a municipality to hold an effective training session?
xii. How do training sessions link up with taking action?
xiii. What are the benefits of holding training sessions?
xiv. Are the participants of the trainings involved in formulating the municipality’s sustainability vision and strategic sustainability goals? If so, what form does this take?
xv. Do you feel anything is lacking in the training sessions that are undertaken in your municipality? If so, what?

Facilitation
i. How was the dialogue about sustainability started?
ii. What type of facilitation was used in the training sessions?
iii. How were the participants engaged effectively?

Evaluating the trainings
i. How are the training sessions evaluated?
Appendix P: Sample questions for Email Responses

Questions about Sustainability Training for (Eco-) Municipalities

General questions

i. For what (eco-) municipality have you provided training?

ii. What is your connection to the municipality (staff, trainer, community member, etc.)?

Training sessions

iii. How long is a typical training session?

iv. How regularly are training sessions held?

v. Where do the training session(s) take place?

vi. How do people find out about the trainings?

vii. How many people attend, on average?

viii. Who is typically present (stakeholders, municipal staff, community, etc.)?

ix. How would you describe an effective training session?

x. What are the typical enablers for a municipality to holding an effective training session?

xi. What are the typical barriers for a municipality to holding an effective training session?

xii. What are the benefits of holding training sessions?

Facilitation

xiii. What methods and techniques were used to engage the participants effectively?

Evaluating the trainings

xiv. How are the training sessions evaluated?

•

•

Thank you very much for your time and contribution! 😊
Appendix Q: Survey on Sustainability Training in Eco-Municipalities

Dear participant,

Thank you very much for taking part in our research by completing this questionnaire. The purpose of this survey is to explore the role that effective sustainability training plays in helping Eco-municipalities / municipalities that use the Natural Step framework to integrate and implement sustainability practices. The objective of this questionnaire is only for research. We assure the confidentiality of any information provided by the respondent. The questionnaire is designed to take approximately 10-15 mins to answer. Every participating municipality will be included in our thesis report and respondents acknowledged for their contribution.

If you have any questions or suggestions, please email us at jpbaronb@yahoo.co.uk.

Thank you very much in advance for your contribution!

Kind regards,

Jean-Paul Baron-Bonarjee
Van Nguyen
Rifat Abed Elal
**General information**

Q1. What municipality do you work for/with?

Q2. What is your connection to the municipality? (For example: strategic planner, member of community, sustainability consultant, etc.)

Q3. How long has it been since the municipality adopted the Eco-municipality concept / The Natural Step framework for sustainability planning?
- 1-3 years (1)
- 4-6 years (2)
- 7-9 years (3)
- More than 10 years (4)

**Attending a training workshop**

Q4. Have there been any ongoing sustainability training sessions / workshops in your municipality/community?
- Yes (1)
- No (2)
- Don't know (3)

If Yes is Selected, Then Skip To 6.

Q5. Which of the following factors have influenced the continuity of training? (Please select all the options that apply)
- Lack of perceived need (1)
- Financial constraints (2)
- Time constraints (3)
- Lack of Interest (4)
- Lack of skilled trainers (5)
- Insufficient planning (6)
- Lack of political support (7)
- Other, please specify (8) ________________

Q6. How long is a typical training workshop?
- 1-2 hours (1)
- half a day (2)
- full day (3)
- 2 days (4)
- more than 2 days (5)
- Other, please specify (6) ________________

Q7. Where have the training workshops taken place? (Please select all the options that apply)
Q8. Who was / were the trainer(s) / facilitator(s) in training workshops? (Please select all the options that apply)
- External trainer (The Natural Step consultants, Eco-municipality advisors, etc.) (1)
- Internal trainer (Municipal staff, 'fire-souls' - local citizens with a burning interest in sustainability and community change, etc.) (2)
- Other, please specify (4) ____________________

Reasons for attending trainings
Q9. In what role have you attended a training workshop(s)?
- Trainer (1)
- Participant (2)
- Trainer and participant (3)

If Trainer Is Selected, Then Skip To 11. Where did participants find out...

Q10. For what reasons did you attend the training? (Please select all the options that apply)
- Deep personal interest (1)
- Part of municipality training (2)
- Planned by workplace (3)
- Personal invitation (4)
- Curiosity (5)
- Other, please specify (7) ____________________

Q11. Where did participants find out about the training workshop(s)?
- Invitation letter (1)
- Newsletter (2)
- Municipality's website (3)
- Internal municipal document (4)
- Word of mouth (5)
- Other, please specify (6) ____________________
Effective training

Q12. How would you describe an effective training workshop? (Please select all the options that apply)

☐ The participant leaves the training with clear intentions for actions (1)
☐ A training that engages the participant intellectually and emotionally (2)
☐ A training that has a significant practical aspect (3)
☐ A training that integrates planning and taking action as part of training (4)
☐ A training with clear learning outcomes that are achieved (6)
☐ Other, please specify (7) ____________________

Q13. Which of the following areas were covered in the trainings? (Please select all the options that apply)

☐ Exploring the meaning of sustainability (1)
☐ Learning new concepts (eg. The Natural Step framework) to plan for sustainability (2)
☐ Showing an understanding of concepts learned in the trainings (3)
☐ Applying new knowledge through group exercises (4)
☐ Ability to analyse different situations using new concepts (5)
☐ Coming up with creative actions that are applicable (6)
☐ Ability to evaluate creative actions strategically (7)
☐ Taking responsibility for implementing actions (8)
☐ Other, please specify (9) ____________________

Q14. What are the necessary skills of a competent trainer / facilitator? (Please select all the options that apply)

☐ Ability to engage participants effectively (1)
☐ Ability to align content with learning objectives (3)
☐ Ability to make use of a variety of facilitation techniques (7)
☐ Ability to manage trainings effectively (4)
☐ Ability to empower participants into taking action (5)
☐ Other, please specify (6) ____________________
Enablers
Q15. Which of the external conditions below helped to make the training workshops more effective? Please rate the importance of the following aspects on a scale of 1 to 5, where 1 is not important and 5 is extremely important.

<table>
<thead>
<tr>
<th></th>
<th>Extremely Important 5 (5)</th>
<th>Don't Know (6)</th>
<th>Not Important 1 (1)</th>
<th>Somewhat Important 2 (2)</th>
<th>Important 3 (3)</th>
<th>Very Important 4 (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspiring location (community space, outdoors, dedicated space, etc.) (1)</td>
<td></td>
<td></td>
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<tr>
<td>Skilled trainers (2)</td>
<td></td>
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<tr>
<td>Convenient time schedule (3)</td>
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<tr>
<td>Appropriate length of trainings (4)</td>
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<tr>
<td>Good educational resources (manuals, e-learning, etc.) (5)</td>
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</tr>
<tr>
<td>Planning actions was integrated into training (6)</td>
<td></td>
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<tr>
<td>Support from municipal leaders (buy-in) (7)</td>
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<tr>
<td>Other, please specify (8)</td>
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</tr>
</tbody>
</table>
Q16. Which of the internal factors below helped to make the training workshops more effective? Please rate the importance of the following aspects on a scale of 1 to 5, where 1 is not important and 5 is extremely important.

<table>
<thead>
<tr>
<th>Internal Factor</th>
<th>Not Important 1 (1)</th>
<th>Somewhat Important 2 (2)</th>
<th>Important 3 (3)</th>
<th>Very Important 4 (4)</th>
<th>Extremely Important 5 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable group size (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broad participation (community, leaders, different sectors, key stakeholders, etc.) (2)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Good interaction between trainer and participants (3)</td>
<td></td>
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<tr>
<td>Effective participant engagement (4)</td>
<td></td>
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<tr>
<td>Start the workshop with dialogue (5)</td>
<td></td>
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</tr>
<tr>
<td>Connecting participants to local challenges (6)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Connecting participants to global challenges (9)</td>
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</tr>
<tr>
<td>Empowering participants to take action (7)</td>
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<tr>
<td>Other, please specify (8)</td>
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<td></td>
</tr>
</tbody>
</table>

Q17. What are two things that made trainings meaningful to you?
**Barriers**

Q18. What are the external barriers that hindered training workshops from being effective? Please rate the importance of the following aspects on a scale of 1 to 5, where 1 is not important and 5 is extremely important.

<table>
<thead>
<tr>
<th></th>
<th>Extremely Important 5 (5)</th>
<th>Don't Know (6)</th>
<th>Not Important 1 (1)</th>
<th>Somewhat Important 3 (2)</th>
<th>Important 2 (3)</th>
<th>Very Important 4 (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poorly-skilled trainers (1)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Lack of financial resources (2)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Unsuitable length of trainings (3)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Lack of time in busy workday (4)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Infrequent training sessions (5)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
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</tr>
<tr>
<td>Too many external responsibilities limiting personal focus (6)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>No practical aspect (7)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Planning and implementation not integrated with training (8)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Mental resistance to new ways of thinking (9)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
<tr>
<td>Other, please specify (10)</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
<td>◎</td>
</tr>
</tbody>
</table>
Q19. What are the internal challenges that hindered training workshops from being effective? Please rate the importance of the following aspects on a scale of 1 to 5, where 1 is not important and 5 is extremely important.

<table>
<thead>
<tr>
<th>Internal Challenge</th>
<th>Not Important 1 (1)</th>
<th>Somewhat Important 2 (2)</th>
<th>Important 3 (3)</th>
<th>Very Important 4 (4)</th>
<th>Extremely Important 5 (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable group size (1)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Poor understanding of the sustainability challenge (2)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Limited participation (community, leaders, different sectors, key stakeholders, etc.) (3)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Poor facilitation (4)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Lack of dialogue (5)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Lack of participant engagement (6)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
<tr>
<td>Other, please specify (7)</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
<td>⬜</td>
</tr>
</tbody>
</table>

Q20. What are the two biggest challenges that you identified in the trainings?

**Benefits**

Q21. What are the key benefits of having an effective training workshop? Please rate the value of the following benefits where 1 is not beneficial and 5 is extremely beneficial.
<table>
<thead>
<tr>
<th>Issue</th>
<th>1 (Not beneficial)</th>
<th>2 (Somewhat Beneficial)</th>
<th>3 (Beneficial)</th>
<th>4 (Very Beneficial)</th>
<th>5 (Extremely Beneficial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raises awareness about sustainability (1)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Creates a shared language for sustainability (2)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Speeds up the municipality's transition towards sustainability (3)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
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<td>☑</td>
</tr>
<tr>
<td>Reaches the right people who will be the most effective change agents (4)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Increases social capital (trust, relatedness, etc.) amongst the participants (5)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Leads to behaviour change (6)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Leads to creative ideas and solutions (7)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Increases civil engagement and participation (8)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Leads to cross-sector collaboration (9)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Improves understanding of the economic benefits of sustainability (10)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Supports planning and decision-making processes (11)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Brings continuity to the sustainability planning process (12)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Increases awareness of economic benefits (13)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Other, please specify (14)</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
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</tr>
</tbody>
</table>

**Evaluation**

Q22. How are the training workshops evaluated?

- ☑ Evaluation forms (1)
- ☑ Online survey (2)
- ☑ Social media (Facebook, Twitter,...) (3)
- ☑ Online forum (4)
- ☑ Informal chats (5)
- ☑ Not at all (6)
- ☑ Other, please specify (7) ____________________

**Feedback**

Q23. In your opinion, how could sustainability training workshops in your municipality be improved?