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How much green does it cost?

Image not shown

- *Local Government's use of Economic Analysis on
Climate and Environmental Issues*

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Abstract

The aim of this paper is to identify if skills and actors in public organizations have an influence on the use of economic analysis on environmental and climate issues. My background and motivation is based on the City of Oslo's City Government statement, the complexity of environmental and climate programs and the requirement from the Department of Finance to perform economic analysis on environmental and climate field.

The paper is based on a qualitative method. The existing data on the use economic analysis in the field of climate and environment, in local government level, is limited. This led me to collect primary data. I interviewed 5 cities resulting to a relatively small number of cases and cannot therefore be generalized. A semi-structured interview guide was made for the purpose of this paper.

Public organizations are concerned about the scarcity of public resources. They must carry through tasks on behalf of the community/society. The actors in government consist of politicians, bureaucrats and stakeholders. Stakeholders, in this paper, are defined as the general public, the State and other entities that have interest in what public organization do. Politicians and, in certain degree, bureaucrats can be held into account by means of accountability, transparency and openness.

The cities in this paper use economic analysis on assessing environmental and climate impacts. Economic analysis is performed in different levels of the organization. The performance of economic analysis could be gained by utilizing the existing skills in the departmental level in the cities and underlying agencies or through external consultants, showing an indirect influence in the use of economic analysis.

The use of economic analysis can be initiated by the politicians to maximize reelection, show transparency and to implement actions in relation to their political stand/ideology.

Bureaucrats can initiate the performance of economic analysis either as an order from the politicians, to strengthen their arguments, maximizing budget and by acting within their own interest. The use of economic analysis is also used towards the general public. Both politicians and bureaucrats have therefore a direct influence in the use of economic analysis in the cities.

Sammendrag

Kommunenes bruk av økonomiske analyser på vurdering av klima- og miljøtiltak.

Hensikten med denne oppgaven er å identifisere om kompetanse/ferdigheter og aktører i offentlige organisasjoner har påvirkning i bruk av økonomiske analyser når miljø- og klimatiltak vurderes. Min bakgrunn og motivasjon stammer fra byrådsberetningen for det sittende byråd i Oslo, kompleksiteten i miljø- og klimadokumenter, samt etterspørsel fra Byrådsavdeling for finans om å foreta økonomiske analyser på klima- og miljøområdet.

Kvalitativ metode er brukt i denne oppgaven. Det oppleves at eksisterende data om bruk av økonomiske analyser på klima- og miljøområdet, på kommunalt nivå er begrenset. Dette har ført til innsamling av primær data. Jeg har intervjuet 5 byer, en relativ liten populasjon som ikke gjør det mulig å generalisere. En semi-strukturert intervjuguide er utarbeidet til formålet med denne oppgaven.

Offentlige ressurser er knappe. Det er konkurranse om de tilgjengelige midlene til ulike gode formål. Aktører i offentlige organisasjoner består av politikere, byråkrater og andre interessenter. Interessenter i denne sammenhengen vil bli definert som allmennheten/publikum, staten osv. Disse aktørene, som har en posisjon i offentlige organer, skal vise at de har ansvar, de er transparent og åpen mot publikum.

Byene i denne oppgaven bruker økonomiske analyser når de vurderer miljø- og klimatiltak. Økonomiske analyser er brukt i forskjellige nivåer i organisasjonen. Den nødvendige kompetansen på bruk av økonomiske analyser kan hentes ved å bruke eksisterende kompetanse som finnes i andre departementer, underliggende etater og kjøp av konsulenttenester, noe som viser en indirekte påvirkning på bruk av økonomiske analyser på vurdering av miljø- og klimatiltak.

Bruk av økonomisk analyse kan komme som initiativ fra politikerne for å maksimere gjenvalg, vise åpenhet og å implementere tiltak basert på deres politisk standpunkt/ideologi. På den andre siden kan byråkratene initiere bruk av økonomisk analyse som en ordre fra politikerne, forsterke deres argumenter, maksimere budsjett og av selvinteresse. Resultatene er også brukt mot andre interessenter. Både politikerne og byråkratene har dermed en direkte påvirkning på bruk av økonomiske analyser når miljø- og klimatiltak vurderes.

Preface

Upon writing this paper, I experienced that climate and environmental programs can be complicated. I have also experienced that there is a limited amount of existing data on use of economic analysis in the environmental and climate field, specifically in the local government level in Norway. I sought to search on how economic analysis can be used as a tool in the field of environment and climate and maybe help public servants to prioritize environmental and climate issues.

The goal of this paper is to identify if actors, i.e. politicians, bureaucrats and other stakeholders like the general public, and skills have an influence in the use of economic analysis in the local government level. The main target audience of this paper is first and foremost bureaucrats who work within the environmental and climate field and who face challenges of having their cases put aside when compared to statutory measures. Other target groups can be fellow students who are curious about the use of economic analysis in practice.

The interviewed municipalities, in this paper, consists of a city in each of the following countries; Norway, Sweden, Denmark, Finland and Netherlands. These cities are comparable to the City of Oslo in terms of population size and organizational model, i.e. parliamentary. The interviewees work primarily on the strategic level in their respective municipalities, i.e. directly towards the politicians.

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Table of Contents

1. INTRODUCTION	1
1.1 BACKGROUND AND MOTIVATION	2
2. FRAMEWORK AND PRIMARY QUESTION	3
2.1 LIMITATIONS	5
3. THEORETICAL BACKGROUND	6
3.1 PUBLIC ORGANIZATIONS	6
3.1.1 ACTORS IN PUBLIC ADMINISTRATION	8
3.2 SKILLS	10
3.3 PUBLIC ADMINISTRATION VS. ECONOMICS	11
3.4 ECONOMIC ANALYSIS	12
3.4.1 COST-BENEFIT AND COST-EFFECTIVENESS ANALYSIS	13
3.4.2 ACCOUNTING PERSPECTIVES	15
3.4.3 ECONOMIC ANALYSIS ON DECISION-MAKING PROCESS	17
4. METHOD AND DATA COLLECTION	19
4.1 DATA COLLECTION	20
4.2 INTERVIEWEES	21
4.3 INTERVIEW	23
4.4 ETHICS	24
4.5 RELIABILITY AND VALIDITY	25
5. EMPIRICAL DATA – SIMILARITIES AND VARIATIONS	26
5.1 SKILLS	27
5.2 ECONOMIC ANALYSIS AND THE METHODS	29
5.3 ECONOMIC ANALYSIS – THE TARGET GROUP AND DECISION-MAKING	31
6. DISCUSSION	36
6.1 SKILLS	37
6.2 ACTORS/INITIATOR	40
6.3 ECONOMIC ANALYSIS AND THE METHODS	42
6.4 ECONOMIC ANALYSIS IN DECISION-MAKING	46

7. CONCLUSION	49
7.1 AREAS FOR FURTHER RESEARCH	52
REFERENCES	54
APPENDICES	59
I. INTERVIEW QUESTIONS	59
II. CITY OF OSLO – ORGANIZATIONAL CHART	61

1. Introduction

As a subdiscipline of economics, environmental economics originated in the 1960s – the early years of the so-called environmental movement. However, despite its brief history, over the past three decades it has become one of the fastest-growing fields of study in economics. The growing popularity of this field of inquiry parallels the increasing awareness of the interconnectedness between economy and the environment – more specifically, the increasing recognition of the significant roles that nature plays in the economic process as well as in the formation of economic value (Hussen, A., 2004). Since the mid-1980s there has been a growing interest in placing monetary values on environmental impacts and combining these values into overall project analysis work (Luhani, B. et al., 1997, Chapter 6: 1:2).

Even though there is a growing interest in performing economic appraisals, there still are some challenges in applying economics to environmental and climate issues. First, carrying out economic appraisals can be expensive and time consuming. So it is essential to specify clearly the question and issues and then focus the economic analyses on delivering value added information to improve decisions on them. Moreover, there must be proportionality in determining the type and level of economic analysis needed (Fisher, J.C.D, 2003). Second is the complexity and variation of goals and measures in the field. This is emphasized in a report from Civitas where they studied climate goals in a local perspective in Norway. The results of their study reveal a great variation in the formulation of climate goals and measures. This implies that when formulating the goals and measures, the municipalities are, to a great extent, lacking facts and knowledge on the subject. In many case the goals must be viewed as more vision to strive for, rather than programs that can be implemented in practice (Selvig, E. et al., 2009, 9-10). According to the report, local authorities in Norway are in less favorable positions than other cities, both economically and institutionally.

Indeed, decision makers must, again and again, choose how to allocate scarce resources to put them to optimal use (Rossi, P. et al. 2004, 333). With this notion, the Ministry of Finance in Norway has in 2005 published a guide line on how to use economic analysis on different areas in the public sector. The guide line is primarily for ministries and its underlying entities, including research and development institutions who execute tasks for the public sector (Finansdepartementet, 2005). The guide line does not include municipalities, even though the local government can use the guide line freely.

1.1 Background and Motivation

So, why choose to write a paper about the use of economic analysis in the local government level?

My decision is grounded, first and foremost, in the Oslo's City Government statement, made right after the election in 2011. The statement is a political document that contains vision, goals and strategies that the new elected City Government wants to accomplish. Some of the relevant parts of the statement to this paper are:

“Pursue a policy that ensures Oslo's financial flexibility and ability to meet future needs for both the short and long term services and investment. The City Government will strive to lead a responsible economic policy with tight budget management and tight financial monitoring.”

“Openness and transparency in terms of management of values will characterize the City of Oslo... Citizens are entitled to know that their tax money is used in the best possible way.”

“The City Government emphasizes the Urban Ecology Program as an important fundamental document...” (Byrådserklæring 2011, 5:13).

Secondly, the decision is based on how complicated environmental and climate programs are structured and formulated. This can be illustrated in the Urban Ecology Program 2011 – 2026 for the City of Oslo, which has a vision of making the city a sustainable urban community (Byøkologisk Program 2011-2026). This Program is divided into 8 different goals and consists of approximately 200 strategies, targets and actions. Even though the Urban Ecology Program is the main political document for the whole city, it is also linked and has a certain overlapped to approximately 5 other documents that also consists of approximately 200 other targets, strategies and actions. This situation makes it difficult to evaluate and prioritize the actions that are needed to be employed. In addition to this, the Department of Finance is requiring a cost-benefit analysis on each action that is needed to be funded, in other words, approximately all the actions in the Urban Ecology Program in addition to the 5 other documents.

The bases of my decision are also a motivational factor for writing this paper. I see it interesting to compare how cities that are comparable to Oslo use economic analyses when they assess environmental and climate issues. Like in other public organizations, politicians are interested in showing openness and transparency in their work towards the general public. It can be a challenge for bureaucrats, when environmental and climate issues are in competition with other field. The distribution of scarce resources is a competition within the field of responsibility of public organizations.

I am hoping that this paper can contribute in illustrating how local governments use economic analysis when assessing environmental and climate issues. I hope that it can help to illustrate how economic analysis can be a tool that can be used within the environmental and climate field, especially in terms of strengthening the arguments when decision makers allocate resources in the different field of public responsibility.

2. Framework and Primary Question

As mentioned above, the Department of Finance in the City of Oslo requires cost-benefit analysis on each environmental and climate action that needs funding. Thus, triggering the need of a broader understanding in how economics can be used in the environmental and climate field.

This paper will evolve around the use of economic analysis on environmental and climate issues in general. The primary question is formulated as follows:

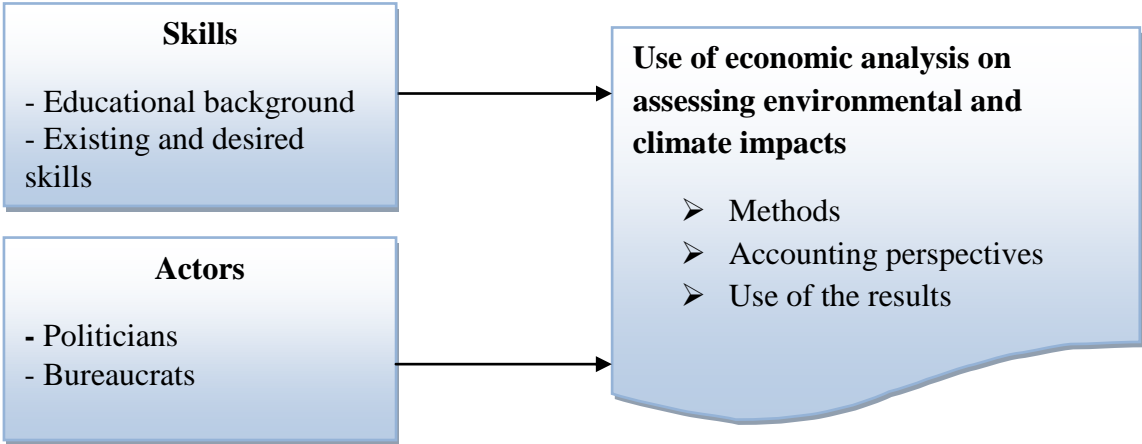
Do large northern European cities use economic analysis when assessing environmental and climate impacts?

Use of economic analyses will, in this paper, serves as my dependent variable. There are three things I wanted to identify in the use of economic analysis. First, I want to identify which methods are being used by the cities when performing economic analysis, this can for example be cost-benefit or/and cost-effectiveness analysis. Second, I want to identify which accounting perspectives can be used when performing economic analysis. The accounting perspectives are divided into three categories; the communal perspective, the individual

participant perspective and the program sponsor perspective. Third, I want to identify the use of the results, this partially overlaps with the accounting perspectives, asking the interviewees who the target groups of the results are and in which processes the results are being used.

Skills and Actors will serve as my independent variables. Actors are identified as the politicians and bureaucrats who can initiate the use of economic analysis. There are assumptions I want to explore in terms of the concept “Actors”. First, I assume that politicians have an influence on the use of economic analysis by ordering bureaucrats to conduct such analysis. Second, I assume that bureaucrats can initiate the conduction of economic analysis when preparing a case for the politicians. In the concept “skills”, I want to identify whether the existing skills has an influence on conducting economic analysis. If the cities don’t have the necessary skills, what kind of desired skills do they want to have to be able to perform economic analyses? The concept “skills” is limited in terms of the educational background of the employees working in the municipalities. I focused on the existing economic skills in the Department of Economics in each municipality, assuming that having the necessary economic skills has an influence on the use of economic analysis.

The framework of this paper can be illustrated as follows:



[Figure 1: Framework]

My hypotheses can be formulated as follows:

- The existing economic skills in the departmental level (in this context, the Department of Environment) in the municipalities have an influence in the use of economic analysis.
- Politicians and bureaucrats can initiate the conduction of economic analysis, implying that they have an influence in the use of this tool in their municipalities.

2.1 Limitations

Although the primary question sounds comprehensive, it is important to limit the thesis on certain areas, considering the time and the resources available upon writing this paper.

The paper is mainly focused on the use of economic analysis on environmental and climate issues. The interviewed municipalities in this paper are composed of a city in Sweden, Denmark, Norway, Finland and a city in the Netherlands. This gives me a total of 5 municipalities. The criteria upon choosing which cities to contact and the interviewees will be elaborated in chapter 4, Method and Data collection.

I will, in the next chapter, Theoretical background, identify the difference between public and private organizations. I will, on the other hand, not go further on discussing how these organizations are built, i.e. their organizational structure. This paper does not include an in-depth study on how the cities are organized and how the decision processes takes place. I also chose to not go through the political party compositions in each city.

The two main methods that will be identified in this paper are mainly cost-benefit and cost-effectiveness analyses. This means that I will not go further on discussing other methods like benefit distribution, marginal analysis etc.

3. Theoretical Background

According to Strøm (2002) parliamentary democracies are characterized by the “singularity principle”; the institutional design of political control has the form of a “chain of delegation” starting from voters, to representatives, cabinet, individual ministers, and ending with the bureaucracy.

The distinction between public and private organizations is important as an introductory background to illustrate the primary tasks and dilemmas public organizations or public administrations face on their daily work. These differences can be summed up into three characterizations. First, is the fact that public organizations have an elected leader i.e. politicians. Second, public organizations have a multifunction. This means that they must protect partially conflicting considerations, such as political governance, control, representations and participation of interested parties, participation of staff, responsiveness to the users, openness, public access to decision-making processes, predictability, equality, impartiality, neutrality, service quality, professional independence, political loyalty and cost effectiveness. Third, public organizations do not operate in a competitive market, although increased devolution, company formation and competition has increased the market-like arrangements for public organizations (Christensen, T. et al., 2009, 18-19).

3.1 Public organizations

Municipalities as public organizations shall carry through tasks on behalf of the community/society. Organizations can therefore be classified as tools or instruments towards achieving certain goals and is considered as of great importance for the society (Christensen, T. et al., 2009, 18-19). Public administration is concerned about the scarcity of public resources. There is a competition on the available resources for different purposes. It is therefore important that the priorities between different objectives, whether undertaken on administrative or political level, are well founded and thought through. To be able to prioritize, consequences of different alternatives must be researched and documented (Finansdepartementet, 2005). As mentioned earlier, one of the challenges environmental and climate field faces is the competition between different fields of public responsibility. When it

comes to prioritizing, climate and environmental measures can be experienced to be put aside compared to other measures that are statutory.

In public administration, tension arises because officials are both producers and wielders of public power. In this latter capacity, they apply the revenues raised by taxing individuals and organizations to the implementation of public policies, as founded in law, regulation, and governmental directive. They need to be judicious in the use of others' money, but they also must act within the bounds of legality and in conformity with their elected superiors' wishes (Dwivedi, O.P. et al., 1999, 25). Being judicious in the use of others' money is also exemplified in the City of Oslo's City Government statement: *Citizens are entitled to know that their tax money is used in the best possible way.* It is, however, a fact that all behavior cannot be foreseen and controlled by the rules lead to the placement of discretionary powers in the hands of public servants (Dwivedi, O.P. et al., 1999, 25).

Being autonomous means having the freedom to act independently (<http://oxforddictionaries.com/>). There can be challenges ahead, assuming that public organizations are autonomous organizations. One of the challenges in use of economic analysis is that it can be a vague concept, used in media and other situations without explaining the implication of the tool. It is argued that autonomous public organizations produce technically complex outcomes that are inspired at the political level, but which are nonetheless poorly understood by politicians. Policies come like genies out of their bottles, and executives and legislatures may perceive themselves as captive to the experts. In some contexts this is likely to be more problematic than in others. The problem is not the existence of aggressive, capable public organizations, agencies which are politically savvy and technically proficient. The difficulty is maintaining such actors and preserving politics and exchange outside of the bureaucracy itself. Allocating resources in a democracy should be, one hopes, an exoteric rather than an esoteric exercise (Desveaux, J. 1995, 195).

The possibility for public organizations to reach their goals depends on their impact on the actors who have interests in the tasks that they do. The purpose of the ideal rationality is a situation in which management, through the hierarchical system, has both large capacity for rational calculation and a high degree of political and social control towards the actors involved (Christensen, T. et al., 2009, 49). So who are the actors in public administrations?

3.1.1 Actors in Public administration

Government consists of politicians, bureaucrats and judges – all of whom have their own incentives and constraints and none of whom can be presumed to be any less interested in the promotion of their own interests or notion than are people who buy and sell in the marketplace (Sowell, T. 2009, 61). The concept “judges” is not elaborated in this paper. The focus will mainly be on politicians, bureaucrats and stakeholders. Stakeholders can be the public, media or private organizations that have their own interests in the work of the government. These actors are involved in the decision-making processes. I have, in the previous section tried to identify the difference between public and private organizations. It is therefore appropriate to also distinguish the difference between decision-makers, in the private and public organizations.

The fundamental difference between decision-makers in the market and decision-makers in government is that the former are subject to continuous and consequential feedback which can force them to adjust to what others prefer and are willing to pay for, while those who make decisions in the political arena face no such feedback to force them to adjust to the reality of other people’s desires and preferences. In the political arena, only the most immediate and most attention-getting disasters – so obvious and unmistakable to the voting public that there is no problem of “connecting the dots” – are comparably consequential for political decision-makers (Sowell, T. 2009, 61).

It is not accurate to say that decision-makers in the political arena are not subjected to continuous and consequential feedback. In fact politicians and bureaucrats are in a constant spotlight both in the media and to the public. Politicians are elected by the people to exercise their authority and power in the most appropriate and righteous way. The Organization for Economic Co-operation and Development (OECD) uses the term “governance” – and public governance in particular – to describe how authority is distributed in the governmental system and how those who hold such authority are held to account (OECD, 2002, 7).

- Accountability, meaning that it is possible to identify and hold public officials to account for their actions.
- Transparency, meaning that reliable, relevant and timely information about the activities of government is available to the public.

- Openness, meaning governments that listen to citizens and businesses, and take their suggestions into account when designing and implementing public policies.

These three pillars are essential in how public officials exercise their authority and power, in behalf of the community/society. As mentioned in the background and motivation chapter, the Oslo's City Government statement include *openness and transparency as important terms of managing values that will characterize the City of Oslo*. These three pillars is a way of controlling how public servants exercise their authority, thus implying to be influential to both politicians and bureaucrats in the decision to perform/do not perform economic analysis in evaluation of environmental and climate issues.

As an introduction to this chapter, the actors involved in decision-making have their own interests or notion, thus defining a distinction in the role of a bureaucrat and politicians. A bureaucrat can make use of the skills of his trade in increasing his influence. Staff skill is in part a matter of knowledge, of "understanding" in detail how the system works...Staff skill also involves knowing the position of different individuals, knowing whom one should go to for a particular stand on a particular issue or to get a particular fact which others may be seeking to bury. A key component of bureaucratic skill is the knowledge of how to make planning effective (Halperin, M. et al., 1974, 228).

On the surface a bureaucracy is a hierarchy ruled from top to bottom, with all decisions being made centrally and with members acting on orders from their superiors and not through voluntary exchange (Tollison, R. et al., 1992, 182). Defining the politicians as the superiors and bureaucrats as their agents, it is naturally to define this role distinction in a principal-agent context. In its simplest form, agency theory assumes that social life is a series of contracts. The principal-agent relationship is governed by a contract specifying what the agent should do and what the principal must do in return.

Initially, this theory appears to have some application in studying relationships between politicians (principals) and the bureaucrats (agents). Politician and bureaucrats do not necessarily share the same goals. If we assume that they are rational utility maximizers (politicians maximizing reelection chances and bureaucrats maximizing budgets), politicians have an interest in policies that benefit their constituents but have no interest in paying excessively for them. Because politicians and political coalitions change over time and

bureaucracies develop separate interests through institutionalization and changing external relationships, a potential conflict occurs where the goals and objectives of principals and agents are at odds. Goal conflicts and information asymmetry are the two spark plugs that power the principals and the agents, where the agents have the incentive to shrink (or engage in other non-sanctioned actions). The information asymmetry, in turn, gives bureaucrats the ability to be unresponsive to principal. Even in a case of relatively similar goals, conflicts may exist over the exact means to use with an agent's desire to obtain slack resources, providing the incentive to shirk (Waterman, R.W. et al., 2004).

The principal-agent theory is of interest in this paper, to show the relationship between politicians and bureaucrats and how the theory can lead on the decision to use economic analysis on environmental and climate issues. Politicians, with their political interest, can order the bureaucrats to perform economic analysis. Bureaucrats on the other hand, with their interest, can perform economic analysis in two angles, a) as an order from politicians and b) initiate it by themselves to preserve their own interest.

3.2 Skills

Competence is the collective knowledge, skills, abilities and attitudes that make it possible to perform relevant functions and duties in accordance with defined requirements and goals (Lai, 2004, 48). As mentioned in the introductory chapter, the concept, skills, is based on the educational background of the employees working in the cities, excluding the working experience that these employees have. The concept skills are also focused on the existing economic skills in the departmental level in the municipalities, particularly in the Department of Environment.

The term expertise and competence is often used as synonyms. Being competent is however not synonymous with having high levels of expertise, but means having useful and valuable skills, i.e. the right skills in relation to the requirements of current and future tasks set (Lai, 1997). Whether the cities perform economic analysis or not, the skills that public organizations have, must relate to the tasks that they must do. Furthermore, Lai (1997) argues that skill development is a key instrument to ensure the necessary expertise to develop higher and more specialized skills. One-sided emphasis on skills may be the wrong way to go if this

is not in line with the specific qualification and/or requirements that the business needs and what skills each employee possesses. While some jobs and professions are becoming more demanding skills, other skills become less-demanding- or the requirements remain unchanged. Any action to acquire, develop or improve the application of skills should be based on the formulated objectives and identified the requirements and demands. If you cannot prove or substantiate a positive return, focus on skills will become an exposed and vulnerable activity – particularly in times of scarce resources (Lai, 1997).

The cities as argued here must have the necessary expertise to be able to perform their work appropriately. To be able to perform economic analysis, they must have the necessary economic skills in the city. The expertise can be developed inside or gained outside the organization. The necessity of having economic skills and environmental and climate knowledge is important when performing economic analysis, thus referring to the framework in this paper that skills is one of the independent variable on the use of economic analysis when assessing environmental and climate impacts.

The proper and professional interpretation and generation of economic evidence is essential for the credibility of the process to work towards better decision making. An increase reliance on economic analysis implies a need for stronger economic expertise. An effective economic analysis in the context of a case has to be based on empirical analysis, which in turn needs to be rooted in solid economic principles. In other words, the estimated effects depend on the specification and assumptions. Economists need to be able to communicate their economic reasoning and empirical evidence. The implications of relying more heavily on economic principles and their empirical support are not automatically positive. To ensure the full benefits of modern economic analysis, a number of complementary factors are needed. One of these factors is economic capacity building. The investment in economic expertise and capacities is central in ensuring that full value of economics can be realized in the decision making process (van Bergeijk, P. et al., 2005).

3.3 Public administration vs. Economics

The different perspective behind public administration and economics must be underlined to be able to understand the different roles of these two theories. This can be argued necessary to

illustrate how public organization and economics interact or does not interact with each other. The difference between the role of public administration and economics can be divided in three different reasoning. First and foremost, public administration is concerned with prescription – the identification of normative rules for decision makers that would lead them to make decisions that are optimal from the standpoint of the citizenry as a whole. Economics is concerned with prediction – the identification of rules decision makers are likely to follow, given their incentives. Bluntly put, public administrators solve problems; economists explain choices. Second, economics is a priori, theoretical discipline; public administration is concerned with “pragmatic reform”. Indeed, it can be argued that economists prefer rational choice theories to models that incorporate bounded rationality primarily because they are conclusive, not because they are right. Decision makers can be approximately rational in a nearly infinite number of ways; they can be rational in only one. Third, as a normative discipline, public administration is preoccupied with identifying decision rules that citizens would unanimously support. In practice this means that, just as economists don’t like to make value judgments, public administrators are usually more comfortable condemning technical than allocative efficiency. Technical inefficiency means that managers fail to minimize the cost or maximize output because they aren’t using the best available technology. Technology means not only plant and equipment, but also the methods used to coordinate activities and to motivate performance (Thompson, F., 2005, 4-10).

3.4 Economic analysis

According to Lionel Robbins, economics is a science which studies human behavior as a relationship between given ends and scarce means which have alternative uses (Robins, L. et al., 1932, 24). Economic thought is the sum total of all the opinions and desires concerning economic subjects, especially concerning public policy bearing upon these subjects that, at any given time and place, float in the public mind. Now the public mind is never an undifferentiated or homogeneous something but is the result of the division of the corresponding community into groups and classes of various natures (Schumpeter, J. 2006).

The main purpose of economic analysis is to clarify, identify and systematize the impact of measures and reforms before making a decision. Such consequences include costs that are charged from the public budget, income and changes on costs on households and private

sector in addition to environment, health and safety. Economic analysis is a way to systematize information. Use of easy and systematized methods makes it easier to compare consequences of different actions/measures. The important assumptions for any ranking of various alternatives should, as far as possible, be made visible (Finansdepartementet, 2005).

The two main methods that are being used in economic analysis are cost-benefit and cost-effectiveness analyses. These methods are also defined in different settings, such as; impact analysis or efficiency analysis. Impact analysis is used by public authorities “to balance the potential benefits and costs of action or lack of action. The conceptual framework impact analysis is that of cost-benefit analysis (Brignon, J-M., 2011). Peter Rossi, on the other hand, argues that efficiency analysis can be viewed as both conceptual perspectives and as sophisticated technical procedures. From a conceptual point of view, perhaps the greatest value of efficiency analysis is that it forces us to think in a disciplined fashion both costs and benefits. In the case of virtually all social programs, identifying and comparing the actual or anticipated costs with the known or expected benefits can prove invaluable. Most of the types of evaluation focus mainly on benefits. Furthermore, efficiency analyses provide a comparative perspective on the relative utility of interventions. Judgments of the comparative utility of different initiatives are unavoidable, since social programs, almost without exception, are conducted under resource constraints. Almost invariably, maintaining continuous support depends on convincing policymakers and funders that the “bottom line” (i.e., dollar benefits or the equivalent) justifies the program (Rossi, P. et al. 2004, 338-339).

3.4.1 Cost-Benefit and Cost-effectiveness analysis

A cost-benefit analysis requires estimates of the benefits of a program, both tangible and intangible, and estimates of the costs of undertaking the program, both direct and indirect. Once specified, the benefits and costs are translated into a common measure, usually a monetary unit. This analysis requires the adoption of a particular economic perspective; in addition, certain assumptions must be made to translate program inputs and outputs into monetary figures. The assumptions underlying the definitions of measures of costs and benefits strongly influence the resulting conclusions. Consequently, the analyst is required, at the very least, to state the basis for the assumptions that underlie the analysis.

Ex ante cost-benefit analyses are most important for those programs that will be difficult to abandon once they have been put into place or that require extensive commitments in funding and time to be realized. When a proposed program would require heavy expenditures, decisions whether to proceed can be influenced by an ex ante cost-benefit analysis. Sensitivity analyses are a central feature of well-conducted efficiency studies. Indeed, an important advantage of formal efficiency studies is to gather information about costs in relation to outcomes is that the assumptions and procedures are open to review and checking (Rossi, P. et al. 2004, 337-340).

In general, there is much more controversy about converting outcomes into monetary values than there is about inputs. Estimating benefits in monetary terms is frequently more difficult in social programs, where only a portion of program inputs and outputs may easily be assigned a monetary value. The underlying principle is that cost-benefit analysts attempt to value both inputs and outputs at what is referred to as their marginal social values. Because of the controversial nature of valuing outcomes, in many cases, cost-effectiveness analysis is seen as a more appropriate technique than cost-benefit analysis (Rossi, P. et al. 2004, 337:340).

Cost-effectiveness analysis requires monetizing only the program's costs; its benefits are expressed in outcome units. For this type of analysis, efficiency is expressed in terms of costs of achieving a given result. That is the efficiency of a program in attaining its goals is assessed in relation to the monetary value of the inputs required for a designated unit of outcome. Cost-effectiveness studies can be useful both before and after programs are put into place. An ex ante cost-effectiveness analysis allows potential programs to be compared and ranked according to the magnitudes of their expected effects relative to their estimated costs. In ex post cost-effectiveness analyses, actual program costs and benefits replace, to a considerable extent, estimates and assumptions. Moreover, retrospective analyses can yield useful insights about specific program processes that can be applied to designing more efficient programs. However, comparisons of outcomes in relation to costs require that the programs under consideration have the same types of outcomes. The idea of judging the utility of social intervention efforts in terms of their efficiency (profitability, in business terms) has gained widespread acceptance. Conversely, the question of "correct" procedures for actually conducting cost-benefit and cost-effectiveness analyses of social programs remains an area of considerable controversy. This controversy is related to a combination of unfamiliarity with

the analytical procedures employed, reluctance to impose monetary value on many social program outcomes and the unwillingness to forsake initiatives that have been held in esteem for extended periods of time (Gramblin, 1990; Nas, 1996; Yates, 1996, quoted on Rossi P. et al., 2004, 334).

In spite of the value of efficiency analyses, a complete efficiency analysis can be either impractical or unwise for several reasons. First, efficiency analysis can be unnecessary if the efficacy of the program is either very minimal or extremely high. Conducting an efficiency analysis makes sense primarily when a program is effective but not perfectly so. Second, the required technical procedures may call for methodological sophistication not available to the project's staff. Third, political or moral controversies may result from placing economic values on particular input or outcome measures, controversies that could obscure the relevance and minimize the potential utility of an otherwise useful and rigorous evaluation. Fourth, expressing the results of evaluation studies in efficiency terms may require selectively taking different costs and outcomes into account, depending on the perspectives and values of sponsors, stakeholders, targets and evaluators themselves (what are referred to as accounting perspectives). Furthermore, efficiency analysis may be heavily dependent on untested assumptions or requisite data for undertaking cost-benefit or cost-effectiveness calculations may not be fully available (Rossi, P. et al. 2004, 336).

3.4.2 Accounting Perspectives

To carry out a cost-benefit analysis, one must first decide which perspective to take in calculating costs and benefits. Benefits and cost must be defined from a single perspective because mixing points of view results in confused specifications and overlapping or double counting. Separate analyses based on different perspectives often provide information on how benefits compare to costs as they affect relevant stakeholders. Generally, three accounting perspectives may be used for the analysis of social projects, those of:

1. Individual participants or targets
2. Program sponsors
3. The communal social unit involved in the program (e.g. municipality, county, state or nation).

The individual-target accounting perspective takes the point of view of the units that are the program targets, that is, the persons, groups or organizations receiving the intervention or services. Cost-benefit analyses using individual-target perspective often produces higher benefit-to-cost results (net benefits) than those using other perspectives. In other words, if the sponsor or society bears the cost and subsidize a successful intervention, then the individual program participant benefits the most (Rossi, P. et al. 2004, 345-364).

The program sponsor accounting perspective takes the point of view of the funding source in valuing benefits and specifying cost factors. The funding source may be private agency or foundation, a government agency or a non-profit firm. From this perspective, the cost-benefit analysis most closely resembles what frequently is termed private profitability analysis. That is, from this perspective is designed to reveal what the sponsor pays provide a program and what benefits (or “profits”) should accrue to the sponsor. This perspective is most appropriate when the sponsor is confronted with a fixed budget and must make decisive choices between alternative programs.

The communal accounting perspective takes the point of view of the community or society as a whole, usually in terms of total income. It is, therefore, the most comprehensive perspective but also usually the most complex and thus the most difficult to apply. Taking the point of view of society as a whole implies that special efforts are being made to account for secondary effects, or externalities – indirect project effects, whether beneficial or detrimental, on groups not directly involved with the intervention. Among the more commonly discussed negative external effects of industrial and technical projects are pollution, noise, traffic and destruction of plant and animal life. Moreover, in the current considerations, that is, the distributional effects of programs among different subgroups. Such effects result in a redistribution of resources in the general population.

The components of a cost-benefit analysis conducted from a communal perspective include most of the costs and benefits that also appear in calculations made from the individual and program sponsor perspectives, but the items are in a sense valued and monetized differently. Generally, the communal accounting perspective is the most political neutral. If analyses using this perspective are done properly, the information gained from an individual or a program sponsor perspective will be included as data about distribution of costs and benefits.

Although some sponsors and program staff are prejudiced against efficiency analyses because they deal chiefly with “money” and not “people”, the approach that underlies them is no different from that of any stakeholders who needs to assess the utility of implementing or maintaining a program. Our world of limited resources, though often decried, nevertheless requires setting one program against another and deciding on resource allocation. Competent efficiency analysis can provide valuable information about a program’s economic potential or actual payoff and thus is important for program planning, implementation, and policy decisions, as well as for gaining and maintaining the support of stakeholders. The decision about which accounting perspective to use depends on the actors who constitute the audience for the analysis, or who have sponsored it. In this sense, the selection of the accounting perspective is a political choice. The important point here is that cost-benefit analyses, like other evaluation activities, have political features (Rossi, P. et al. 2004, 345-364).

3.4.3 Economic analysis on decision-making process

Economic analysis constitutes an important part of decision-making whether a public intervention, reform or rule change is to be implemented. It should describe and assess the relevant factors that cannot be quantified (Finansdepartementet, 2005). Consequently, individuals or organizations choose from existing alternatives the ways these resources are to be allocated, and these choices affect the activities and goals of the decision makers. (Rossi, P. et al. 2004, 355:356). Decision makers must therefore, again and again, choose how to allocate scarce resources to put them to optimal use. The decision of which to fund on a larger scale must take into account the relationship between costs and outcomes in each program. Although other factors, including political and value considerations, come into play, the preferred program often is the one that produces the most impact on the most targets for a given level of expenditure. This simple principle is the foundation of cost-benefit and cost-effectiveness analyses, techniques that provide systematic approaches to resource allocation analysis (Rossi, P. et al. 2004, 333).

Cost-benefit and cost-effectiveness analyses provide a frame of reference for relating costs to program results. In addition to providing information for making decisions on the allocation of resources, they are often useful in gaining the support of planning groups and political constituencies that determine the fate of social intervention efforts. Program costs are very

salient to many of the stakeholder groups important to a program's acceptance and modification (Rossi, P. et al. 2004, 332-339).

In recent years, a number of economists have succeeded in extending economic analysis to the decision-making process within bureaucracies. Although such organizations are not markets in the ordinary sense, meaning that they are not characterized by competition within the context of explicit prices for goods and services, they do function nonetheless according to ordinary economic principles (Tollison, R. et al., 1992. 182).

According to an article published by Dr. Jontahan Fisher, economics can make the following fundamental contributions to aid environmental decision making:

- I. Environmental economics focuses on market failures, which are the primary rationale for considering government intervention.
- II. Economics is fundamentally concerned with analyzing the trade-offs that decision-makers face in practice. It addresses the important opportunity costs of environmental protection options in that the resources used for implementing the options could be used to yield other benefits.
- III. Economics focuses on analysis at the margin of the actual choices that decision-makers actually face in selecting between the options. Economics' law of diminishing returns reflects the fact that there are increasing constraints to achieving the greater levels of environmental improvements. This means that it will become increasingly more important to analyze the opportunity costs and trade-offs, as the public demands greater environmental improvements.
- IV. Economic appraisal aims to reflect the intensity of the preferences of all – or a representative sample of - individuals affected by the options.
- V. Economic appraisal aims to specify comprehensively and systematically impacts of options without omissions or double counting.

Furthermore, Dr. Fisher argues that economics focuses on creating incentives for better environmental management. Moreover, it examines what incentives are created by options for the affected parties and how they might then respond to them. This can then help ensure that the measures will achieve the desired objectives and avoid unintended consequences (Fisher, J.C.D, 2003).

4. Method and Data Collection

The research literature distinguishes between qualitative and quantitative methods. Qualitative methods relate to the data in the form of texts and emphasize the interpretation of data, while quantitative methods relate to the data in the form of categorized phenomena and emphasize the inventory of the distribution of phenomena. This choice of using qualitative research in this paper is appropriate because I wanted to generate transferable knowledge, as well as a more detailed knowledge of one or more phenomena, rather than making statistical generalizations (Johannessen, A. et al., 2004, 101-108).

Qualitative methods are regarded as useful when we examine the phenomena we do not know so well and that is little explored. The method can be implemented in different ways (Johannessen, A. et al., 2004, 80). Qualitative methods include various forms of systematic collection, processing and analysis of material from the conversation, observation or written text. The goal is to explore the meaning of social phenomena, as experienced by people involved (www.etikkom.no (1)).

Descriptive analysis is chosen in the purpose of this study, to be able to explain the connection between the primary question and the result of the data collection, thus explaining whether skills and actors can be explanations on the use of economic analysis among the cities that are interviewed. The descriptive method is designed for the investigator to gather information about present existing conditions. The most common and widely used method in gathering data regarding the attitudes and opinions of a group of persons, for example, is by asking them to provide important information. This can be achieved by either personal interview or by a mail survey. The data gathered might be factual information or merely composed of varied opinions (Sevilla, C.G. et al., 1992, 94-95).

I conducted an interview in a municipality in 5 large northern European countries. The interviewees are working at a strategic level in their respective municipality. Summing up to a total of 5 interviewees, the number of cases in this paper is relatively small and cannot be generalized.

4.1 Data collection

Data collection is crucial to all research. Through this process researchers accumulate empirical material on which to base their research. But before they begin putting together their empirical base, researchers should ask themselves whether any suitable data is already available. I experienced that the data on use of economic analysis on environmental and climate issues are limited. This led to collecting primary data as a supplement to the few secondary data that are published both in the literature, reports and articles, both on paper and in the internet.

Primary data collection cannot be a discreet step in the research process, particularly in qualitative research, which requires prolonged investigation in the field. This being the case, managing the interaction between the researcher and the data sources is a vital issue (Thietart, R. et al., 2001). Since I experience that the secondary data on use of economic analysis in the local government level are limited, specifically in the environmental and climate field, I chose to gather primary data by conducting interview myself. This implies that I don't have any other data to compare my study with. On the other hand, my questions on skills are partially based on an existing survey conducted by Vestlandsforskning and is elaborated below.

To operationalize means to put into operation or use (<http://oxforddictionaries.com/>). The concepts, skills, actors and economic analysis, are operationalize in the interview guide to better explain the meaning behind these concepts. Skills are operationalize by asking about the existing and desired skills, including the educational background and excluding the work experienced of the employees working in the interviewees respective municipalities. Since I assumed that skills have an influence in the use of economic analysis, I asked my interviewees to describe the specific skills of the employees who work with economic analysis, asking specifically if they have economist in their department. Lastly, I asked the interviewees to describe the skills that are needed for the cities to perform economic analysis, in the case of not having economic skills in their respective department.

As mentioned above, the questions on skills is partially based on a research done by a research institution in Norway called Vestlandsforskning, ordered by the Ministry of Environment about mapping and analyzing local governments' environmental and planning expertise. They have operationalized the concept skills as follows:

	Elements of skills	Example of measures
1	Is the skill existent?	Research and development
2	Are the skills available?	Education and dissemination
3	Is the skill in place and is it used?	Increase of resources (financially and administrative)
4	Is the skill channeled into concrete actions?	From soft to hard incentives (information, campaigns, grants and/or regulations)

Source: (Aall, C. et al., 2008, 10 (translated in English))

My questions are mainly based on the first and partially the second element of skills. The questions in my interview guide can be seen in the appendix section of this paper.

I have operationalize the concept “actors” by asking the interviewees who the target groups of performing economic analysis in their cities are, giving them examples: politicians, administration/bureaucrats or the general public. This is followed up by the question about the interest of, specifically, politicians on performing economic analysis.

As mentioned in the first chapter of this paper, the two main methods that I will be focusing on are cost-benefit and cost-effectiveness analysis. The concept “economic analysis” is operationalized in the interview guide in terms of the methods that are being used when conducting analyses. This is also supported by the questions about the interest among politicians in the use of economic analysis. Supplementary information/explanation was also given to the interviewees when necessary.

4.2 Interviewees

Strategic selection or “purposeful sampling” means that I have decided which target group my research will be aimed to, to gather the necessary data. The criteria upon choosing my interviewees are explained below. My interviewees are not representative but appropriate in this context (Johannessen, A. et al., 2004, 109).

The total cases are consists of 5 municipalities, 5 interviewees, consists of a municipality in Sweden, Norway, Denmark, Finland and Netherlands. The cities are chosen because of their

comparability to the City of Oslo, when it comes to population, organizational structure and some similar projects/tasks.

The choice of informants is of great importance in both qualitative and quantitative approach. Qualitative methods characterize attempts to get much information on a limited number of persons or informants (Johannessen, A. et al., 2004, 107).

The data collected during and after the interview, will be presented in an anonymously form. The cities will be coded as follows:

Interviewees location	“Code”
City in Denmark	City A
City in Netherlands	City B
City in Norway	City C
City in Finland	City D
City in Sweden	City E

[Figure 2: Coding - Anonymity]

The requirements to be an interviewee are:

- The informant works directly with environmental and climate issues
- The informant works in a strategic level in the municipality (i.e. with politicians and policies)
- The informant is either working as a manager/leader or a public officer for the politicians (City Government)

All the interviewees have fulfilled the criteria mentioned above. All the interviewees work in a strategic level in their respective departments. The interviewee from City A is an environmental economist and works with economic analysis and environmental and climate policies. While the interviewee from City B works with long term sustainability programs and has worked with sustainability strategies. The interviewee also works with international cooperation and strengthening the local and regional networks. The interviewee from City C is working in the municipal director’s team and works mainly on environmental management, both inside and outside the organization. There were two interviewees from City D, the first one works with environmental reporting and developing environmental management systems, while the other one works with climate change, energy issues and environmental and climate

projects. The last interviewee from City E is the director of the department and has a primary task of leading an organization of approximately 200 employees.

The data collected from the interview were transcribed and was sent to the interviewees on week 8 (February 2012). Four of my interviewees gave feedback on the data collected and was able to point out factual corrections that were incorporated without any problems.

4.3 Interview

Interviewing is a technique aimed at collecting, for later analysis, discursive data that reflects the conscious or unconscious mind-set of individual interviewees. It involves helping subjects to overcome or forget the defense mechanisms they generally use to conceal their behavior or their thoughts from the outside world (Thietart, R. et al., 2001, 180:181).

A semi-structured interview guide was made in November of 2011 before I contacted my interviewees, based on the criteria mentioned in the previous section of this chapter. I flew to their respective municipalities and conducted the interview on their workplace in January of 2012. The semi-structured interview or partially structured interview, also called as interview based on an interview guide, has an overall interview guide as a starting point.

An interview guide is not a questionnaire but a list of themes and general questions that will be discussed during the interview. The various issues/themes come out from the primary question that the research is based on (Johannessen, A. et al., 2004, 143:145). The interview guide reflects the dependent and independent variables in this paper. There were 4 main categories; skills and capacity, method, the use of the results and the “round up” questions (see appendix). The interview guide was tested to two people to avoid misunderstanding and to have an idea on how the questions should be asked. The time frame of the interviews was 1 hour. The interview lasted more than 1 hour for 2 of 5 interviewees.

The interviewees’ preparation varied in different degrees. One of the cities asked for the copy of the questions in advance. Because of the structure of the interview guide, some of the answers, in most of the cases, were answered introductory and some of the questions had a certain overlapped. In spite of this, the questions under the different categories were answered

by the interviewees. The transcribed data shows relevant points that can be interesting for further research, see chapter 6.1, Areas for Further Research.

4.4 Ethics

The difficulties inherent in qualitative research can be alleviated by awareness and use of well-established ethical principles, specifically autonomy, beneficence and justice (Orb A. el at., 2000). In a qualitative research study, autonomy is honored by informed consent, which means making a reasonable balance between over-informing and under-informing (Kvale, S. 1996. 114:115). It also means that participants exercise their rights as autonomous persons to voluntarily accept or refuse to participate in the study. Research strategies used to collect data and selection criteria also have ethical implications. If researchers are maintaining the principle of beneficence, overseeing the potential consequences of revealing participants' identities is a moral obligation. The use of pseudonyms is recommended. Confidentiality and anonymity can be breached by legal requirements such as when researchers' data are subpoenaed for legal purposes. The principle of justice refers to equal share and fairness.

The choice of offering anonymity to the interviewees is based on two arguments. Firstly, the interviewees cannot speak on behalf of the whole municipality and can therefore only speak dependant on their position and situation. Secondly, I wanted to have a conversation without any constraints for the interviewee on what they can and cannot say. Since the interviewees voluntarily agree to an interview, there is also a limit how aggressive the researcher can be, in other words how deep the interview can go in terms of providing information that can be traced back to the interviewees. How the researcher can handle the initial phase of the interview – legitimize the project – is critical for the value of the information from the interviewee (Johannessen, A. et al., 2004, 148).

One of the crucial and distinctive features of this principle is avoiding exploitation and abuse of participants. The understanding and application of the principle of justice in qualitative research studies for researchers is demonstrated by recognizing vulnerability of the participants and their contributions to the study. These principles cannot ensure ethical research but they can contribute to an understanding that ethical responsibility in qualitative research is an ongoing process (Orb, A. el at., 2000).

The general ethical demands which apply to research in social sciences, the humanities, and law also hold for research on the net. However, the distinctiveness of the net does give rise to a few special considerations the researchers ought to be aware of (www.etikkom.no (2)).

4.5 Reliability and Validity

Questions about qualitative research' validity or the validity and reliability questions is not as distinct as in the quantitative research. Reliability relates to the survey data; the data use, the way they have been collected and how they were processed. Within qualitative research, requirements on reliability are not as practical as in quantitative research. Firstly, it is the conversation that controls the data collection, by not using structured data collection techniques. Secondly, the observations are clearly dependant on the context and the value that exists. The third argument is the use of the researcher itself as an instrument to collect data. The reliability can be improved by giving the reader a detailed description of the context – often in the form of a case description – and an open and detailed presentation of the procedure during the entire research process (Johannessen, A. et al., 2004, 227:228).

I argue that the reliability in this paper is taken into account when it comes to the control of the conversation under the interview, i.e. not using structured data collection method. The observations are, of course, in a given context (in their offices without interference) and the fact that the interviewees possess valuable information that is of relevance in this paper. On the other hand, I cannot exclude the fact that there are other variables that also affect the validity in this paper, taking the language barrier as an example.

Validity refers to the extent of systematic error in measurement – the extent to which a specific measurement provides data that relate to commonly accepted meanings of a particular concept. Without even attempting to quantitatively assess the validity of in-depth qualitative measurement, one could argue that the directness, depth and detail of its observation often gives it better validity than quantitative measurement (Rubin, A. et al., 2009, 208:212). Research cannot be limited to pure collection of information. The information must be systematized and analyzed (Johannessen, A. et al., 2004, 229).

I assumed that skills and the actors in the municipalities have an influence on the decision whether to perform economic analysis or not. I tried to break down the concepts: skills,

actors and economic analysis, into understandable questions and supplemented it with explanations when needed, as presented in the previous section of this chapter. The questionnaire is as described earlier, a semi-structured interview, i.e. can have some overlap. The order of the questions being asked can be dependent on the answers the interviewees provide. As mentioned above, the data collected is transcribed and was sent to the interviewees for a review. When it comes to external validity, an indication of the extent to which results can be generalized and applied to other people in other situations and in different times, the cases in this study are limited and can therefore not be generalized. It can only give an indication or insight which factors has influence in the use economic analysis when evaluating environmental and climate issues among large northern European cities

It can also be discussed how the findings can be change if I interviewed politicians in the cities. I experienced that the views and opinions of the interviewees is based on their organizational position and therefore can be different compared to the politicians point of view. The results can also be different if I had a larger number of cases that I can compare with.

5. Empirical data – similarities and variations

Like the City of Oslo, the cities are organized in a parliamentary model. In Oslo, the City Council elects a City Government (an executive body) who answers to them. The City Government in Oslo is leaded by a politician together with a director divided into 7 different departments. These departments have their respective field of responsibility and compete with one another in terms of financial resources (see appendices, City of Oslo's organizational chart).

The interviewees in this paper work in the Department of Environment in their respective municipalities. The number of employees working in this department varies from city to city.

	Total employees in the department	Employees working directly with climate and environmental issues in a strategic level
City A	2000	10
City B	250	35
City C	40	6
City D	150	11
City E	200	7

[Figure 3: Number of employees in the Department of Environment]

5.1 Skills

During the interview, I was informed that the existing skills among the employees working in the respective city's Department of Environment consists of Engineers, employees who studied law (both environmental and public law), Biologists, Ecologists, Teachers, Professors, Environmental Geographers and Scientists.

There is almost no difference in terms of skills in the cities. The difference arise in the number of employees who has an economic background. In terms of existing skills in performing economic analysis, there was only City A, City B and City E who has economists in their department. City A is the only city that is obliged by the law to perform economic analysis in relation to approval of energy projects in the district heating system, thus requiring an economist in the Department of Environment. For City B, the performance of economic analysis has stopped due to organizational structuring. Even though City E have economists in their department, economic analysis is conducted in each entity's field of responsibility, while City C and City D rely either on professional entities under their department, buy consultant help or depends on other departments to perform economic analysis in their respective fields.

	Department of Environment	Other Departmental level in the city	Underlying agencies	External consultants
City A	x	x		
City B		x	x	
City C		x	x	x
City D		x	x	
City E	x	x	x	

[Figure 4: Where the economic analysis is performed]

It is of interest to identify if the Department of environment has economic skills and if they perform economic analysis having the necessary skills in their department. Overall, the interviewees did not have an overview on the number of employees working directly with economic analysis in their municipalities. It was assumed that these employees mainly work in the Department of Finance, Department of Economics and Statistics or in the agencies, besides City A and City E who conducts economic analysis in their department.

Not having the overview of the number of employees working with economic analysis, it was also difficult to estimate the capacity of these employees, with an exemption of City A. The interviewee from City A stated that there is a lot of work conducting such type of analysis. City E stated that it is not a goal to build up a team who can work with economic analysis on a higher level of the organization, thus stating that the skills and capacity must be placed in agencies under the department.

When asked about their experience having economic skills in their department that can perform economic analysis, the interviewees answered as follows. City A, informed me that the skills in performing economic analysis are useful towards the need and requirements of the politicians and to the making of policies on environment and climate issues. City B, on the other hand performed economic analysis in the department level before but this is now diminished because of organizational structuring. During the interview, City B realized the importance having skills on performing economic analysis. The latter was also emphasized by City D. On the other hand, City C and City E mostly, rely on skills in the agency level or/and consultants. In fact, City C informed me that such kind of analysis is provided by the underlying entities in the department, depending in the nature of the case (if the analysis is needed or not). City E stated that the skills vary in the different departments. It was argued that there must be a resource distribution system and not only focusing on financial management and holding the budget.

When asked what kind of skills the municipalities desire to be able to perform economic analysis, the common answer was to have an employee with an economic or/and financial background. The question was asked in the context of having the desired skill to be able to perform economic analysis in their department. The cities wanted one who has knowledge about financial modeling, statistics and data collection. On the other hand, City B has a different approach when it comes to desired skills. They prefer a generalist who has a state of

mind on how to solve challenges, team work and skills on integration. From a sustainability point of view, the skills must be integrated more in each part of the organization. City C emphasize that it can be useful to have environmental economists in the department. This is becoming more and more current. They desire an employee who has an economic background with ecological fundamentals, an employee who is driven by the thought of having a sustainable form for economics. It is important to accept nature's frame and that growth can be obtained through organic ways. Another perspective comes from city E, who stated that the city preferred employees focusing on the results and who understand the relation between resource (input) and the result (output).

5.2 Economic Analysis and the Methods

The use of economic analysis on environmental and climate issue vary from city to city and in large degree on which organizational level the analyses are being conducted. For City A, the use of economic analysis is performed in areas such as transport, particle pollution, waste management, large investments, policy costs, taxes, climate emission and environmental area. The city, as mentioned earlier, is obliged by the law to use economic analysis in relation to approval of energy projects in the district heating system. City D also mentioned that economic analysis is conducted in areas including public transport, energy and city development. City C, on the other hand, informed me that the city uses economic analysis, mainly in each department, depending on the nature of a case, whether an analysis should be conducted or not. The analysis is performed in the city either by the agencies/underlying entities in the departments or by external consultants. Professional judgment is used on every case. An overall assessment of each case defines the use of economic analysis. The analysis is performed if necessary. Furthermore, City C told me that if the Department of Environment will conduct economic analysis in the departmental level, the decision must come as an order from the State or the City Council.

City B and City E has a different perspective on defining what economic analysis is and where it should be conducted. City B mentioned that environmental and climate issues are integrated in every department in the city. The Department of Environment substitutes, in certain degrees, the use of economic analysis by using different indexes that the city monitors and continues to develop. While City E argues that the city uses economic analysis when

evaluating environmental and climate issues but more on business economics. Business economics here is defined by the interviewee as a limited type of analysis, pointing the lack of regards towards the effect on the local government. On the other hand the interviewee said that there is a deficit on use of socio-economic analysis, not only on environment and climate issues but also in other areas. Socio-economic analysis is also described by the interviewee as macro economics and is defined as the study/analysis where all factors that can affect the society are taken into consideration and hereby show a more comprehensive picture of impacts of change (the domino effect). The interviewee stated that socio-economic analysis does not only focus on cost, effectiveness and certain benefits, but it also focuses on other aspects and benefits not only for the municipality but also for the State. Furthermore, City E stated that is important to incorporate all the important factors when using economic analysis, like social factors and not only the money and benefits. A socio-economic analysis can be a way of analyzing the effect for the entire municipality. I will in the next chapter elaborate in this distinction and argue that cost-benefit analysis can be categorized in both business economics and socio-economic analysis but in different perspectives.

	Cost-benefit analysis	Cost-effectiveness analysis	Other method(s)
City A	x	x	x
City B	x	x	x
City C	x		
City D	x		
City E	x	x	

[Figure 5: Methods that are used when performing economic analysis]

The two main methods that are being used in economic analysis are cost-benefit and cost-effectiveness analysis. The use of cost-benefit analysis is mentioned by all the cities. The use of cost-effectiveness on the other hand is only mentioned by City A, City B and City E. Other analysis that is performed and mentioned during the interview is marginal analysis (City A) and sustainable indexes (City B). City D is on a starting phase when it comes to use of economic analysis. They said that they are currently going through the methods that can be used on different cases, thus indicating that methods may vary depending on the case/project.

Specifically in the use of economic analysis, City B is exploring other transition areas - developing climate neutral ways on doing things. City D on the other hand mentioned that it

is important that economic analysis as a tool should be integrated in their routines, together with the integration of environmental responsibility in every aspects of a case/project.

5.3 Economic Analysis – The Target Group and Decision-Making

The target group of the results of economic analysis can be mapped as follows:

	Politicians	Bureaucrats	Other stakeholders
City A	x	x	x
City B	x		
City C		x	
City D	x	x	x
City E	x	x	

[Figure 6: The target group of the results]

The main target groups of the results of economic analysis, from almost all the cities, are politicians, with exception of City C where the administration, bureaucrats, in each department (especially the Department of Finance) is the main target group of the results. The interviewee argued that the results are used to show different point of view/perspectives in a political case. For City A and City C the second target group is the bureaucrats while City D was more specific on stating the Department of Economics. City A and City D also said that performing economic analysis can help them to strengthen their arguments towards the politicians and to show the return on investments for the projects that will be implemented. Furthermore, City A and City D also said that the third target group is the general public, mainly for information purposes. City D specifically mentioned that that politicians are thinking that the use of economic analysis can show transparency towards the general public and can help them prolong their term. They want results and to show that the investments they are choosing is the correct investments for the city. City E on the other hand said that the organization itself must be the main target group when using economic analysis. It is argued that the input must correspond to the output in each activity.

Since the politicians are the main target group of the results of economic analysis, how does this reflects the interest among politicians on the use of such analyses?

	High	Neutral	Low
City A	x		
City B	x		
City C			x
City D	x		
City E	x		

[Figure 7: Interest among the politicians]

City A said that there is a high interest among politicians. They care about the economic side of a project. Economic analysis should be of interest for them because it is a good basis for decision making. It is a useful tool. City B second this by stating that the interests among politicians are high in terms of getting good arguments and solid basis on their decision making. It is important that the politicians get the broader perspective on every case/projects. It is also important to look on how the projects can be done in a more sustainable way.

The statement above was also supported by City E arguing that politicians should focus more on the use of socio-economic analysis. Furthermore, it was argued that there is a huge interest among politicians on the use of economic analysis. It is important that the politicians relate to the use of socio-economic analysis in the local level rather than focusing on business economics. It is important for them to see the whole picture. City C, on the other hand, said that the interest among the politicians regarding environmental and climate issues is high but not in terms of the use of socio-economic analysis. The interviewee has not heard about politicians demanding the use of such analysis, except from cases where it is naturally in place to perform the analysis. The initiative must not be a bottom-up approach. A decision must eventually be taken from the political hold.

City D has a different point of view on this, stating that there is a trend happening in the city, where politicians are getting more and more interested in the use of economic analysis. They are thinking of transparency towards the general public and using economic analysis as a tool can help them prolong their term. They want results and to show that the investments they are choosing is the correct investments for the city. They also get valuable information from the results. It is important to use economic analysis especially on environmental reporting and in big investments and when there is a decision that is needed to be taken.

When it comes to the processes the results of economic analysis are being used and how it affects decision-makers in prioritizing environmental and climate measures, the answers can be mapped as follows:

	Political processes					
	Policy and decision-making	Budgeting process	Strategies	Work with the general public	Work towards the State	Others
City A	x	x	x	x	x	
City B	x	x	x		x	x
City C	x					x
City D	x	x				x
City E	x					x

[Figure 8: The processes the results are used]

City A said that the use of economic analysis makes it easier to show politicians the cost of the investments and the economic benefits the investment can give to society. The results of the analyses are used in policy making, budgeting process and formation of strategies. It is also used when working with the general public. Cooperation with the state is very important. Municipalities are regulated by the state in numerous ways. This is supported by City B, stating that the results are used in all levels of the City Government but specifically in the political level. It is also used towards the dialogue with the State, budgeting, developing strategies and as a political instrument. City C said that the results of economic analysis are mainly used in political decision-making, particularly in the transport sector. It is also use to supplement the need of data and argument towards the politicians. It is also argued that it is the politicians who make the decisions. The use of economic analysis can come in form of an order/demand from the politicians. Each case is different, depending on whether to use economic analysis or not. This is followed by City D, saying that the results are used in the political level but also in budgeting, analysis on return on investments (ROI) and new projects or programs. Savings generated for the city is also savings for the municipality. City E stated that the results are used on political processes. A given benefit can motivate decision makers to perform/choose a certain project/investment. Economic analysis is also used to supplement the need of the department for information.

	Yes	No
City A	x	
City B	x	
City C	x	
City D	x	
City E	x	

[Figure 9: Can economic analysis help to prioritize?]

All the cities agree that economic analysis can help their respective city to prioritize which environmental and climate measures are needed to be implemented by performing economic analysis. City A stated that economic analysis can be use on formulating and communicating the pros and cons on investments in policy making. It shows the different benefits of economic analysis in terms of decision making. The results are use in relation to policy and decision making both on an administrative and political level. Economic analysis gives politicians/decision-makers the possibility to prioritize between measures/projects. City B said that economic analysis underlines the importance to include all the important factors that should be taken into account. Since the use of economic analysis is diminished in the department, the interviewee thought that it could be of importance to re-introduce the kind of thinking economic analysis brings to the table. City D said that the importance of economic analysis is visible especially when there are financial challenges ahead. The importance of economic analysis for City C is reflected on their climate and energy action plan. It gives an overview on budget vs. CO2-equivalent. The use of economic analysis can also show the benefit distribution in the society. City E stated that the importance of economic analysis as a tool can help to calculate the alternative costs and the relation between the input and the output (i.e. the money must reflect on the results, that the goal is being obtained).

In spite of the positive reviews about the use of economic analysis on environmental and climate issues, the tool has also its pros and cons. The pros were pointed out by City A, City B, City D and City E:

The interviewee from City A has experience abstract discussions and some disagreements among colleagues (different understanding on where quantitative analysis can bring one). Overall, the city has mainly positive experience on use of economic analysis. Knowing the costs is not only positive for the municipality but also for the society. Performing economic analysis is a useful way and tool on environmental issues, especially on the local level. It can

also emphasize the benefits to the society. Conducting economic analysis must depend on the size of the projects. City B underlined the importance to not leave important factors behind when performing economic analysis. The interviewee said that the city should re-introduce this kind of thinking – the use of economic analysis. City D supported this argument, saying that economic analysis can help show politicians how much the city can save (return on investment - ROI) and the benefits to the society. Savings generated for the city is also savings for the municipality. The positive experience is the extra information it provides and stronger arguments towards the politicians. Performing analysis goes deeper in the subject and therefore helps to argue towards policy makers. City E informed me that using economic analysis can help to see the whole picture of a case. What does it mean to build bicycle roads? What are the effects for the people in the municipality and the municipality itself? The benefits on use of economic analysis is that the results are concrete (easier to relate to), gain of knowledge, understanding, the sense of reflection and dynamic effects. The use of economic analysis in the city is going in the right direction. Many of the managers understand the relation between the resource allocation and the results that they need to obtain.

The cons were pointed out by City C and City E. City C stated that economic analysis must be use with a critical view. There must be an assessment on the size of the projects. Social economic analysis is used in different contexts (for example in the media) without any understanding or reasoning. The interviewee is skeptical on use of economic analysis when the social aspects are not included. Economic analysis is used on different areas and used on different ways. City E said that it is important to perform socio-economic analysis and not only business analysis. It is also important to calculate the alternative costs and the relation between the input and the output.

As a general comment City B mentioned that in times of crisis, it can be a struggle; environmental issues can be put aside. Furthermore, the interviewee said that the environmental issues are integrated in the whole city. The standard approach is to take the whole picture not only the money and the benefits. It is wise to use economic analysis, especially social cost-benefit and effectiveness. Such analysis can guide the city to take the big step towards a more sustainable ways of doing things. The city is still going to invest in more sustainable ways. They will be focusing from linear economy to a circular economy. There has been an increasing awareness about environmental and climate issues in the city and they have very dedicated politicians. Each entity must take responsibility on every action

they do. The municipality should think more sustainable - integration and cooperation on all levels in the municipality. It is important to have enough people with skills that can be integrated on working with analysis. The interviewee also mentioned that it is less interested where the employees with skills are organizationally placed - the most important thing is to think as a whole, as a city, not on which entity each employees are working in as long as the skills are being utilized.

6. Discussion

All the cities, according to my interviewees, are parliamentary democracies thus stating that the institutional design of political control has the form of a “chain of delegation” starting from voters, to representatives, cabinet, individual ministers, and ending with the bureaucracy. The City of Oslo’s organizational chart is an exemplification of a parliamentary model (see appendices). Departments in the municipalities have their respective field of responsibility and compete with one another in terms of financial resources. As public organizations, they are composed of public servants who carry out tasks on behalf of the society/community (Christensen, T., et al., 2009, 18:19). They are concerned about the scarcity of public resources (Finansdepartementet, 2005). There are laws and guidelines which they relate to in terms of using these resources. As mentioned in the introductory chapter, one of the limitations in this paper is that I haven’t gone through the organizational structure of the 5 cities and how the decision-making processes are like.

The number of employees working in the Department of Environment, among the cities who participated in this paper, varies. More substantially in the number of employees who work directly with environmental and climate issues, though it was pointed out the number of employees is a lot bigger when employees in the agencies are included (see figure 3).

It is argued in this paper that autonomous public organizations produce technically complex outcomes that are inspired at the political level, but which are nonetheless poorly understood by politicians. Policies come like genies out of their bottles, and executives and legislatures may perceive themselves as captive to the experts (Desveaux, J. 1995, 195). This is supported by City A, saying that performing modern economics is a technical way of evaluating actions/measures. City C mentioned that Economic analysis is a very broad and vague

concept. The use of economic analysis must first of all be accepted and understood by the administrative and political leaders.

I have, in the introductory chapter pointed out that it can be a challenge when environmental issues are put aside to prioritize other field, which are statutory. This is supported by City B. In fact, Reinhard Steurer (2006) also argued that environmental issues are often handled rather as appendix than as central part of other policy fields, although they are highly relevant from an environmental point of view. Transportation policies, for example, often ignore environmental policy objectives set by the same government (Steurer, R. 2006).

6.1 Skills

I have in this paper tried to identify the existing skills in the municipalities, more focusing on the economic skills in the departmental level. There is almost no difference in terms of existing skills among the cities. The difference arises in the number of employees who has an economic background. One of my hypotheses is that *the existing economic skills in the departmental level (Department of Environment) in the municipalities have an influence in the use of economic analysis.*

According to Lai (1997), the skills existing in the organization must align with the organization's needs. My empirical data suggest that there are only two cities which have economist that performs economic analysis in their department (Department of Environment). City A, in one hand, is obliged by the law to perform economic analysis in the energy area, while City E, on the other hand, argued that it is not a goal to build up a team who can work with economic analysis on a higher level in the organization, thus stating that the skills and capacity must be placed in the underlying agencies. Another interesting point was made by City B, stating that the city is less interested where the employees with skills are organizationally placed - the most important thing is to think as a whole, as a city, not on which entity each employees are working in. Furthermore, it is important for the city to utilize the existing skills that are available in each level of the organization.

Theories in this paper highlight the importance of economic capacity building to ensure the full benefits of modern economic analysis. It is also argued that the investment in economic

expertise and capacities is central in ensuring that full value of economics can be realized in the decision making process. Another argument worth mentioning is that economists need to be able to communicate their economic reasoning. It is understandable for City A to suggest the importance of economic capacity building, being obliged by the law to perform such analysis in the energy area. In fact, according to City A, performing economic analysis makes it easier to communicate with politicians and show them the benefits and the cost of a project. Modern economics is a language to communicate the economic side of a case. It is a power of thinking, being able to communicate the results. This is a tool that can be use to communicate with the Department of Finance - to have the understanding on the climate and environmental issues that is needed to be implemented. The usefulness of having economic skills has lead to strengthening the economic skills in City A, hiring another economist in the Department of Environment.

All the municipalities mentioned that economic analyses are performed in other departmental level in their respective municipalities, specifically in the Department of Finance and the Department of Economics. Four out of five cities rely on the underlying agencies in their department and one city mentioned the use of external consultants (see figure 4). Even though the economic skills are spread in the organization, the cities said that they perform economic analysis when assessing environmental and climate impacts. My empirical data suggest that the cities rely on the existing economic skills in their department, other departments, underlying agencies and external consultants. This implicates that the use of economic analysis is performed whether the municipalities have economic skills and capacity in the Department of Environment or not.

It can be of interest for further research to look at the transaction cost on building economic analysis in the municipalities versus buying external expertise. This is a discussion that the city must take, comparing cost on having economic skills and capacity or outsourcing the task that the municipality must do. On the other hand, it is important that the municipalities have the necessary skills to supervise the order of economic analysis through external help/consultants. According to the Norwegian Agency for Public Management and eGovernment (Difi), a public organization does not get more than what is ordered and confusion can result in additional cost. Furthermore, good ordering skills requires certain amount of professional and educational qualifications, in some cases also some technical expertise. Basic competence can make it easier to enter into a constructive dialogue with

potential consultants/suppliers. One must not necessarily have the expertise themselves, the important thing is that the expertise exists within the organization or from the advisers one has, towards the consultants (Difi, formerly known as Statskonsult, 2001).

If the choice is to build skills and capacity, the desired skills my interviewees want, to be able to perform economic analysis in their department, is unanimous. They wanted an employee with an economic or/and financial background. Furthermore, the interviewees pointed out the importance of combining economic skills with other types of thinking that is necessary to be able to perform economic analysis. They mentioned that it is important that these employees can have the capacity to think from a sustainable point of view, have an ecological fundament and one who can focus on the results and who understand the relation between resource (input) and the result (output). Indeed, the municipalities must have the right skills in relation to the requirements of current and future tasks set. It is therefore important to focus on skill development to ensure the necessary expertise – that is, to develop higher and more specialized skills (Lai, 1997). The development of skills may not necessarily be focused in the departmental level but it must be an evaluation of developing skills in the different level of the organization as a whole.

Finding:

I have identified the use of economic analysis among the cities when evaluating environmental and climate measures. I assumed that it is important to have economic skills in the departmental level to be able to perform economic analysis in the environmental and climate field. This assumption is proven partially wrong and the finding shows that economic analysis is performed in the different level of the organizations. The skills existing in the organization must align with the organization's needs, thus emphasizing the organization as a whole, implying that municipalities use the existing economic skills in the different level of the organization to perform economic analysis. The existing economic skills or the lack of, in the Department of Environment can be supplemented by existing economic skills in other departments, agencies and even buying external economic expertise. I therefore conclude that the concept skills have an indirect influence in the use of economic analysis because municipalities can perform such analysis even though they don't have the economic skills in the Department of Environment. To be able to perform economic analysis on environmental and climate field, I still argue that municipalities must have the necessary economic skills, independently on where the skills are organizationally placed. This is, to underline the

importance of having good ordering skills in the organization to maximize the output, especially when using external help.

6.2 Actors/Initiator

According to the Organization for Economic Co-operation and Development (OECD), governance can be described how authority is distributed in the governmental system and how those who hold such authority are held into account (OECD, 2002, 7): Accountability, transparency and openness. This is also shown in the City of Oslo's City Government statement: *"Openness and transparency in terms of management of values will characterize the City of Oslo... Citizens are entitled to know that their tax money is used in the best possible way."*

It is argued that government is usually constructed as a hierarchy ruled from top to bottom, with all decisions being made centrally and with members acting on orders from their superiors and not through voluntary exchange (Tollison, R. et al., 1992, 182). Furthermore, government consists of public servants, i.e. politicians and bureaucrats. The focus in this paper is mainly on politicians, bureaucrats and stakeholders. These actors have their own incentives and constraints within the government. A public servant can be defined as a person who holds a government position by election or appointment. Politicians are elected by the people to exercise their authority and power in the most appropriate way. A bureaucrat is a member of bureaucracy and is a member of an institution of a government. The general public can be defined as the community or the people as a whole. My other hypothesis is that *politicians and bureaucrats can initiate the conduction of economic analysis, implying that they have an influence in the use of this tool in their municipalities.*

The model of government can be put in to a principal-agent context, where politicians as the principal and bureaucrat as agents. Politicians and bureaucrats do not necessarily share the same goal. If we assume that they are rational utility maximizers (politicians maximizing reelection chances and bureaucrats maximizing budgets), politicians have an interest in policies that benefit their constituents but have no interests in paying excessively much. Politicians, bureaucrats and other stakeholder, such as the general public, can have a common or opposing interest in the work of public administrations. According to City D, there is a

trend happening in the city, where politicians are getting more and more interested in the use of economic analysis. They are thinking of transparency towards the general public and using economic analysis as a tool that can help them prolong their term. Transparency is important not only for the politicians but also for public employees. This is also reflected in the answers from the interviewee when asked who the target groups of the results are. 4 out of 5 cities said that it is the politicians who are the target group of the results, with an exception of City C (see figure 6). City C argued that it is the politicians who make the decisions. The use of economic analysis can come in form of an order/demand from the politicians. City D supported this by stating that the politicians demand the use of economic analysis especially on big investments and in the energy area. On the other hand, I argue that politicians can also have other motivations than the interest of maximizing reelection. This motivational factor can be about political ideology, i.e. implementing measures that their respective party stands for. Other motivational factor for politicians to initiate the performance economic analysis can be added in the list for further research and is not elaborated in this paper.

Goal conflicts and information asymmetry are the two spark plugs that power the principals and the agents; agents have the incentive to shirk (or engage in other non-sanctioned actions). The information asymmetry, in turn, gives bureaucrats the ability to be unresponsive to agents. Even in a case of relatively similar goals, conflicts may exist over the exact means to use with an agent's desire to obtain slack resources, providing the incentive to shirk (Waterman R.W. et al., 2004). This opposing interest among the actors is exemplified by City E, stating that in some cases, it is not a question of benefits and budgets; it is more on fulfilling requirements. An example is a requirement that comes from the European Union that the city (as a part of the country) needs to perform in able to fulfill the requirement, not regarding to the benefit that can be obtain or the resources that is used.

For bureaucrats, the use of economic analysis, according to City A, can be used on formulating and communicating the pros and cons of an investment in policy making. Furthermore, City A and City C said that performing economic analysis can help them to strengthen their arguments towards the politicians and to show the return on investments for the projects that will be implemented. So what if the bureaucrats withhold information from the politicians? As mentioned earlier, politicians and bureaucrats can have conflicting interest in a case. Since it is the bureaucrats who perform economic analysis, it is possible to think that all the information needed is not included in the analysis, making the agents to shrink.

This is an interesting area for further research that is not covered in this paper. Bureaucrats can have the incentive of not only maximizing the budget but also maximize their own interest in a case.

As for other stakeholders, the use of economic analysis can also be use towards the general public. This is stated by City A and second by City D, stating that politicians are thinking that the use of economic analysis can show transparency towards the general public and can help them prolong their term.

In a different setting, City A made me aware of the fact that the principal-agent theory can also be applied in the context of the State and local governments, putting the principal-agent theory in a larger context. City A stated that cooperation with the state is very important. Municipalities are regulated by the state in numerous ways. Municipalities are in a sense the operational arm of the state, though they have a high level of independence. City C on the other hand mentioned that the decision to conduct economic analysis in the Department of Environment must come as an order from the State or the City Council.

Finding:

The use of economic analysis can be initiated by the politicians to maximize reelection, show transparency and to implement actions in relation to their political stand/ideology.

Bureaucrats, on the other hand, can initiate the performance of economic analysis as an order from the politicians, to strengthen their arguments, maximizing budget and by means of pushing their own interest in a case. The use of economic analysis is also used towards the general public. The conclusion of the direct influence of politicians and bureaucrats in the use of economic analysis will be strengthened in the next section of this chapter.

6.3 Economic Analysis and the Methods

It has been argued that the main purpose of economic analysis is to clarify, identify and systematized the impact of measures and reforms before making a decision. Economic analysis is a way to systematize information (Finansdepartementet, 2005). The cities use economic analysis when evaluating environmental and climate impacts, whether they are obliged by law or by evaluating the nature of a case, and in large degree on which

organizational level the analyses are being conducted. Economic analysis is performed in large investment particularly in the field of transport and city development. As mentioned earlier, City A is obliged by the law to perform economic analysis in energy projects in the district heating system. An interesting perspective comes from City B, stating that even though the city substitutes the use of economic analysis with sustainable indexes that they monitors and continues to develop, the environmental and climate issues are integrated in every department in the city. Each department in the city must take environmental and climate issues into consideration when performing economic analysis. City D supported this mentioning that it is important that economic analysis as a tool should be integrated in their routines, together with the integration of environmental responsibility in every aspects of a case/project.

The main method being used by the cities is cost-benefit analysis. Cost-benefit analysis is least controversial when applied to technical and industrial projects, where it is relatively easy to place a monetary value on benefits as well as costs (Rossi P. et al., 2004). As mentioned above, most of the cities conduct economic analysis in technical and industrial projects, within the field of public transport and city development. The second most common method that is used (3 out of 5 cities) is cost-effectiveness analysis. Other methods that were mentioned were marginal analysis and the use of sustainability indexes.

I will here discuss a comment from City E about the distinction between business economics and socio-economic analysis: *The city uses economic analysis when evaluating environmental and climate issues but more on business economics.* This distinction and the definition of business economics and socio-economics are also presented in the empirical chapter. Business economics here is defined by the interviewee as a limited type of analysis, pointing the lack of regards towards the effect on the local government. Socio-economic analysis is described by the interviewee as macro economics and is defined as the study/analysis where all factors that can affect the society are taken into consideration and hereby show a more comprehensive picture of impacts of change (the domino effect). The domino effect is a concept to describe and analyze how changes in one relationship explain sequential, consecutive changes in other relationships (Hertz, S. 1998). It was also argued that business economics is consist of cost-benefits and cost-effectiveness analysis while socio-economics is defined as the study/analysis where all factors are taken into consideration and show the comprehensive picture of impacts of change. According to Jean-Marc Brignon (2011), Socio-economic

analysis could be defined as Impact Analysis. Impact analysis is used by public authorities to balance the potential benefits and costs of action or lack of action, thus using cost-benefit analysis.

I argue that the difference between business economics and socio-economic analysis is rather weak when it comes to the method that is used. Cost-benefit analysis can be categorized in both business economics and socio-economic analysis but in different accounting perspectives. In some degree, the use of cost-benefit in both public and private sector is the same; they are both concerned about the costs and the benefits but the difference arises where private organizations are more concerned about profits while public organizations are more concerned about the benefits the society will get. The question that is needed to be address here is the decision in which accounting perspective to choose in calculating costs, benefits and other social factors. Separate analyses based on different perspectives often provide information on how benefits compare to costs as they affect relevant stakeholders.

As Peter Rossi wrote there are three accounting perspectives that can be used when performing cost benefit analysis: 1) individual participants or targets, 2) program sponsors and 3) the communal social unit involved in the program (e.g. municipality, county, state or nation). I argue that the demand of socio-economic analysis can be covered by the use of cost-benefit analysis, not distinguishing the difference between business economics and socio-economics. The question is which accounting perspective should be chosen. Generally, the communal accounting perspective is the most political neutral. If analyses using this perspective are done properly, the information gained from an individual or a program sponsor perspective will be included as data about distribution of costs and benefits. The decision about which accounting perspective to use depends on the stakeholders who constitute the audience for the analysis, or who have sponsored it. In this sense, the selection of the accounting perspective is a political choice. The important point here is that cost-benefit analyses, like other evaluation activities, have political features (Rossi, P. et al. 2004, 345-364). All the important factors that are needed to identify the cost and the benefits of a certain project for the society can be covered by choosing the communal perspective, assuming that it is conducted right.

Peter Rossi (et al. 2004, 336) also argues that there can be impracticality in the use of economic analysis. First, the analysis can be unnecessary if the efficacy of the program is

either very minimal or extremely high. As City C stated, an overall assessment of each case defines the use of economic analysis. The analysis is performed if necessary and should be based in the nature and the size of the case/project. Second, the required technical procedures may call for methodological sophistication not available to the project's staff. This is reflected on the discussion in the previous section about skills, where the cities are argued to perform economic analysis in the different level of the organization or through the use of external consultants. Third, political or moral controversies may result from placing economic values on particular input or outcome measures, controversies that could obscure the relevance and minimize the potential utility of an otherwise useful and rigorous evaluation. Indeed, politicians make the decisions on where the scarce resources should be allocated. It is therefore important that they get the necessary information they need upon making a decision or choosing which project they should implement. This will be elaborated more in the next section of this chapter. Fourth, expressing the results of evaluation studies in efficiency terms may require selectively taking different costs and outcomes into account, depending on the perspectives and values of sponsors, stakeholders, targets and evaluators themselves (what are referred to as accounting perspectives). The latter is discussed above where I argue that the difference between business economics and socio-economic analysis is weak. The question that should be addressed is which accounting perspective should be chosen when conducting a cost-benefit analysis.

Finding:

The common method that is used by the cities is cost-benefit analysis. 3 out of 5 mentioned the use of cost-effectiveness analysis when evaluating environment and climate issues. I have also argued, in this section, that the difference between business economics and socio-economic is rather weak when it comes to the method that is used. I highlighted the importance of choosing the right accounting perspective when conducting economic analysis, specifically in terms of using cost-benefit analysis. The desire of performing economic analysis, referred to as socio-economic analysis, which includes all the important factors, can be covered by the use cost-benefit analysis in a communal accounting perspective.

6.4 Economic Analysis in Decision-Making

As I argue above, politicians and bureaucrats can initiate the use of economic analysis. For bureaucrats the use of economic analysis can come as an order from the politicians, to strengthen their arguments, maximizing budget and by means of pushing their own interest in a case. According to my empirical data, the main target group of the result of economic analysis is mainly politicians (4 out of 5 cities) with exception of City C where the administration, bureaucrats, in each department (especially the Department of Finance) is the main target group of the results. 4 of 5 cities mentioned that the bureaucrats are also a target group of the results, while 2 out of 5 said that the general public is also a target group. An interesting perspective comes from City E, stating that the organization itself must be the main target group when using economic analysis. It is argued that the input must correspond to the output in each activity.

When it comes to the third impracticality in the use of economic analysis mentioned in the previous section (Rossi P. P. et al. 2004, 336), economic analysis constitutes an important part of decision-making whether a public intervention, reform or rule change is to be implemented (Finansdepartementet, 2005). Consequently, individuals or organizations choose from existing alternatives the ways these resources are to be allocated, and these choices affect the activities and goals of the decision-makers (Rossi P. et al. 2004, 333). Indeed, politicians make the decisions on where the scarce resources should be allocated. It is therefore important that they get the necessary information they need upon making a decision or choosing which project they should implement, i.e. bureaucrats facilitating the decision-making process. I argue that this need of information should reflect in their interest on the use of economic analysis as a tool to be able to see the economic perspective of a case/project. According to the cities, the interest among politicians, in the use of economic analysis, is high. The only difference was stated by City C: The interest among the politicians regarding environmental and climate issues is high but not in terms of the use of socio-economic analysis. The interviewee has not heard about politicians demanding the use of such analysis, except from cases where it is naturally in place to perform the analysis. It is also argued that the initiative must not be a bottom-up approach. A decision must eventually be taken from the political hold. This argument is also reflected in terms of the answer the city provided when asked who the target groups of economic analysis are. City C namely said that it is the administration, i.e. bureaucrats who are the main target group of the results of economic analysis.

As City A stated, politicians care about the economic side of a project. Economic analysis should be of interest for them because it is a good basis for decision making. This is also supported by City B, stating that the politicians get good arguments and solid basis on their decision making by using economic analysis. Furthermore, it was mentioned that is important that the politicians get the broader perspective on every case/projects and to look on how the projects can be done in a more sustainable way. City E also argued that a given benefit can motivate decision makers to perform/choose a certain project/investment. Furthermore, the city mentioned that economic analysis can help politicians to see the whole picture of a case.

Another interesting comment that is worth highlighting comes from City D. The city mentioned a trend happening in the city, where politicians are getting more and more interested in the use of economic analysis. They are thinking of transparency towards the general public and using economic analysis as a tool can maybe help them prolong their term. They want results and to show that the investments they are choosing is the correct investments for the city. They also get valuable information from the results. It is important to use economic analysis especially on environmental reporting and in big investments and when there is a decision that is needed to be made. This “trend” can be of interest for further research, especially in other municipalities in Europe.

The results of economic analysis are used in different political processes. All the interviewees stated that the results are mainly used in policy making and decision-making processes. Other processes where the results are used are budgeting process, strategy process, work towards the general public and work towards the State (see figure 8). As Dr. Jonathan Fisher (2003) wrote, economics is fundamentally concerned with analyzing the trade-offs that decision-makers face in practice. It focuses on analysis at the margin of the actual choices decision-makers actually face in selecting between the options. As City C highlighted, it is the politicians who make the decisions. As the rest of cities stated, the use of economic analysis makes it easier to show politicians the cost of the investments and the economic benefits the investment can give to society. Economic analysis underlines the importance to include all the important factors that should be taken into account. Furthermore, economic analysis as a tool can help to calculate the alternative costs and the relation between the input and the output. Savings generated for the city is also savings for the municipality. The importance of economic analysis is visible especially when there are financial challenges ahead. And last but

not the least, economic analysis gives politicians/decision-makers the possibility to prioritize between measures/projects.”

According to Peter Rossi (2004, 334) some of the critiques in performing economic analysis are the fact that there is unfamiliarity with the analytical procedures employed, reluctance to impose monetary value on many social program outcomes and the unwillingness to forsake initiatives that have been held in esteem for extended periods of time. This argument is supported by City C, stating that economic analysis must be use with a critical view. There must be an assessment on the size of the projects. Social economic analysis is used in different contexts (for example in the media) without any understanding or reasoning. The interviewee is skeptical on use of economic analysis when the social aspects are not included. Furthermore, economic analysis is used on different areas and used in different ways.

Finding:

The main target groups of the results of economic analysis are the actors in government, i.e. politicians, bureaucrats and other stakeholders (in this case the general public). Another important stakeholder, where the result of economic analysis is used to, is the State. The interest among politicians in the use of economic analysis is high, with exemption of one city. Politicians may think that the use of economic analysis can show transparency towards the general public. Indeed, actors in the government are concerned about showing transparency and openness in what they do. These actors, politicians and bureaucrats, can be put in a principal-agent context when it comes on performing economic analysis and the use of the results of the analysis. Politicians, being the principal, can demand the use of economic analysis to bureaucrats, being the agents. The results of economic analysis are then used by the politicians in their decision-making, maximizing reelection and of political ideology. For bureaucrats, performing economic analysis can strengthen their argument towards the politicians, maximizing the budget and act based on their own personal interest. The results of economic analyses are, as mentioned above, used by politicians in their decision-making. This is reflected in the processes where the results of economic analyses are being used.

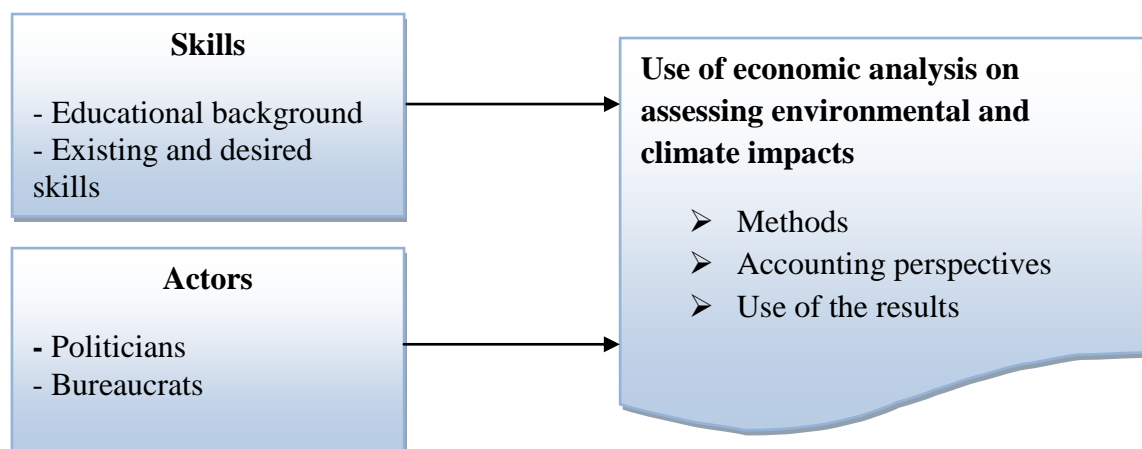
I therefore conclude that politicians and bureaucrats have a direct influence in the use of economic analysis. Putting this in a principal-agent context, politicians can demand the use of economic analysis to bureaucrats while bureaucrats on the other hand, can take initiative to

perform economic analysis or as an order from politicians. The use of economic analysis is also used towards other stakeholders, such as the general public or/and the state.

7. Conclusion

One of the main challenges for employees working within the environmental and climate field is the fact that their cases can be put aside in times of crisis compared to cases that are statutory. Public organizations, indeed, have to tackle the scarcity of resources, making decision-makers to choose which projects/measures to implement. They should be judicious in the use of others' money and at the same time act within the bounds of legality and conformity. As public organizations, they can be held into account in terms of accountability, transparency and openness. The use of economic analysis can help both politicians and bureaucrats to show transparency and openness in their work and their choices.

The framework that was illustrated in the introductory chapter of this paper is as follows:



[Figure 1: Framework]

The hypotheses that will be answered are:

- The existing economic skills in the departmental level (in this context, the Department of Environment) in the municipalities have an influence in the use of economic analysis.
- Politicians and bureaucrats can initiate the conduction of economic analysis, implying that they have an influence in the use of this tool in their municipalities.

1. Skills

The cities use economic analysis when evaluating environmental and climate measures. The assumption of having economic skills in the departmental level to be able to perform economic analysis in the environmental and climate field is proven partially wrong. The finding shows that economic analysis is performed in the different level of the organization. The skills existing in the organization must align with the organization's needs. The existing economic skills or the lack of, in the Department of Environment can be supplemented by existing economic skills in other departments, agencies and even buying external economic expertise. It can therefore be concluded that the concept skills have an indirect influence in the use of economic analysis because municipalities can perform such analysis even though they don't have the economic skills in the Department of Environment. To be able to perform economic analysis on environmental and climate field, I still argue that municipalities must have the necessary economic skills, independently on where the skills are organizationally placed. This is, to underline the importance of having good ordering skills in the organization to maximize the output, especially when using external help.

2. Actors/Initiators

The use of economic analysis can be initiated by the politicians to maximize reelection, show transparency and to implement actions in relation to their political stand/ideology. Bureaucrats can initiate the performance of economic analysis either as an order from the politicians, to strengthen their arguments, maximizing budget and by acting within their own interest. The use of economic analysis is also used towards the general public or/and the State. Indeed, actors in the government are concerned about showing transparency and openness in what they do. It is therefore concluded that politicians and bureaucrats have a direct influence in the use of economic analysis. Putting this in a principal-agent context, politicians can demand the use of economic analysis to bureaucrats while bureaucrats on the other hand, can perform economic analysis as an order from politicians or in their own initiative.

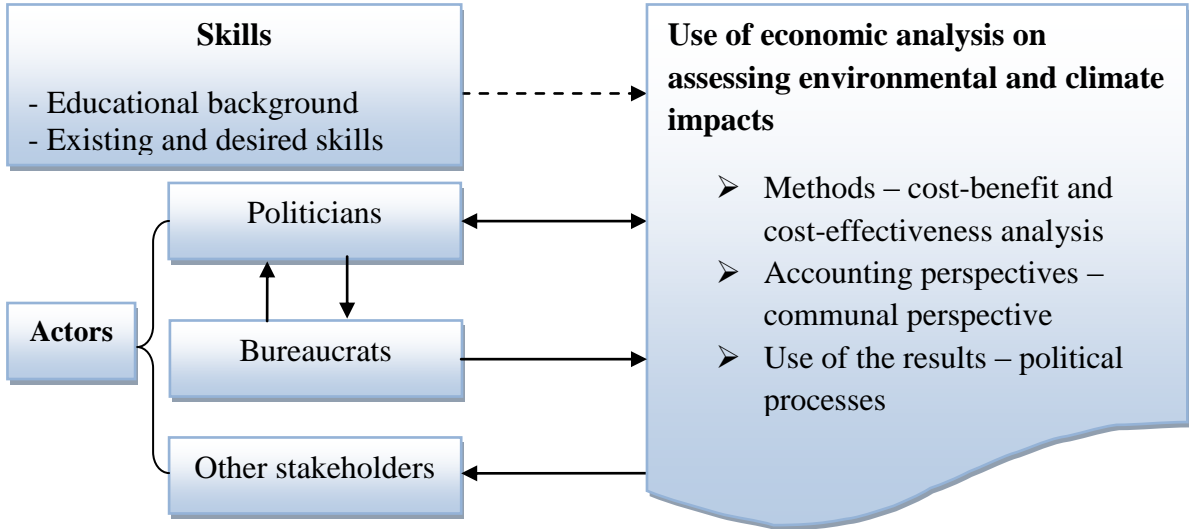
3. Use of economic analysis

All the cities conduct economic analysis when assessing environmental and climate issues, especially in the area of energy. The use of economic analysis varies from city to city, whether the city is obliged by law or making an overall assessment of a case. The common method that is used by the cities is cost-benefit analysis. 3 out of 5 mentioned the use of cost-effectiveness analysis when evaluating environment and climate issues. I highlighted the

importance of choosing the right accounting perspective when conducting economic analysis, specifically in terms of using cost-benefit analysis. The desire of performing socio-economic analysis, which includes all the important factors, can be covered by the use cost-benefit analysis in a communal accounting perspective.

The main target groups of the results of economic analysis are the actors in government, i.e. politicians, bureaucrats and other stakeholders (in this case the general public). Another important stakeholder, where the result of economic analysis is used to, is the State. This is reflected in the high interest among politicians in the use of economic analysis, with exemption of one city. Furthermore, the results are used mainly in political processes.

Based on the findings in this paper, I argue that the framework should be adjusted as follows:



[Figure 10: Revised framework]

The cities in this paper use economic analysis when assessing environmental and climate impacts. Economic analysis can be performed in different levels of the organization. I therefore concluded that skills have an indirect influence on the use of economic analysis. The performance of economic analysis could be gained by utilizing the existing skills in the departmental level in the cities and underlying agencies, or through external consultants. When using external help, it is important to have the necessary ordering skills to be able to get the desired output.

Politicians can influence the use of economic analysis in the cities and the results are mainly used by them in the decision-making processes. On the other hand, it is the bureaucrats who perform economic analysis, initiating it by themselves or as an order from the politicians. The results can be used by politicians to maximize reelection, show transparency and to implement actions in relation to their political ideology. Bureaucrats, on the other hand, can use the results to strengthen their arguments towards the politicians, to maximize budget and by acting within their own interest. I therefore concluded that both politicians and bureaucrats have influence in the use of economic analysis, when assessing environmental and climate impacts. The results of economic analysis are also used towards other stakeholders such as the general public and the State, to show that politicians are choosing the right decision, i.e. to show transparency and openness.

7.1 Areas for Further Research

An area for further research is based on a statement from City B regarding how the city should think and act as a whole. The interviewee mentioned that in times of crisis, it can be a struggle; environmental issues can be put aside. In fact, environmental concerns tend to be given insufficient weight in the policy and political process. Environmental policy integration suggests that environmental requirements are specifically to be integrated in other policies and activities (EEA, 2005, 11). Can environmental policy integration be the answer to incorporate environmental and climate issues in the whole city?

It could also be interesting to study the principal-agent theory in a broader perspective, specifically when bureaucrats perform economic analysis and have the possibility to withhold information from the politicians (the principal). Bureaucrats can have the incentive of not only maximizing the budget but also maximize their own interest in a case.

It can also be of interest for further research to look at the transaction cost on building economic analysis in the municipalities versus buying external expertise.

As City D mentioned, there is a trend happening in the city where politicians are getting more and more interest in the use of economic analysis. This “trend” can be of interest for further research, especially in other municipalities in Europe.

Another area that can be of interest for further research is the political party compositions in the cities. Politicians can have other motivational factors for implementing measures than maximizing reelection. This can be about political ideology that their respective party stands for.

I have used the Urban Ecology Program in the City of Oslo as an example of how climate and environmental documents can be complicated. What City of Oslo can learn from this study is the use of economic analysis as an important tool to prioritize the environmental and climate measures that are needed to be implemented. I argue that this study also proves that economic analysis can be a useful tool towards the decision-making processes, especially when environmental and climate measures compete with other measures that are statutory.

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Appendices

I. Interview questions

Black – general questions

Blue – questions for those who use economic analysis

Red – questions for those who don't use economic analysis

Skills and Capacity

1. What are your primary tasks? Where do you organizationally work, in terms of the organizational structure in your municipality?
2. How many employees work in your division/department that works directly with climate and environmental issues?
3. What kind of skills exists in your division/department? What are their backgrounds?
4. Which factors do you take in to account when you execute/use economic analysis?
5. Have you used any tools on evaluating climate and environmental measures?
6. Generally, how many employees work with economic analysis in your municipality?
7. Where is the employees organizationally placed?
8. How will you describe the capacity of the employees who work with economic analysis?
9. How will you describe the skills of the employees who work with economic analysis?
10. What kind of skills do you mean is important for your municipality to have – to be able to execute economic analysis?

Methods

11. Does your municipality use economic analysis when evaluating climate and environmental measures?
 1. If no, do you have any plans on implementing it? Why? Why not?
 2. What do you think is the explanation why your municipality does not use economic analysis on climate and environmental measures?
 3. If yes, is the tool (economic analysis) integrated in your routines? Which factors can be critical when using economic analysis?
 4. What do you think is the explanation why your municipality uses economic analysis on climate and environmental measures?

12. What kind of economic analysis/methods does your municipality use on climate and environmental measures?
- Cost-benefit, cost-effectiveness, sensitivity analysis, present value

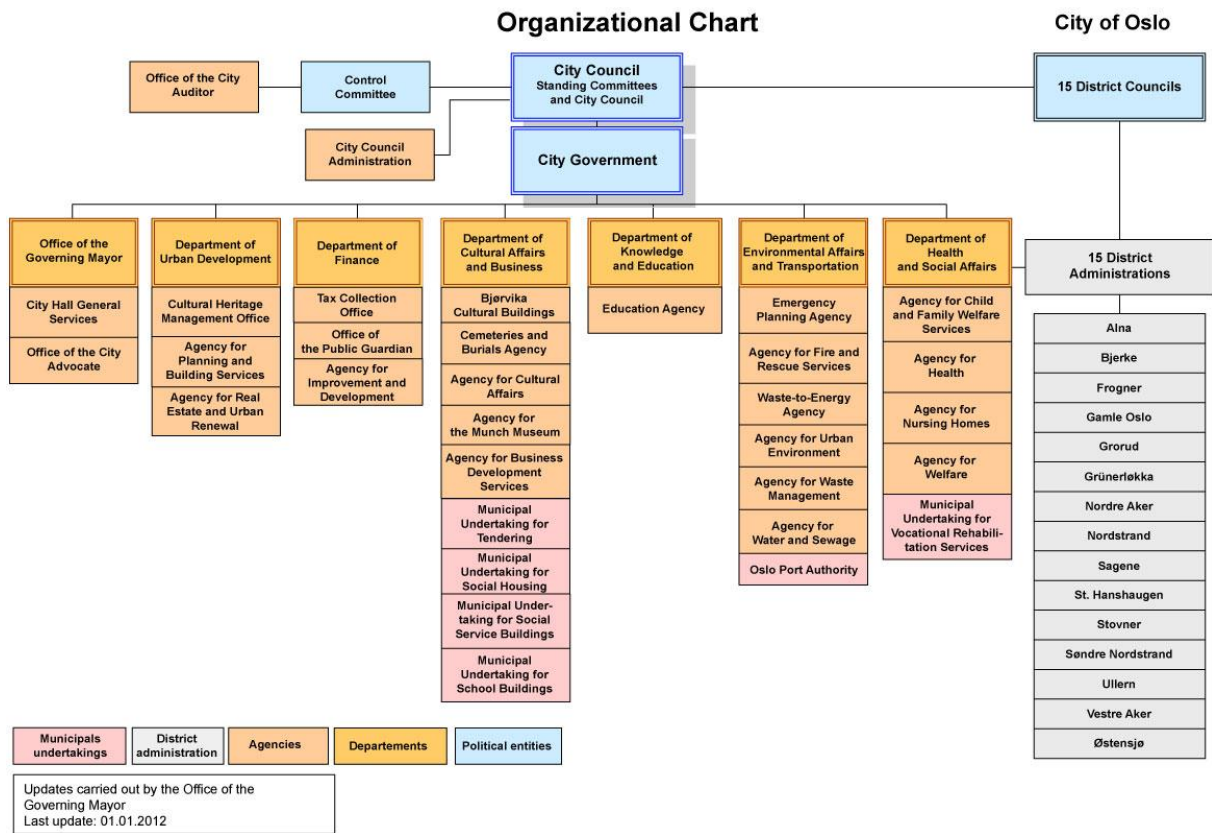
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13. In which processes/contexts are the results being used?
In which processes/context should the result be use?
- Budgeting, political processes, Strategies, other processes
14. Who are the main target group of the reports/results of these analyses?
Who do you think may request for making such kind of analysis?
- Politicians, leaders of the municipalities, society
15. How will you describe the engagement/interest among the politicians in terms of the use of economic analysis in your municipality?
16. Is it important with political interest and understanding about economic analysis?
Why? Why not?

Round up

17. What kind of benefits have you obtained using economic analysis?
18. Can economic analysis help your municipality on prioritizing which climate and environmental measures should be realize? How?
19. Can you describe what kind of experience (positive or negative) you got from using this tool?
20. What will it take for your municipality to use economic analysis on climate and environmental measures?
21. Any other comments? Anything you would like to add?

II. City of Oslo – Organizational Chart



(www.oslo.kommune.no).