

Environmental work in preschools

Three case studies in Uppsala

Etedal Abdelmomen



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Abstract

Environmental issues are global problems and they are a major challenge for any successful organizational business worldwide. Many challenges and opportunities emerge during the certification process of an EMS. Therefore it is interesting to contribute in understanding these emerging problems during this process.

The aim of this study is to explore how the environmental objectives could be achieved at preschools in Uppsala, investigate the perceived challenges and opportunities and to identify the outcome of implementing the ISO 14001, Green Flag at such set up.

A qualitative method is used and three Green Flag certified preschools, affiliated to the Uppsala Municipality and located at different geographical location were selected. A structured interview with the environmental representatives from the preschools and the municipality was completed. The so-called PDCA-cycle as a method of evaluating sustainable development and analysing the imperial data is used.

The study showed that environmental certification constitutes a great challenge for the municipality of Uppsala. Since a general environmental policy guided by the disciplines of the Green Flag is already existed, the study preschools were able, by following this policy, to achieve environmental certification of the Green Flag. The staff was very motivated and pro-active to maintain sustainable development and increased environmental awareness among their preschool children and to some extent among the parents.

In conclusion the environmental objectives of the study preschools are clearly sett up and that environmental certification is the greatest challenge, as well as great environmental concern and lowering the cost of implementing the environmental programme are perceived as the most driving forces for pursuing environmental certification.

Sammanfattning

Miljöfrågorna är globala problem och de är en stor utmaning för ett framgångsrikt företag över hela världen. Många utmaningar och möjligheter uppstår under processen för certifiering av ett miljöledningssystem. Därför är det intressant att bidra i förståelsen av dessa problem som uppstår under denna process.

Syftet med denna studie är att undersöka hur miljömålen uppnås på förskolor i Uppsala, samt att undersöka upplevda utmaningar och möjligheter att fastställa resultatet av genomförandet av ISO 14001, Grön Flagg på en sådan instans inrättas.

Undersökningen har genomförts med en kvalitativ metod. Tre fallenheter, Grön Flagg certifierad förskolor som är anslutna till Uppsala kommun och på olika geografiska lägen valdes ut. Från de utvalda skolorna genomfördes sedan strukturerade intervjuer med de miljömässiga representanterna från förskolorna. I möten med förskolorna utgick jag sedan från den s.k. PDCA-cykeln som är en metod för utvärdering av hållbar utveckling och analys av data.

Studien visade att miljöcertifiering enligt ISO 14001 innebär en stor utmaning för Uppsala kommun. Sedan en allmän miljöpolitik styrs av discipliner i Grön Flagg redan tillämpas, visade vår studie att de undersökta förskolorna genom en sådan politik kunde uppnå miljöcertifiering av den gröna flaggan. Personalen var mycket motiverade och aktiva för att upprätthålla en hållbar utveckling och en ökad miljömedvetenhet bland sina förskolebarn och i viss utsträckning även hos föräldrarna.

Den viktigaste slutsatsen i studien är att miljömålen i min studie av förskolor är tydligt dragna men att miljöcertifiering är den största utmaningen. Drivkrafterna för att uppnå miljöcertifiering hos förskolor bedöms främst vara en allmän stor oro för miljön och sänka kostnaderna för att genomföra miljöprogrammet.

Abbreviations

EMAS	European Environment Audit Scheme
EMS	Environmental Management Systems
EPA	Environmental Protection Agency
FEEE	Foundation for Environmental Education in Europe.
FEE	Foundation for Environmental Education
HSR	Håll Sverige Rent (Keep Sweden Tidy Foundation)
ISO	International Organization for Standardization
PDCA	Plan–Do–Check–Act model

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1 Introduction

The environmental issues have been extensively studied by many researchers in such diverse disciplines as economy, sociology, education and psychology since 1970 (Charter & Plonsky, 1999, 17). From a management perspective the environmental issues, relate to external and internal challenges, may be managed in a so called Environmental management systems (EMS).

An EMS is composed of a number of inter related elements that function together to achieve the objective of effectively and efficiently managing those activities (Welford, 1999, 62), such as products and services of an organisation which may have an impact on the environment.

Currently, the emphasis is to improving the greening process in different organisations through establishing continuous learning instrument and through the ability to interact with various external stakeholders and internalised new information (Charter & Ponsky, 1999, 11). This can be achieved through the EMS. Several organisations are motivated to use an EMS due to many reasons for example customer requirements, competitive advantages and internal benefits from systematization of the environmental work (Malmborg, 2003, 6). Moreover, an EMS works as an assisting instrument in helping organizations to meet their increasing burden of responsibility for better environment (David, 2002, 170). Therefore, EMS implementation and certification do help companies to integrate their environmental, health and safety management systems and in some cases their quality management systems.

The International Organisation of Standardization (ISO) is specifically aimed at increased inputs in the improvement of environmental management, the ISO 9001 system, through quality assurance (www, ISO, 2010, 1). The environmental management system, ISO 14001, was founded 1947 in Geneva, Switzerland which is designed to structure and communicate the environmental work of all kinds of organisations. It is the most common environmental management system (EMS) among private and public organisations and is used internationally as a voluntary system that requires the firm to identify measure and control its environmental impact. According to the international standard ISO 14001, an EMS is a part of an organisation's management system used to develop and implement its environmental policy and manage its environmental aspects (Thomaszobel, 2005). In order to fulfil this definition, the management system must include organisational structure, planning activities, responsibilities, practices, procedures, processes and resources.

Environmental issues have become increasingly important among Swedish local authorities during the last decade (Emilsson & Hjelm 2002). This has been shown as almost half of the local authorities are implementing environmental management systems (EMSs) in their organisations as a voluntary commitment to improve their environmental efforts.

Educational organisations are particularly prone to use quality and environmental management systems, which in part may be explained by the political ambitions that govern the educational systems in most countries. The European Cooperation Organisation Foundation for Environmental Education has initiated so called Eco-Schools with the environmental certification, "the Green Flag" (www, Eco School, 2010 ,1). This certification follows the principles according to ISO 14001 and EMAS but from a

perspective of children and youth (www, HSR, 2010). The Green Flag is an environment certification and is an evidence on that one works daily with a document aimed environmental work along with the children. It is about integrating environmental work as a part of the daily routine. The Green Flag is working with five different themes (www, Grön Flagg, 2010, 1). These are recycling, water, forest, energy, lifestyle and health.

1.1 Problem background

In the beginning of the 1960s, people in the industrialised world started to become aware of environmental problems (Hunt & Johnson, 1995). These problems were mostly of a local nature originating from emissions to air and water, the use of toxin chemicals or accidents leading to negative environmental impact. In fact environmental issues are a global problem and are becoming a major challenge for any successful organizational business worldwide. In the organization it is essential that the environmental management is motivated and engaged.

Sweden has set goals for the future state of its environment (www, Naturvårdsverket, 2010 , 1). These are built around 16 environmental quality objectives, adopted by the Swedish Parliament with the aim of ensuring that, by 2020, the country's major environmental problems have been solved. These objectives are a promise to future generations of clean air, healthy environment to live in, and rich opportunities to enjoy nature (Ibid).

As the popularity of EMS increases as well as argument by many researchers and others about its impact, the need for evaluating its effects and implementation also increases (Chan & Li, 2001; Freimann & Walther, 2001). The need for evaluations has in fact also been identified by researchers in areas of the world where EMS is commonly used. During the last few years, the empirical research on the environmental and business effects of EMS implementation has been extensive and resulted in an ambiguous picture regarding the positive effect of EMS on environmental performance (Chan & Li, 2001; Freimann & Walther, 2001). It seems as if successful EMS implementation depends on a number of organisational characteristics such as drivers for EMS adoption, organisation size, line of business and cultural setting.

1.2 Problem

There is a little information regarding environmental management and its implementation in preschools and kindergarten. In fact the Swedish society has put great emphasis on preschools and kindergartens for the promotion of manpower in all aspects of life in this country (www, Government Offices of Sweden, 2010, 1). The governmental action reflects an ambition that recognizes the importance of teaching the coming generations, at a younger age, to understand and to be responsible for our common environment. Swedish government and agencies are taking care of high level of green practices. *“The overall goal of the government's environmental policy is to hand on to the next generation a society in which the major environmental problems facing Sweden have been solved”* (Ibid).

As many challenges and opportunities emerge during the process of implementation of ISO-14001 certification, it is interesting to contribute in understanding these emerging

problems during this process. This study presents perceptions of the environmental representatives towards certification process, and it discusses how much preschools are involved in the greening practices. It also considers some of the different stakeholders that may be involved in the implementation of ISO-14001.

1.3 Aim

The aim of this study is to investigate perceived challenges and opportunities in an environmental work process for a public organisation. It refers to describe how the environmental objective could be achieved at preschools, and to identify the outcome of implementing the ISO 14001 at such set up. The objective is to provide solid document about the orientations of the environmental representatives towards the implementation of an EMS at three selected preschools.

These goals are achieved by addressing the following research questions:

- ❖ How are environmental objectives set?
- ❖ What are the perceived challenges and opportunities?
- ❖ What are the expected results of implementing the ISO 14001 at preschool?

1.4 Delimitations

Three preschools in Uppsala were selected. Due to a limited time for the research project, only a few numbers of participants were selected for the interviews. These were the environmental representatives at these preschools and along with the preschools manager at Uppsala municipality. The method used is a qualitative interview method. The empirical findings were analyzed based on the theory and previous studies. The plan-do-check-act (PDCA) model was used as a method of evaluating sustainable development in the analysis.

There are various kinds of EMS; each of them has advantages and disadvantages. Here, it was chosen to study the implementation of the Green Flag which follows the principles of the most well-known and internationally established ISO 14001.

1.5 Outline

The outline (Figure 1) illustrates the structure of this report. In chapter one provides a background to research area, problem definition, aim and purpose of this thesis work. The second chapter explains the research methods including literature review, qualitative interviews, choice of method, choice of case study and method for analysis. Chapter three presents literature review. While chapter four gives a theoretical framework with basic concepts that are related to the research question and used as analytical tools.

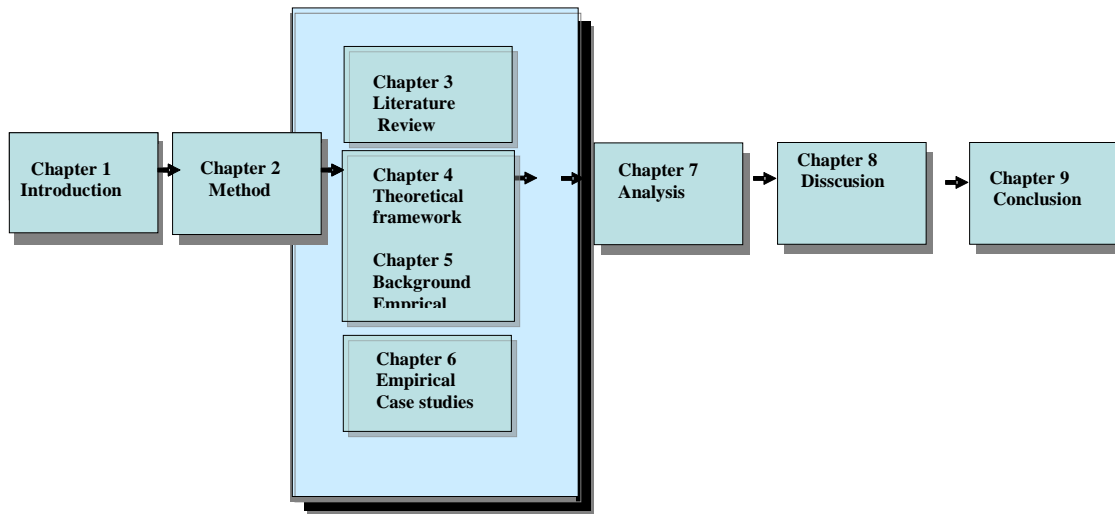


Figure 1. Illustration of the outline of the study. The figure depicts the structure of the different chapters as outlined in the study.

Chapter five discusses the background empirical and in chapter six the empirical case studies are described. In chapter seven these results are analyzed, and discussed in chapter eight. Finally, the conclusion is drawn and suggestions for action to be taken are presented in chapter nine.

2 Method

This chapter presents the different procedures used when deciding on, literature review, qualitative interviews, choice of method, choice of case study and method for analysis.

2.1 A literature review

The basic literature review and articles that I have gone through were from the LIBRIS, the national data base of Swedish libraries. The key words used were, EMS, Environmental, management, Green Flag, ISO14001, Preschool, Sweden. The study was conducted during January-May 2010.

In fact, there is a little information regarding environmental management and its implementation in preschools and kindergarten. However, necessary information was found on searching in the internet. Besides, the International organization of Standardization (www.iso.org) provided useful links for achieving additional case studies. The secondary data were collected from articles, research reports and business management literature, and through personal contacts to obtain more details. In order to obtain more information about the methods used in the study, the relevant books and some articles were requested and reviewed.

The empirical findings were analyzed based on the plan-do-check-act (PDCA) cycle as a method of evaluating sustainable development, as ISO 14001 requires a continuous evaluation of environment performance. From a more managerial point of view, the Deming Quality Management model was selected (Weib & Bent, 2006), for it shows the requiring commitment and management needs.

2.2 Qualitative interviews

In research, interview can be used either in quantitative or qualitative methods (Kvale, 1997, 67). Qualitative interviews aim at going more in depth of the specific case. Kvale gives a suggestion on a relevant procedure for the work divided in seven steps (Kvale, 1997, 86). These are thematization, planning, interview, transcription, analysis, verifying and reporting. Detailed explanation of these steps is given below:

Thematization helps formulation of the study aim and describes the theme. This is potentiated by a clear purpose and a thought about the theoretical perspective. In this context three questions are to be dealt with: What, why and how? What considers the subject being studied, why describes the purpose of the study and how explains the conduction procedures of the study such as the kind of interview and analytical method.

Planning is about creating in advance a clear thinking concerning the seven steps of research, for example, time and money allocation, objectives of the study and the target group being studied. The number of respondents depends of the purpose of the study. In a qualitative approach, the interview questions should not be too many, since that would facilitate the analysis.

Interview used in this study is a semi-structured interview which means that instead of asking direct questions, an opened-question interview is used that can give wider margin for answers.

Transcription aims at preparing the materials obtained during the interview for late analysis. Normally this is being done by transcribing, word by word, the tapes into written documents. Word by word manner rather than a concluded form is important, since all the material is very important for understanding the respondent's point of view.

Analysis includes organizing and interpreting the meaning of transcribed material. In the analysis it is important to strive for objectivity through, for example, discussing the interpretations with others.

Verifying the reliability and validity of the material should be made clear and a quality control should be performed, so that the out come of the study would be accepted by the scientific society and the readers. Quality control can be done through returning the transcribed material to the respondents for confirmation and correction.

Reporting is the last stage in the working procedure. Here the method and results of the study should be reported in a scientific way.

2.3 Choice of method

The method that is used in this thesis is a qualitative one with these case units, in which interviews were chosen to make a deeper dialogue possible with every respondent. Moreover, conducting the interviews at the preschool facilitates access to information from the interviewees themselves. Thereafter the collected and interpreted data were returned to the interviewees for confirmation.

The interviews were conducted during the visits to all of the three selected preschools. The purpose of choosing three preschools was to analytically describe and compare the results of the study in order to illustrate the similarities and differences rather than to generalize. This will allow considering every aspect of the process during the implementation of an EMS in the chosen preschools. However, the number of preschools chosen is little and may limit the interpretation of the results. Nevertheless, this may satisfy the objectives of the study despite the limited time for the research project.

I used the interview guide questions which I have already formulated, based on the theoretical method (Appendix). The interview questions were mainly of open character to facilitate collecting as much as possible of the information. Leading questions were avoided in order to get the personal opinions of the respondents, and not reveal my own values in the field of the study (Kvale, 1997). The same questions were asked to all of the respondents, in order to make possible comparisons between the different preschools concerning their work with ISO 14001. Some follow-up and clarifying questions were added when needed during the interviews.

2.4 Choice of case studies

The overall criterion for selecting the organisations to the case study was that the organisations should have implemented an EMS according to the ISO-14001 standard. It might be difficult to establish whether an EMS fulfils the requirements in this standard and third-party EMS certification was therefore added as a second criterion (Zobel, 2005). Accordingly, three geographical areas were chosen to make it possible to analyse geographical differences. The implemented EMS at the selected preschools follows principles of the Green Flag certification. This entail interviews with those responsible for environmental issues in the selected preschools. Besides, the manager for all preschool at the municipality of Uppsala was interviewed to support and provide more information that may help the analysis of the material.

Three preschools were selected, see Table 1. These are Höganäs preschool, central Uppsala, which is certified by the Green Flag (www, Uppsala Kommun, 2010, 4), and has five sections. The second is Lötens preschool, which consists of two divisions, namely Löten and Von Bahr. Lötens is located at Heidenstam's square in north east of Uppsala. The preschool has six departments and a total of 90 children at the ages between one and three (www, Uppsala Kommun, 2010, 5) .The third unit is Ringmuren preschool that serves mostly those with immigrant background in Sävja approximately nine kilometres south of Uppsala, and has five sections (www, Uppsala Kommun, 2010, 6). A separate interview was conducted with an expert in this field.

Table 1. Interview events at the selectet preschools

Preschool	Person interviewed	Date of interview	Date sent interview summary	Date of confirmation
Lötens	Inger Björklund	29 - 4 - 2010 at 10:00 am	29 - 4 - 2010	6 - 5 - 2010
Höganäs	Susanne Ekholm	3 - 5 - 2010 at 8:30 am	3 - 5 - 2010	4 - 5 - 2010
Ringmuren	Yvonne Bäckman	14 - 5 - 2010 at 9:30 am	14 - 5 - 2010	17 - 5 - 2010
Manager for all preschools in Uppsala	Inger Jonsson	29 - 4 - 2010 at 12:00 am	29 - 4 - 2010	4 - 5 - 2010

The table illustrates the schedule of the interview dates of the personnel at the preschools.

2.5 Method for analysis

The compilation of the data was started immediately after collecting all the empirical materials that were provided during the interviews at preschools. In analyzing the empirical material, previous studies and theories have been used as guidance to the analysis procedure. The work was introduced by carefully listening to the tapes and writing down the content (Kvale, 1997. This was best done soon after each interview. In analysing empirical material, previous studies and theories have been used as guidance to the analysis procedure.

3 Literature Review

The following chapter deals with the in-depth literature review which aimed at giving an understanding of the available publications that are related to these fields. This has provided the project with a strong foundation as well as helped identifying key areas that need to be developed.

3.1 Literature review on EMS

This section presents implementation of an EMS worldwide and the environmental strategies.

Previous studies of implementation of an EMS in universities indicate that as the awareness of EMS work is increasing, researchers and others argue about the possible drivers, problems and benefits of EMS. Many similar issues about implementation of an EMS also been identified by researchers in areas of the world where EMS is common. More than 60000 organizations worldwide have implemented environmental management system (Schylander & Martinuzzi, 2007). One of the studies in Austria shows that implementing the ISO 14001 often leads to reduced environmental impact and a strong driving force behind implementation is expected to improve an organization's image towards EMS (Schylander & Martinuzzi, 2007). The average repayment time on an investment in an EMS is less than two years. They argue that, legal compliance tends to be difficult to implement, but in contrast, it works well in every day practice.

In a previous study about the implementation of standardised environmental management systems in Swedish local authorities, it has been indicated that EMS implementation is not a high priority (Emilsson & Hjelm 2002). This study showed that the chief reason for implementing EMSs was of organisational origin, such as bringing order to the environmental efforts, although EMS implementation is often viewed as an environmental project. This paper also discusses the problems surrounding the fact that EMSs are viewed as projects and not as continuous processes that are integrated into the organisation.

In another study about environmental engagement, organizational capability and firm performance, it was suggests that, in the process of implementing green commitments not only instrumental and ecological motivations play a key role, but also the internal organizational activities, in addition to the outcomes of the implementation itself.

On a study of strategic sustainable development using the ISO 14001 standard, it has been proposed to integrate a "back casting" method, that embodies a five-level approach to planning in complex systems, with the ISO 14001 planning process requirements (MacDonald, 2005). The result is a strategic planning framework that focuses on the minimum requirements for a sustainable society and embeds them in a process to assist firms in their sustainability initiatives.

On the other hand, other studies about adopting corporate environmental management systems indicated that EMS implementation and certification do help companies to integrate their environmental, health and safety management systems and in some cases their environmental and quality management systems. This is perhaps because EMS

certification requires strong employee participation and environmental training programs. In fact, many firms report increased employee awareness of the environmental aspects of their jobs and of their responsibilities for reducing negative impacts (David, 2002, p 170). Similarly, result of studies at the university of Gävle indicate that similar methods of EMS training and communication have increased awareness of environmental issues (Sammalisto & Brorson, 2008, 301). In its 40-year-old, 2.4 million square foot engine plant in Lima, Ohio, for example, Ford claims to have involved all its employees in the implementation of the EMS that reduced water consumption by nearly 757,000 litres a day, eliminated its production of boiler ash, and increased the use of returnable packaging from 60% to 99 % (ibid).

The Honda Transmission Manufacturing of America facility in Ohio, which certified its EMS in 1997, reports both immediate and long-term benefits (McManus and Sanders, 2001). Honda educated its entire staff on the importance of the organization's environmental objectives and raised the priority of environmental improvements. As a result of EMS implementation, Honda reduced environmental and safety incidents significantly, developed and enforced contractor-training requirements, and substantially reduced costs associated with environmental incidents. Moreover, this Honda plant recorded noticeable improvements in environmental performance in the areas of waste and wastewater generation, recycling, improved lighting control, and adoption of reusable packaging (Morrow & Rondinelli, 2002, 164). The plant saw substantial savings from improvements in waste production and energy consumption.

Ninety-seven percent of the firms surveyed claimed expected positive environmental improvements in the long term, short term, or both. Firms with pre-existing environmental management systems reported slightly fewer benefits than others. More than half of all firms reported savings from reduced energy use and reduced waste disposal costs, with significant percentages also reporting savings from reduced resource use, reduced insurance premiums, and reduced fines (Summers Raines, 2002). Overall, firms in developing countries have reported greater cost savings than did firms in wealthier countries.

In fact different strategies can be adopted for developing the ISO 14001 system into a sustainability management system. Birke (2003) found that many EMSs in Germany suffered from a low degree of strategic orientation and a weak synchronization with the central value chains of the companies. Dobers and Wolff (2000) discussed this issue and they suggested that companies must include environmental and social responsibility objectives in their value-creating statements, processes and products. They argue for a holistic business approach, balancing stakeholder demands and sustainability requirements that will create sustained success for the company. The challenge for the future is that environmental management has to focus on increasing its eco-effectiveness – that is, on the reduction of its total impact on nature – and conducting itself in an eco-equitable way unit's relation towards various stakeholders. Additionally, they argue that environmental management must become an integral part of conventional management processes (Schylander & Martinuzzi. 2007).

In one of the few large-scale surveys of companies adopting EMS and pollution prevention practices, Florida and Davidson (2001) asked executives of 214 manufacturing companies in Pennsylvania what motivated them to do so. They found that, among the adopters, high commitment to environmental improvement was the strongest motivator (91.9%), followed

by the opportunity to attain corporate goals and objectives (88.7%), economic benefits and improved business performance (87.1%), State and federal regulatory climate (85.5% and 83.9) and improved community relations (85.5%). The management standards have become a global success. In 2005 almost 800,000 companies or other organization in 154 countries have been certified (Weib & Bent, 2006.16).

3.2 Environmental strategy

The majority of corporate environment strategy approaches looks into environment as a technical problem (Charter & Polonsky, 1999, 42). This can be understood as pollution that needs to be reduced, waste that needs to be avoided and risks that need to be minimised or insured against. There are a variety of factors that have put increasing pressure on organisations to incorporate environmental protection into business. Despite this long list of factors, it is unlikely that most organisations still find it easier and cheaper not to consider an environmental change program. In this respect, it is important to define the concept of strategy.

Mintzberg identifies different definitions of strategy, namely, plan, ploy, pattern, perspective and position strategies (Mintzberg & Quinn, 1991, 13). Strategy as position refers to the particular place of an organisation or its products in the environment that indicates the interaction between organisation and its environment, which is seen as corporate strategy. In this respect, position strategy requires market analysis. It has been argued that the essence of corporate strategy is to improve competitiveness and to cope with market competitors. The environmental implications of this strategy were illustrated in the famous Porter hypothesis (Esty & Porter 1998), which states that stringent environmental legislation leads to corporate competitiveness and international strategic advantages for those organisations with tight domestic legislation.

3.3 Possible ways of handling environmental questions

The study ``Miljödriven affärsutveckling – Från myndighetskrav till möjligheter (Bäck et al, 2002, 6)'' has brought up possible ways of handling environmental issues (figure 2). It is important to think in a widely perspective and make clear the consequences for the whole organisation. It is also essential to look into the future and develop imaginable scenarios based on the most important environmental issues. The way to attack strategic environmental issues can be divided into two main steps. As a first step the organisation has to understand the environmental issues and their meaning for the organisation and thereafter rank them. Furthermore the organisation has to decide how they should handle the environmental issues.

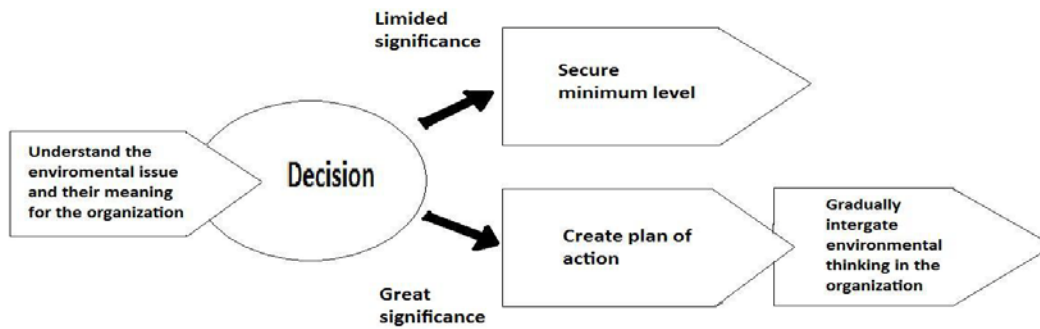


Figure 2. Possible ways of handling environmental questions (IVA, 1995, 54).

In the second step the organisation has two alternatives, either chose to secure a minimum level or create a plan of action. If the most prioritized environmental issues have a great significance for the organisation, for example in an economic point of view, the plan of action is necessary. Eventually, the plan of action will lead to that environmental thinking will be more integrated in the whole organisation.

4 A Theoretical framework

The theoretical framework used within this project is meant to use the empirical data to more understanding the existing models in order to validate the research objective. Moreover, selecting a theoretical framework has extensive consequences for the outcome of the study, the EMS, specifically ISO 14001, and for the objectives and targets. Thereafter, the benefits from implementing an EMS is described, followed by describing the most common problems and opportunities that have been mentioned in the literature in relation to ISO 14001.

4.1 Environmental management systems and ISO 14001

ISO stands for International Organisation for Standardization. The ISO 9001 for quality management systems are by far the best known ISO (Weib & Bentlage, 2006, 16). The definition of an EMS used by ISO 14001 is: *“The part of the overall management system that includes organisational structures, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing achieving, reviewing and maintaining the environmental policy”* (Weib & Bentlage, 2006, 19). According to Welford 1999, standardization is defined by ISO as the activity of establishing, with regard to actual or potential problems, provisions for common and repeated use (Welford, 1999, 62), aimed at achievement of the optimum degree of order in a given context. The meaning of that ISO 14001 is a specification standard (Welford, 1999, 62) is that it consists of a set of requirements for establishing and maintaining an EMS. With the objective of achieving environmental certification of ISO14001, it is necessary to identify a set of indicators that will be used to monitor environmental performance over time of the system under consideration.

According to Welford, ISO 14001 is a process that is organised in five steps:

- ❖ Environmental policy
- ❖ Planning
- ❖ Implementation and operation
- ❖ Checking and corrective action and
- ❖ Management review

These steps are presented more closely below in section 4.1.1-4.1.5.

4.1.1 Environmental policy

An environmental policy is defined as the *“asset of fundamental principles and objectives witch helps an organisation to put its environmental commitment into practice. It is the foundation upon which improvement of environmental performance and an EMS can be built”* (Weib & Bentlage, 2006, 47). There are different commitments that a policy has to contain, which are continual improvement, prevention of pollution and complying with relevant environmental legislation and other relevant requirements. Despite this, the policy must provide a framework for setting objectives and targets, be communicated to all employees as well as publicly available (Welford, 1999).

4.1.2 Planning

Here the organisation should try to be objective and identify what ISO 14001 refers to for them when it comes to environmental aspects. With help from a review a company can identify its environmental aspects. Environmental aspect defined as an element of an organisation's activities, products or services that affects the environment, either positively or negatively (Clarke & Kouri, 2009, 977). The review is the foundation, which the rest of the management system is built on. As soon as the environmental aspects are identified, the organisation must establish those aspects that are important and that have significant impact on the environment. During the environmental review the organization should establish which is legal and what other necessary requirements are. When the organisation has decided which goals to accomplish, it should make a programme to achieve them. In the programme must a time frame be set, where it is written, who is responsible and what the goals are (Welford, 1999).

4.1.3 Implementation and operation

When the organisation has decided what their plan is, i.e. Step 2, it should come up with the important elements that would assist in making successful implementation and operation possible. The elements that can be necessary are the following:

- Structure and responsibility
- Training, awareness and competence.
- Communication.
- Environmental management system documentation.
- Document control.
- Operation control, and
- Emergency preparedness.

4.1.4 Checking and corrective action

This is further subdivided into two, monitoring and measurement, and non-conformance, corrective and preventive action.

Monitoring and measurement When the organisation has implemented their plan it should do a check up to see if it has succeeded in meeting its objectives and targets. This can be done through continuous monitoring and thereafter the information should be kept in documents. The organisation should also establish and maintain a documented procedure to be able to follow up relevant environmental laws and regulations. (Ibid)

Non-conformance, corrective and preventive action Procedures to maintain and establish who is responsible should be done by the organisation. The corrective action is used if any of the processes that are checked was found not to have been successful.

Records The organisation must establish and maintain procedures for the identification, maintenance and disposal of its environmental records.

Environmental management system audit The main objective of doing audits is to try to see if the EMS conforms to the requirements of ISO 14001, or not. The audit programme and procedures should cover areas like:

- ❖ activities and areas to be considered in audits,
- ❖ frequency of audits,

- ❖ responsibilities associated with managing and conducting audits,
- ❖ communication of audit results,
- ❖ auditor competence and
- ❖ how audits will be conducted.

4.1.5 Management review

The management in an organisation should periodically review the EMS to guarantee that it continues to meet the needs of the organization. The review should take up the possible changeable points in the organisation's policy, objectives and other elements of the EMS in light of the audit result. With the objective of achieving environmental certification of ISO 14001, it is necessary to identify a set of indicators that will be used to monitor environmental performance over time of the system under consideration.

The main purpose of ISO 14001 is to define the requirements for the EMS and provides guidance for its implementation. The ISO 14001 standard consists of a five-step system model based on the methodology of plan–do–check–act (PDCA) which aims to direct the organisation toward continuous environmental improvement (Tibor & Feldman, 1997, 25-26). Organisations that aim to conform to ISO certification will have to implement an EMS that includes the following core elements as explained in Figure 3.

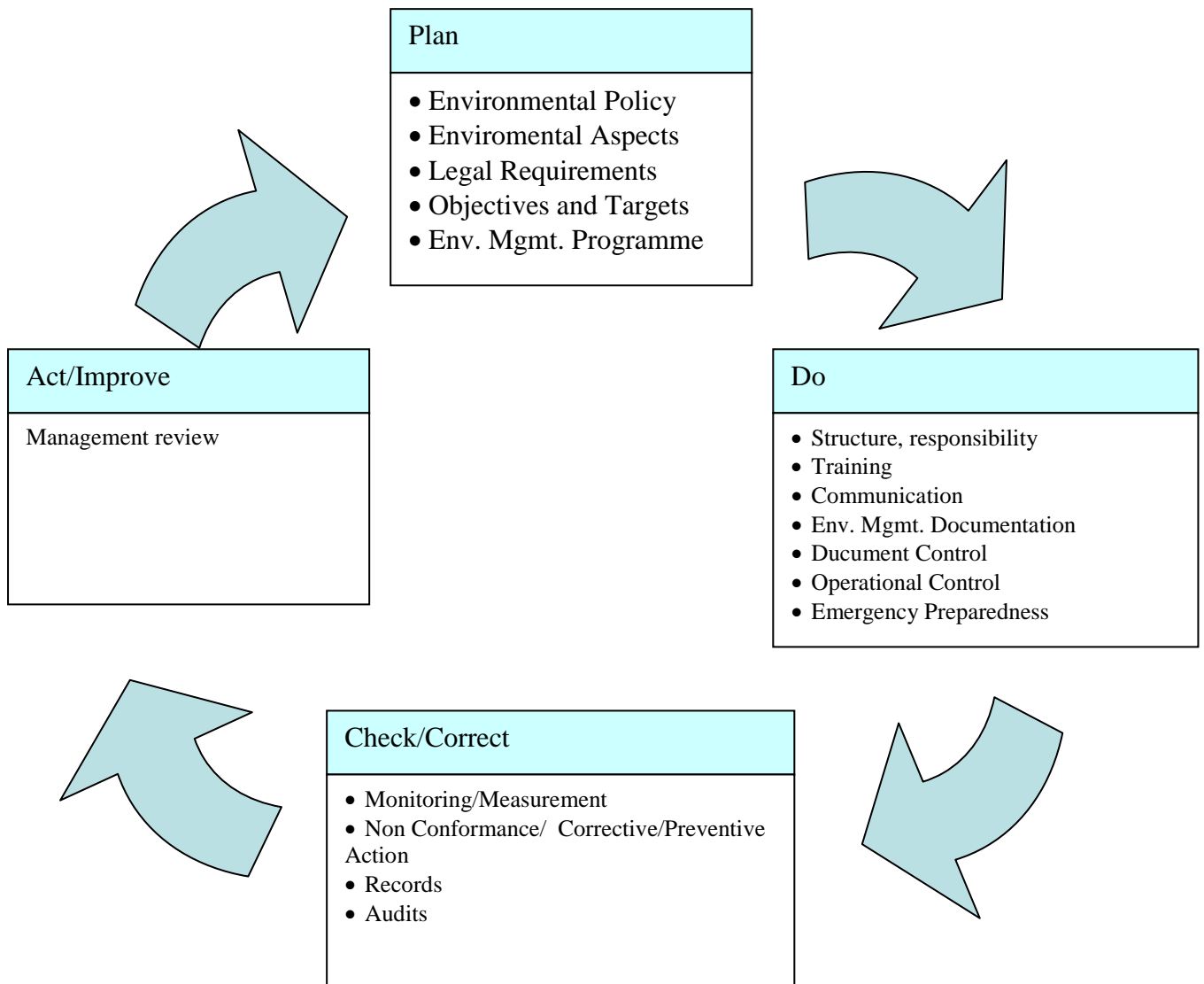


Figure 3. Elements of ISO 14001 at each step of the Deming's Quality Management model. It shows the considerable time effort, requiring commitment and management skills (Weib & Bent, 2006, 24).

Quality means that customer specifications are satisfied by a product or service (Weib & Bentlage, 2006, 24). A method used, in quality context, for analysis and improvement in processes, the so-called PDCA-cycle as method of evaluating sustainable development (Figure 3). This method focus on four concepts: Plan, Do, Check and Act. *Plan*, means choosing one process that need to be improved, decide the objectives for what the process should achieve and work out a plan for how the improvements should be done. *Do*, is when the improvements are being done. *Check*, signify the evaluation of result of the improvements. *Act*, means make measures of the experiences of the improvement (Blomqvist *et al.* 1996.151). One good thing working with PDCA-cycle is that it contains factors that can be realized in a certain order. This gives the process a structure, and makes it easier for all parties in the company to understand the meaning.

Constant improvements are vital in all kinds of development processes (Burström, 2002, 314). The competitions between companies are frequently increasing and the customers demand becomes higher and higher. In the same time there are internal forces, as the employees need development and motivation in their work. Therefore, the work with improvement needs to be a continuous process and has to include all the activities in the company.

For any given organization, setting the objectives and targets, as well as a time frame and monitoring method for the targets and objectives is a crucial matter to translate its policy into action. In this respect, however, organisation should be able to consider significant environmental aspects, such as the views of interested parties according to their technological, financial and operational options (Weib & Bentlage, 2006, 50). Accordingly, it is most interesting for my research to understand to what extent the environmental objective are established, and how much are employees in preschools are dedicated to these objectives and targets.

4.2 Driving forces for implementing an EMS

Driving forces for implementing an environmental management system are divided into four areas (Almgren, 1998). Gains from systematization and structure of the environmental work refer to the suggestion that the environmental performance of the company will improve if the environmental work is more structured and the responsibility is more distributed among the employees (*Ibid.*, p37).

Customer requirements and competitive advantages are related to the fact that customers often require products from companies that can show they are proactive in their environmental work (*Ibid.*). The customers are then pushing the company to implement an environmental management system.

Environmental concern has to do with the company implementing the environmental management system in order to reduce its environmental impact as a way of taking its social responsibility. An additional factor in considering implementation of an EMS is that of costs. In a short-term perspective the implementation of an environmental management system can be negative for the economy of the company since the implementation cost money.

4.3 Benefits of an EMS

Some of the numerous benefits of an EMS are improving the employee's awareness of environmental issues and responsibilities, increased efficiency, reduced cost, prevention of pollution, enhanced image with stakeholders and improved environmental performance. The most important factors are: organisation mandate, customer expectations and environmental benefits (Sroufe & Sarkis, 2007). Benefits associated with ISO14001 certification are perceived as improved performance, increased motivation, commitment and communication with employees; and improved environmental performance and competitive advantage (Lopez, 2006, 6).

4.4 Problems with an EMS

In the following section the most common problems with an EMS in general and ISO 14001 in particular are presented. These are costs of implementation, documentation and low environmental performance level.

4.4.1 Costs of implementation

The high costs of ISO 14001 implementation constitutes one of the major problems. In fact, both the scale and nature of an organization's environmental impact play an important role in the increasing costs of implementation (Weib & Bent, 2006, 21). There are well distinct internal and external costs that are caused by implementing the EMS. For most organizations, the internal labour cost, for managers and other employees are the greatest cost. The external costs occur during the process of implementation, and possibly also on further external follow-up of the improvement process after certification (*Ibid.*). External costs include, outside staff training, consultant fees, certification costs, internal manpower costs and investment costs for improving environmental performance (*Ibid.*).

Despite the mentioned cost problems, the implementation of ISO 14001 results in more benefits than costs. That is why the potential costs of implementation need to be evaluated before commencing the EMS. This will be further investigated during the interview process of this work

4.4.2 Documentation

The high demand on documentation is a major problem that faces the implementation of ISO 14001. The risk is that organisations may allocate most of their resources on documentation, instead of achieving the environmental objectives and developing the environmental performance (Nordström, 1997). Further more there might also be a risk that documentation could be time consuming for most employees. Nevertheless, documentation is an important process for successful implementation and all efforts should be made to minimize the risks that could arise from this process.

4.4.3 Low environmental performance level

Most of the environmental management systems have focused on systematic work towards complying with laws and regulations and prevention of pollution, but not improving the level for its performance (ISO 14001: 1996). Thus implementation of EMS does not lead to improvement efficacy and reduction of the environmental impact (Tibor & Feldman, 1997, 20). Moreover, the organizations usually set their own environmental objectives and accordingly the performance differs between them due to flexibility of the standards (*Ibid.*). This will lead to loss of confidence among stakeholders when they realize that the organization has a low performance level when acting in an environmental perspective.

5 Empirical background

In this chapter, implementation of an EMS at preschools is presented followed by an introduction about organizations and institutions related to ISO 14001 in Sweden. Finally there will be a brief introduction about specific area of study which includes the selected preschools at Uppsala.

5.1 Implementation of an EMS at preschools in Sweden

The Green Flag is an environment certification and is an evidence on that one works daily with a document aimed environmental work along with the children. In a previous study about the implementation of Green Flag certification (Olsson, 2008), the aim was to get a deeper knowledge about the preschool's views of environmental work and examine how the preschool teachers along with the children work with the project Green Flag. They found that each year they work with different themes within Green Flag. They have among other thing worked with water, the forest, the cycle in nature and now they work with lifestyle and health. Each week they also have different types of duties that will be done. They throw debris to the compost; the soil from the compost is then used in order to cultivate vegetables and flowers. They do waste sorting, for example papers, plastics and glass and then they go and throw everything at the recycling station. They often go to the forest, and are outdoors much every day. To achieve the goals for Green Flag, it is required that all personnel in the preschool are equally involved in the work.

On the other hand, a study by Elmegren, 2004 has shown that only about 15% of preschools in Sweden have been involved in Green Flag environmental work. Uppsala Manucipality was one of these but had the lowest percentage of certification, see table 2. However, this does not represent the whole country, since only four of the country's municipalities are examined (Elmegren, 2004).

Table 2: Percentage of Green Flag certified preschools in some municipalities in Sweden during the year 2004 (Elmegren. 2004, 19).

Municipality	Number of preschools in the municipality	Certified pre-schools in the Green Flag	Notified but not yet certified	Percentage of certified preschools in the Green Flag
Gotland	45	15	6	47 %
Kristianstad	47	16	3	40 %
Umeå	68	7	-	10 %
Uppsala	190	6	1	4 %

This table shows that Uppsala had the lowest percentage of Green Flag certification in the year 2004.

5.2 Introduction about organizations related to ISO 14001

5.2.1 The Swedish Environmental Protection Agency (EPA)

The Swedish EPA, created in 1967 and funded by the central government, is the national agency for environmental protection and nature conservation as well as outdoor recreation and hunting issues. It follows the ISO 14001 environmental management standard and EMAS for both direct and indirect environmental impact. The main challenges of the Swedish EPA are to present proposals for environmental policy and legislation to the Swedish Government and ensure that environmental policy decisions are implemented. It supplies expert knowledge and proposals to central government in its national, EU and international work on environmental issues. Nationally EPA provides standard guidance and acts as a coordinator and evaluator (www, Naturvårdsverket, 2010 .1). The areas of responsibility of the Swedish EPA, among many others, are the following:

- providing guidance on environmental and regulatory issues to other national agencies as well as to regional and local authorities,
- evaluating the effectiveness of different measures in attaining the national environmental quality objectives and proposing new measures where necessary,
- monitoring and reporting on the state of the environment,
- developing environmental policy instruments including environmental legislation and
- promoting sustainable treatment of waste and promoting outdoor recreation (*Ibid.*).

5.2.2 Green Flag

The Green Flag is an environmental certificate of school and pre-school. It is the Swedish part of Eco-School lead by the Foundation of Environmental Education (FEE). In Sweden the foundation is called “Keep Sweden clean” (www, Grön Flagg, 2010, 2). The Green flag’s goals are to structure the school or preschools environmental work and create awareness for the rising issue (Lernevall *et al.* 1998).

To apply for the Green Flag, the school or preschool must document and report reached goals which they will, whereby, be able to choose in a certain theme of environmental process. It is then the foundation, Keep Sweden clean, who will evaluate and determine upon Green Flag certification. To maintain continuous certification of the Green Flag, this certain school or preschool must then approach five goals and update them every year (*Ibid.*).

In order to be eligible for environmental certification, five steps should be fulfilled (Lernevall *et al.*, 1998), which are:

1. An action plan for environmental activities should be established and consists of at least three parts;
 - a. a decision about the theme and implementation process.
 - b. a plan on how the environmental perspective affects the business prospects.
 - c. at least five goals.

2. A democratic debate should be based on environmental work. Children, youth, staff, parents and responsible politicians should take decision on an activity that could aim at environmental Green Flag certification.

3. An environmental council is established where all stakeholders should be represented, and where the children should have a significant role, according to their ages.

Children of the preschool should be represented by their parents.

4. Choice of theme and how this should be carried out. Choicable themes are;

- ❖ Circulation
- ❖ Water
- ❖ Energy
- ❖ Forest
- ❖ Lifestyle and health

5. A plan will be established for how the environment affects the business prospects. At least five goals to be established and should be well recognized by the children and the staff. The objectives should be concrete and capable of evaluation.

After the preschool has implemented the above-mentioned conditions they send in an application to the Keep Sweden Tidy (Lernevall et al. 1998). It should be signed by the preschool manager and the environmental council. To mark the project's democratic and outward-looking character it should also be signed by an elected councilor. Thereafter the preschool can start their work according to the established plan.

The school or preschool should at least work under half a year towards their goals (*ibid*). Then a report, containing a summary description of the environmental work related to preschool selected targets and documentation of work, should be submitted to the Keep Sweden Tidy. It has to be signed by the environmental council and preschool manager. After approval the Green Flag certification is obtained as a solid evidence of accomplished environmental certification.

After achieving certain goals, new goals are sett up and the process re-starts. Preschool may choose to revise their old goals or start with a new theme. A re-application for continued environmental work should be sent, maximum half a year after certification, to the Keep Sweden Tidy (www, HSR,2010). However, there is no proper control of any certifying organization, but it is up to the preschool to regularly submit a prepared environmental report.

Pre-schools have an obligation to follow the curriculum and its demands for an activity that includes nature and environmental issues, but they can make their choice of how this should be implemented and at which level of environmental work.

To summerize the steps for the Green Flag certification are as follows (www, Grön Flag, 2010, 3).

- ❖ Send in an application to Green Flag,
- ❖ sett environmental goals,
- ❖ choose a theme,
- ❖ write an action plan,
- ❖ work towards their goals,

- ❖ documenting continually on their account,
- ❖ submit the report for review and
- ❖ get approval.

5.2.3 Eco-Schools

Eco-Schools is a programme for environmental management and certification, designed to implement sustainable development education in schools by encouraging children and youth to take an active role in how their school can be run for the benefit of the environment.

The Eco-Schools Programme employs a holistic, participatory approach, combining learning and action, thus providing an effective method for improving the environments of schools and producing actual awareness raising and behavioural change in young people, school staff, families, local authorities, and so on, having significant repercussions in the local communities (www, Eco Schools, 2010 , 1). Eco-Schools are a program for schools and pre-schools that aims to raise students' awareness of sustainable environmental development issues. It is a system for environmental management in schools, based on an ISO14001/EMAS approach. The program started in Europe in the early 1990s and was introduced in Sweden in 1996, coordinated by the Keep Sweden Tidy Foundation. In Sweden the program is called "Grön Flagg" (Green Flag) and today there are about 1 900 units in the Swedish network (www, HSR, 2010).

One of many organizations is the Foundation for Environmental Education (FEE). It is a non-governmental and non-profit organization aiming to promote sustainable development through a formal environmental education with school education, training of staff and general awareness throughout the pre-schools. The Foundation for Environmental Education in Europe (FEE) was established in 1981. FEE is mainly active through five environmental education programmes. Blue Flag and Eco-Schools (www, Eco Schools, 2010, 2).

5.3 Introduction about the three empirical case studies

This section presents an introduction about the three selected preschools Uppsala municipality.

5.3.1 Uppsala municipality

The city of Uppsala is the fourth largest municipality in Sweden, perhaps best known for its 15th century university. The population is around 190.000 inhabitants (www, Uppsala kommun, 2010, 1). Uppsala offers a comprehensive syllabus from pre-school to university level. The faculties of Uppsala University carry out intensive research in areas of great interest to the entire region, giving Uppsala its unique educational qualities.

Early as the ages of 1-5 years old, young children are put in to pre-schools. These pre-schools help the children to expand their way of daily life bases; thinking, communicating and learning. They get to meet other children from all across the globe with different types of cultures, which is very important. They also have access to good nutritious and healthy food. The preschool time is usually spent on playing and group thinking. Every preschool must also have a national curriculum. In the curriculum they often focus on the development of learning, norms and values, goals and guidelines etc (www, Uppsala

Kommun, 2010, 2). Language development, science, technology, mathematics, equality, health and lifestyle are some of the subjects they usually have in pre schools (www, Uppsala Kommun, 2010, 3). Most of the preschools in Uppsala have environmental goals and targets, children must have respect for nature and all living creatures and understand the cycle, and that everyone can contribute. Environmental attorneys are available at all preschools.

5.3.2 Höganäs preschool

Höganäs Preschool is a communal preschool. It recruits highly educated pedagogues and preschool teachers. In the preschool, they work with the children on language developments, which mean that they use challenging and varied words to widen their vocabulary. Playing is also a very important activity in Höganäs. It allows the children to think for themselves and stimulate their language, imagination and creativity (www, Uppsala Kommun, 2010, 4). Höganäs preschool is divided into five different sections, Katthul red and blue, Villa villekulla, Junibacken, Bullerbyn and Mattisborgen. Every section enrolls children from 1 year old up to 4 years old. Höganäs is certified by The Green Flag from the foundation “keep Swedish tidy”. The children and pedagogues have also won an award from the foundation for their environment- and efficient recycling work.

5.3.3 Löten preschool

The preschool facility division consists of two named preschools, Löten’s and Von Bahr’s preschool. Löten’s preschool is located at Heidenstam’s square in north east of Uppsala. The preschool has six departments and a total of 90 children at the ages between one and three. Each department has its own yard and toys (www, Uppsala Kommun, 2010, 5). The preschool’s have a profound concentration in nature, environment, and techniques in a multicultural environment with mathematics as their national mission. Löten’s preschool also concentrates on the development and usage of language, leading the children into a pro-developing direction.

The environment is essential and Löten’s preschool needs to complete a mission not only to achieve the green flag but also to achieve satisfaction within themselves by contributing thoughts and actions in sustainable development. Equipped with fine state of the art environmental stations where composting and circulation occurs the children receive a chance to acknowledge the importance of the environment.

Green flag has supplied Löten’s preschool with a series of demand and measures that must be completed to receive the desired Green flag. Their goals which updated August 2009 include the following (*Ibid.*):

Goal 1. *Start compost*

The preschool buys a composting section. During daily collection of fruit-waste together with the children, the children receive a chance to be enlightened about the process of composting.

Goal 2. *Assortment of sources*

The preschool integrates deposits of different objects for the assortment of sources. Together with the children they collect cardboards, plastic and metal objects and put them in their respective deposit. Once a week they gather all the children and they head to the recycling station and empty the deposits.

Goal 3. *Educating the staff about sustainable development*

Increase awareness among educators through lectures and field trips to waste Hovgården.

Goal 4. *Changing the approach to how we see our assets*

Reduce overconsumption of food by only ordering an average proportion per person. Together with the children they discuss the importance of not throwing away food.

Goal 5. *Importance of animals*

The children are more involved and aware of the importance of animals. They include creating worm compost with the children, so that the children can see what happens to the waste fruit and leaves and how it breaks down and becomes soil.

5.3.4 Ringmuren preschool

Ringmuren's preschool is located in Sävja approximately nine kilometres south of Uppsala. The preschool has five relatively good facilities in neat premises in Stordammen's elementary school (www, Uppsala Kommun, 2010, 6). The preschool includes children from the ages of one to five. Because Sävja is a multicultural location, Ringmurens preschool is active and inserts a lot of effort in developing the language skills of the children. The preschool follow a certain criteria, where it says that the children should learn about a pro-democratic society, to be able to interact and integrate in this society. Ringmurens preschool has been working on the achievement of the green Flagg since the spring of 2008.

During spring of 2008, their given theme was the forest and as a result of the work dedicated to the environment Ringmurens preschool became certified Green Flag (Ibid). For the spring of 2009, Ringmurens chose lifestyle and health as their main theme. After they worked with their goals, the preschool has become qualified to retain their certification and continued on to their next theme, water resources which were set on the fall of 2010.

Here are their current goals for qualification and to maintain their certification:

- ❖ First goal. To reduce supply of water.
- ❖ Second goal. Alter children perspective on the characteristics of water and its importance.
- ❖ Third goal. That the children find possibilities to express their thoughts about water.
- ❖ Fourth goal. That we find out what lives in water and how they live there.
- ❖ Fifth goal. Increase the children's knowledge about the importance of water in relation to human health.

6 Empirical case studies

These were collected from the interviews with the environmental representative in Uppsala municipality and representative at Höganäs, Lötens and Ringmuren preschools. The study results were presented in accordance with empirics in relation to the theoretical model (Figure 3).

6.1 Höganäs preschool

The first step “Plan” of the theoretical model, Figure 3, means choosing one process that need to be improved, decide the objectives for what the process should achieve and work out a plan for how the improvements should be done (Blomqvist & Haeger, 1996).

Concerning the objectives and targets of Höganäs preschool, it is clear that they have sett their objectives and targets to reducing the preschool environmental impact. They do annual review of their environmental work, which is usually conducted by the environment officer and the head of preschool. Every year they have a new goal and an action plan. These include management plan, energy action plan and agency plan.

Höganäs also follows the general environmental policy which is sett for the municipality of Uppsala. This policy aims at achieving sustainable environmental development. On the other hand, one of their environmental aspects is that they want to start cleaning their environment step by step. They think more about the environment, recycle more and the children have learned environmental thought.

Finally, Höganäs preschool used to deliver out their annual environmental activities report to be certified by the Green Flag. The preschool was certified according to Green Flag 2009.

The second step “Do” of the theoretical model, Figure 3, come when the improvements are being done. When the organisation has decided what their plan is, it should come up with the important elements that would assist in making successful implementation and operation possible. As indicated in the figure these elements are structure and responsibility, training, awareness and competence, communication, EMS documentation, document control, operation control and, emergency preparedness (Weib & Bent, 2006, 24).

Accordingly, Höganäs has managed, in order to have a good structure and a high level of responsibility, to choose its environmental representatives from the staff those who are very active and interested in the work. This process is usually done during the staff meeting of the preschool. Moreover, the staff of Höganäs works in a group-work with the children, they plan the work and decides its objective and then goes for it with the children.

The preschool of Höganäs has been so enthusiastic in the implementation of the environmental management programme. The environmental representative has attended training courses and lectures conducted by the Green Flag that helps in working with sustainable development. Besides, the staff of Höganäs has visited the preschool of

Ekuddens, which is a preschool that work with sustainable development, in order to get more trained.

From the interview responses it becomes very clear that Höganäs has received a good feedback for their environmental work. They manage to have good contact with parents and also the press. Parents think that it's good to get certified and Uppsala Nya Tidning has made an interview with the environmental representative at the preschool, which is appearing in the issue of 100505/06.

The third step in the model is to check and correct what has been done during the process of implementing the environmental programme (Welford, 1999). In this respect, Höganäs has succeeded to follow up and monitor what has been done during the implementation of their programme, to grantee that they achieve their goals. This is usually done by proper registration and documentation of the daily environmental work in order to further deportation when they apply for certification. Concerning the audit procedures, Höganäs has conducted only one internal audit, since they have just been certified last year, 2009.

The fourth and final step in the theoretical model, which is act/improve, indicates a management review of the EMS by an organisation to grantee that it continues to meet the needs of the organisation. This review should, as indicated earlier, take up the possible changeable points in the organisation's policy, objectives and other elements of the EMS in light of the audit result. With the objective of achieving environmental certification of ISO14001, it is necessary to identify a set of indicators that will be used to monitor environmental performance over time of the system under consideration.

Accordingly, Höganäs has always been seriously involved in sustainable development of its environmental work by establishing new plans annually. Thus, they were being able to improve the process of implementing the environmental work according to the provided guidelines of the Green Flagg, and they are very optimistic that their preschool will have a very functioning system towards sustainable environmental development in the coming 10 years. They also hope that the children and their parents will be very much involved in this work.

6.2 Löten preschool

In order not to repeat the explanations of the different steps of the theoretical model as illustrated above, here the analysis of the responses from Löten is presented directly.

According to the first step of the theoretical model, Plan, Löten has a general environmental policy of sustainable development according to the policy which is sett for the municipality of Uppsala. In their environmental aspects, they follow the municipal requirements for environmental targets. They have a multicultural profile for nature, environment and technology which indicates their municipal commitment and is evaluated in relation to quality records. The objectives and targets of Löten are clearly set. They have five goals, which are construction of compost stations, waste sorting, staff training, conserving resources and understanding of nature and animals.

Löten preschool strives to deliver out their annual environmental report to be certified by the Green Flag. The preschool was certified according to Green Flag 2009.

According to the second step, Do, of the theoretical model, the Director of Lötens chooses the environmental representatives from those who nominate themselves. Lötens has established a sustainable development group (Hug) who meets two times every other month to discuss the objectives of their environmental programme and the ongoing work. This group discusses the steps of the programme and the outcome is distributed to all the staff for further discussion and setting up proposals that could help in the implementation of the programme and the training of their staff.

According to the third step, Check/correct, of the theoretical model, Lötens preschool follows a similar monitoring system as in the case of Höganäs. In order to achieve their goals, they do continuous follow up and correction of their implementation procedures. They maintain an efficient document registration for late reporting and applying for certification of the Green Flag. Concerning the audit of their environmental work, Lötens has on-going auditing, mostly internal before they seek certification every year, last certified 2009.

On analysing the responses from Lötens preschool according to step four, Act/improve, of the theoretical model, it becomes obvious that Lötens has been very motivated after certification for improving their EMS. They aim at seeing all the staff, the children and their parents having a deep understanding of environmental and sustainable development, not only at work but also in their private lives.

6.3 Ringmuren preschool

According to the theoretical model (Figure 3). Ringmuren has general environmental policy which is set for the municipality of Uppsala. In their environmental aspects, they sow the seeds of environmental awareness among the children which stays all their lives and that may also have its impact on their parents.

The objectives and targets of Ringmuren are clearly set. They follow the five Green Flag environmental themes. They have already worked with the forest, lifestyle & health and water. Remaining is recycling and energy. Their goals are shared and agreed upon by the whole staff. Children learn to take care of the plants and animals, learn to conserve clean water, learn about what lives in water. Children also learn to eat right and the importance of exercise, learn songs and stories about animals and plants learn about vegetables utility, appearance and growth habits, etc. The children learn everything about the subject water, such as density, learn that energy costs and how to conserve it, learn sorting and not to throw on the ground.

Ringmuren chooses its environmental representative voluntarily from those who are interested, as well as environmental responsibility is a part of their administrative duty. They follow a similar monitoring system as in the case of Höganäs and Lötens. In order to achieve their goals, they do continuous follow up and correction of their implementation procedures. They maintain an efficient document registration for late reporting and applying for certification of the Green Flag. Ringmuren became certified in June 2008.

In 10 years time, Ringmuren is probably even more environmentally-oriented. They can show up the diploma on their website. It is like a bonus for them. It shows that they care

about the environment. They do not get anything out of it economically, however, the children learn a lot.

7 Analysis

This chapter presents an abbreviated comparative analysis of the empirical data obtained during the interviews with environmental representative in the three selected preschools, Högånas, lötens and Ringmuren. As can be seen in Table 3, which is based on the theoretical model and responses of the interviewees, all the preschools have followed the general environmental policy which is sett for the municipality of Uppsala. Although they have adopted different procedure during some the steps of EMS implementation, they have common environmental objective and targets.

7.1 Comparative analysis of the empirical findings

This is illustrated in Table 3 which shows some differences and similarities between the three study preschools concerning the implementation of EMS.

Table 3. Comparative analysis of the environmental data obtained from the three preschools

	Höganäs preschool	Lötens preschool	Ringmuren preschool
P L A N	<p>Follows the general environmental policy which is sett for the municipality of Uppsala.</p> <p>Follows the five Green Flag environmental themes.</p> <p>New goal and action plan every year.</p> <p>Improving the environmental awareness among the children.</p>	<p>Follows the general environmental policy which is sett for the municipality of Uppsala.</p> <p>Follows the five Green Flag environmental themes.</p> <p>Developed a multicultural profile for nature, environment and technology.</p>	<p>Follows the general environmental policy which is sett for the municipality of Uppsala.</p> <p>Follows the five Green Flag environmental themes.</p> <p>Improving the environmental awareness among the children and their parents.</p>
D O	<p>Selection of environmental representative during the staff meeting from those who are very active and interested in the work.</p> <p>Group-working with the children, they plan the work and decide its objective and then go for it with the children.</p> <p>Attended training courses and lectures conducted by the Green Flagg that helps in working with sustainable development.</p> <p>Manage to have good contact with parents and also the press.</p>	<p>Selection of environmental representatives from those who nominate themselves.</p> <p>Established a sustainable development group (Hug) to discuss the objectives of their programme.</p> <p>Sett up proposals that could help in the implementation of the programme and the training of their staff.</p>	<p>Selection of environmental representative voluntarily from those who are interested, as well as environmental responsibility is a part of their administrative duty.</p> <p>Already worked with the forest, healthy lifestyle and water.</p>
C H E C K	<p>Follows up and monitoring of what has been done by proper registration and documentation of the daily environmental work.</p> <p>They conducted one internal audit.</p>	<p>Follows a similar monitoring system as in Höganäs.</p> <p>Has on-going auditing, mostly internal.</p>	<p>Follows a similar monitoring system as Höganäs and Lötens.</p>
A C T	<p>Good progress in improving environmental work according to Green Flagg disciplines.</p> <p>Establish a very functioning system towards sustainable environmental development in the coming 10 years.</p> <p>Substantial involvement of children and their parents in the environmental work.</p>	<p>More motivated after certification for improving their EMS implementation.</p> <p>The staff, the children and their parents are expected to having deep understanding of the environment not only at work but also in their private lives.</p>	<p>In 10 years time, Ringmuren is probably even more environmentally-oriented.</p> <p>The children are expected to learn a lot about the environment.</p>

7.2 Benefits of an EMS

A great benefit of the system has been the cost reduction. All preschools agree that the food is more expensive. Lötens wastes less food and does not waste paper material. Höganäs try to purchase requirements cultivated as far as it goes. Another appreciable benefit is that the employee's awareness of environmental issues and responsibilities is very much improved. In Höganäs, for example, the teachers work in a group working together with the children in the implementation of the environmental work. The impact of

environmental certification on preschools is more obvious. Höganäs thinks more about the environment, recycle more and the children have learned environmental thought. Lötens said it gives them tools to work project-oriented and focuses on a few goals at a time. Ringmuren representative mentioned that there have been changes in the cost after the implementation from an environmental aspect; she added it has become better. Nobody can do everything but every one can do something.

Moreover, during a personal contact with the communications manager at the foundation of “Keep Sweden Tidy” it becomes know that the number of certified preschools in Uppsala is 19 preschools in 2010 (pers.se. Carlsson, 2010). It is obvious that following an EMS ambitiously has significantly contributed to improved certification, since the number was only seven in 2004 (Elmegren, 2004, 19). This is illustrated in Table 4.

Table 4. Number and percentage of Green Flag certified preschools in the years 2004 and 2010 in Uppsala Municipality

Year	Number of pre school in Uppsala	Certified pre-schools in the Green Flag	Percentage of preschool in the Green Flag, as a percentage
2004	190	7	4 %
2010	190	19	10 %

The table shows clear improvement in the implementation of EMS over sex years. The percentage has increased by 6% between 2004 and 2010.

7.3 Problems with ISO 14001

The high costs of ISO 14001 implementation constitutes one of the major problems. In fact, both the scale and nature of an organization’s environmental impact play an important role in the increasing costs of implementation (Weib & Bent. 2006, 21). External costs include staff training as mentioned earlier. Despite the mentioned cost problems, the implementation of ISO 14001 results in more benefits than costs. That is why the potential costs of implementation need to be evaluated before commencing the EMS. Some people take their environmental working duties more seriously than others who leave such tasks behind those with other priorities. One preschool says that the children are interested but the parents' interest is mostly small, in general to comply with their environmental duties, but how involved they are depends on their background, culture and education.

The high demand on documentation is a major problem that faces the implementation of ISO 14001. The risk is that organisations may allocate most of their resources on documentation, instead of achieving the environmental objectives and developing the environmental performance (Nordström, 1997). Further more there might also be a risk that documentation could be time consuming for most employees. One of the preschool mentioned there is an additional burden for the educators. Nevertheless, documentation is an important process for successful implementation and all efforts should be made to minimize the risks that could arise from this process.

8 Discussion

Sweden puts a great emphasis on preschools as a concrete base for sustainable environmental development in the country. In order to have a clean land and healthy atmosphere, it is very crucial that the coming generations should have the knowledge and the know-how to acquire positive behaviours towards the environment.

This study shows how much the preschools in Uppsala are dedicated to the environmental issues, what challenges and opportunities that are perceived and what problems that could have emerged as difficulties in implementing an EMS. All the three preschools enrolled in the study have their EMS which follows the principles of the Green Flag. It is worth noting here that the staff of these preschool did not know about the ISO 14001, and that Green Flag is a part of it. Nevertheless, this has not seriously affected their environmental work.

8.1 Systematisation and structure of the environmental work

This study shows that all the three preschools have systematised and structured their environmental programme in accord with the requirements of the Green Flag. Their environmental performance is based on choosing the suitable person to represent the programme and on distributing the responsibilities to all the staff. This behavioural approach represented a driving force for the implementation of EMS and is usually associated with improved environment. Moreover, one of their strategic developments is that the children of these preschools have an important contributory roll in environmental improvement. Together with the staff they go out for the garbage sorting and disposal and the recycling procedures. In similar context, Malborg (2004) in her study in Uruguay has mentioned that systematisation and structure of their environmental programme is appreciated more of a benefit as a consequence of the certification rather than a driving force. However, Malborg's study was conducted in a developing country where goals adopting an EMS might differ from that in industrialised countries.

8.2 Environmental concern

The environmental concern as driving forces seems to have played an important roll in the environmental behaviour in the selected preschools. Every preschool has been enthusiastic in implementing EMS programmes by developing action plans that aim at reducing the negative impact on the environment and at maintaining sustainable environmental development. These findings are supported by the study of Schylander and Martinuzzi, 2007 in Austria, which showed that ISO 14001 often leads to reduced environmental impact and a strong driving forces behind the implementation is expected to improve an organisation's image towards EMS.

8.3 Environmental training programme

As EMS certification requires strong employee participation and environmental training programs, all of the study preschools have adopted training programmes of their employees in order to encourage increased awareness of the environment and participation in implementing the EMS. In previous studies, it has been emphasised that many firms report increased employee awareness of the environmental aspects of their jobs and of their responsibilities for reducing negative impacts (David, 2002, p 170). Similarly, result of studies at the university of Gävle indicate that similar methods of EMS training and communication have increased awareness of environmental issues (Sammalisto & Brorson, 2008, 301).

8.4 Cost of implementation

The implementation of EMS possesses high cost on organisations, and lowering the cost can be seen as a driving force for the implementation. However, benefit from reducing the cost can only be perceived after a long-term environmental action. This emphasises the fact that implementing an EMS is a cost-effective measure. In most of the case studies, the preschools do have complaints due to high costs. Nevertheless, there is a deep content that these costs will be paid off in the long run, through less food waste, less paper material waste and more recycling. On the other hand, implementing EMS has led to increased number of certified preschools in Uppsala from 7 preschools in 2004 to 19 preschools in 2010 (pers.com. Carlsson, 2010).

As all the chosen study preschools have adopted the Green Flag, which follows the disciplines of the ISO 14001 but from a children perspective. The most important reason for the preschools in this case study to implement an EMS is to educate the coming generations about environmental issues in order to maintain sustainable clean and healthy environment as well as a green image of the preschool. In this respect, it is worth noting that the children are becoming more aware about the environment and increasingly involved in the implementation of EMS. In the case of Ringmurens, for example, the children have learnt how to conserve clean water, reduce energy expenditure and how important is greening for the environment.

Of course Uppsala Municipality plays a leading guidance roll in the implementation of EMS. They provide supervision, practical advice and support to all public preschools in Uppsala.

9 Conclusions

The purpose of this study was to investigate the perceived challenges and opportunities in an environmental work process for a public organization. It refers to describe how the environmental objective could be achieved at preschools and identify the outcome of implementing the ISO 14001 orientated Green Flag. The achievement of this goal is concluded under the following environmental objectives, perceived challenges and opportunities and expected results of implementing ISO 14001 (Green Flag) in preschool.

9.1 Environmental objectives

The municipality of Uppsala has set up a general environmental policy guided by the disciplines of the Green Flag. It is up to every preschool to decide how to set up their goals. In most preschools, this decision is made after extensive discussion between the staff members to decide upon their proceed priorities and need of implementing the EMS.

9.2 Perceived challenges and opportunities

This study shows that environmental certification is the great challenge for all the preschools studied. Great environmental concern and lowering the cost of implementing are perceived as the most driving force by these preschools to pursue environmental certification. However, during discussion with the environmental representatives at Uppsala municipality, it is speculated that lack of motivation and low appreciation of the environmental challenges, all could have affected the process of certification negatively in some of the preschools.

9.3 Expected results of implementing ISO 14001 (Green Flag) in preschool

All of the chosen study preschools are very optimistic to achieve the following:

- Preschools have a fully developed environmental orientation towards environmental issue and sustainable development
- Increased environmental awareness among the children and their parents.
- Improve environmental behaviour of the staff and children both at the preschool and in their private life.
- Environmental thinking would be natural and self derived and not as an obligation.
- All preschools at the municipality of Uppsala are certified Green Flag.
- The results of this study emphasize the importance of the environmental issues for the society in general and for the children in particular.
- The study results indicted that the society would be able to maintain sustainable environmental development and solve the major problems of the environment in Sweden.
- The children are becoming well oriented and responsible for their environment. This will substantially contribute to provide the future generations with clean air, healthy environment and rich opportunities to enjoy nature.

- Lack of motivation and disinterest have turned to be important constraints for environmental certification in some of the preschools in Uppsala.

Based on the results of this study, certification constitutes an important ground for differentiation. This will allow more motivation towards certification and maintaining constant improvement of environmental development in the preschools in Uppsala. Further research is needed and should focus on how EMSs can be flexible so they deal more effectively with environmental issues. Furthermore, the Green Flag should therefore concentrate its efforts on preschools in order to increase the number of environmental certifications.

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Appendix. Interview guide

1. Are there any reasons that might have motivated you in your environmental work?
2. What have you achieved so far concerning the following? Do you have the achievement in writing?
 - A Environmental objectives
 - B Environmental policy
 - C Environmental aspects
 - D Environmental reports
3. How do you set your goals / objectives?
4. What are your environmental goals? What do you want to attain?
5. How did you proceed in the certification work?

Regarding your certification

- A Did you start the work preparing for a certification?
 - B In which year did get certified?
 - C How many audits have you had (internal and external)?
6. How does your organisation choose its environmental representative?

Is the work rewarded in any way?

7. Have there been any changes in the costs after the implementation?
8. Do you think it would be easier for you to work with environmental issues, if there is a financial support for doing it?
9. Write short project with the Green Flag has been working?
10. What impact have environmental certification given?
11. Positive or negative views about environmental certification?
12. Have some reactions revealed by your certification? (By children / parents / environment)
13. Would ISO 14001 (Green Flag) certification development?
14. Where are you heading in a time perspective of ten years?