

Environmental Management Systems in a Global Construction Company - Experiences

Skanska is one of the world's leading companies for construction-related services and project development. Since its founding in 1887, Skanska has established a global network with Sweden, the US, UK, Denmark, Finland, Norway, Poland, the Czech Republic, Argentina and Hong Kong as its primary markets. In addition to these main markets, Skanska is active in some 50 other countries throughout the world. Today, Skanska is organized in 17 business units primarily based on where they operate geographically. The Skanska group has about 79,000 employees. Net sales in 2001 were approximately USD 16 billion, an increase of 53 percent compared with 2000. Earnings after net financial items were approximately USD 107 million. More company related information including environmental activities can be found at www.skanska.com.

Rationale for a strategic approach to EMS

At Skanska, the first environmental efforts in the early 90's focused on resource efficiency and developing new business opportunities. The projects and initiatives were usually local or regional and often relatively small. Similar to other business sectors we found our early success stories within waste management, where introducing sorting systems on construction sites immediately saved some 30 % of waste cost.

In 1995 Skanska began to apply a strategic approach to environmental issues. Skanska developed its first environmental policy and joined as the first construction company the WBCSD. There were two underlying reasons for this strategic approach. The Swedish government had in its program to reduce waste generation highlighted the construction industry as a key sector. The construction sector wanted to avoid regulations and responded by taking voluntary initiatives to reduce

construction waste. There was also a vague growing market demand from various stakeholders including clients, public agencies and the public.

In late 1997 the management of Skanska decided that all units within the group should introduce environmental management systems, EMS, by the end of 1999 and to have them certified by the end of 2000. Skanska had at that time grown dramatically over the past years, particularly internationally, and the management decided that it was important to define a common baseline for environmental work within Skanska. They saw ISO 14001 with its systematic approach as a convenient tool in this task. It was also decided that newly acquired companies are to have certified systems within two years after acquisition.

Skanska reached the certification target and today, all business units except three, whom all were acquired during 2000, are certified.

Prerequisites for an EMS in a global project organization

In order to comprehend the undertaking to certify a construction company of this size it is important to understand a project-oriented organization. Skanska has around 10 000 large and small projects running worldwide. These vary from a small reconstruction of a road in south part of Sweden and the development of a residential area outside Helsinki in Finland, to the design and construction of the JFK railway in New York, USA. EMS must be applicable in all these diverse types of projects in their day-to-day activities. The project organization as such also implies that each construction project is limited in time, which can vary from a couple of days to four-five years. These prerequisites have had a profound impact on the design of the EMS and on how the management of Skanska carried out the task.

The approach for how to introduce EMS, and also to some extent the focus areas of the future systems, have been different between various business units. At the time the decision, some business units were already in the process of implementing EMS, some had certified ISO 9001 systems whereas others were only in the beginning of this process. It is also essential to understand the difference in business culture between different business units also within a company. The management of Skanska gave each business unit the mandate to implement a system that fulfilled their needs as well as the ISO 14001 requirements. This freedom with responsibility given by the management, rather than putting together an overall management manual to be

implemented worldwide, was one important reason why Skanska succeeded with the task in such a short time.

An EMS for a construction company can be described as a manual with a toolbox for how to develop an EMS for each project. The project's EMS varies depending on the size of the project, in what stage of the project Skanska comes in and the possible environmental impact the project may cause. Table 1 provides a brief overview of environmental aspects that have been highlighted as particularly significant. It should be noted that the specific project might involve activities that single out different significant environmental aspects.

Table 1 Significant environmental aspects - an overview

	Materials	Chemicals	Energy Conservation	Soil Contamination	Waste
Land use planning				√	
Design	√	√	√	√	√
Construction	√	√		√	√
Service life			√		√
Renovation	√	√	√		√
Demolition	√			√	√

Best Practice Groups

Representatives from each business unit meet once per year at Skanska Environmental Managers Forum, EMF. The meetings are one way of sharing experiences between the units. The certification process has facilitated the cooperation and coordination within the group. All units share the terminology and to some extent the environmental agenda.

However, it was noticed that often in our business units' EMS one or two areas were particularly developed and those varied depending on where the units operated. Usually, the prioritized areas were related to previous environmental management activities within the unit or stakeholder requirements common in their geographical area. In order to take advantage of this knowledge and experiences within the group,

Skanska established a number of best practice groups high-lighting various part of the environmental management systems:

- Environmental training
- Legal requirements
- Supply chain management
- Environmental performance indicator
- Environmental auditing

The task of the best practice groups was to identify “Skanska Best Practice” and to develop recommendations for each area. The Best practice groups were established in 2000 and the first recommendations were presented in 2001. Below is presented an excerpt of the recommendations given by the supply chain management group in order to give an idea of the outcome of this work. These recommendations included:

- Assisting key suppliers and sub-contractors with environmental information and training. In one project the project team decided to assist a key-subcontractor in their process to implement and certify an EMS.
- Together with key suppliers perform common research and development projects.
- Developing various tools for communicating environmental requirements to suppliers and sub-contractors. One business unit communicates their environmental requirements through the Internet, where the suppliers can log in, and evaluate themselves against Skanska’s requirement. This solution also provides Skanska with an up-to-date list of suppliers and together with their current environmental performance targeting Skanska’s requirements.
- Etc.

As a result of Skanska’s first experiences with best practice groups, this work is continuing and best practice groups have been established also for the following key areas: tools to support eco design, contaminated soil and energy efficiency in buildings.

Continual improvement in dialogue with the client

One of the key requirements in ISO 14001 is continual improvement. As a project organization it is not self-evident how to evaluate and measure environmental performance and thus continual improvement. Our products are usually tailor-made

for the site and to suit a specific client's demands. It is therefore difficult to use general environmental performance indicators such as energy consumption, waste generation etc. Even if we decided to measure these figures our project portfolio varies between the years and it would be difficult to evaluate the result.

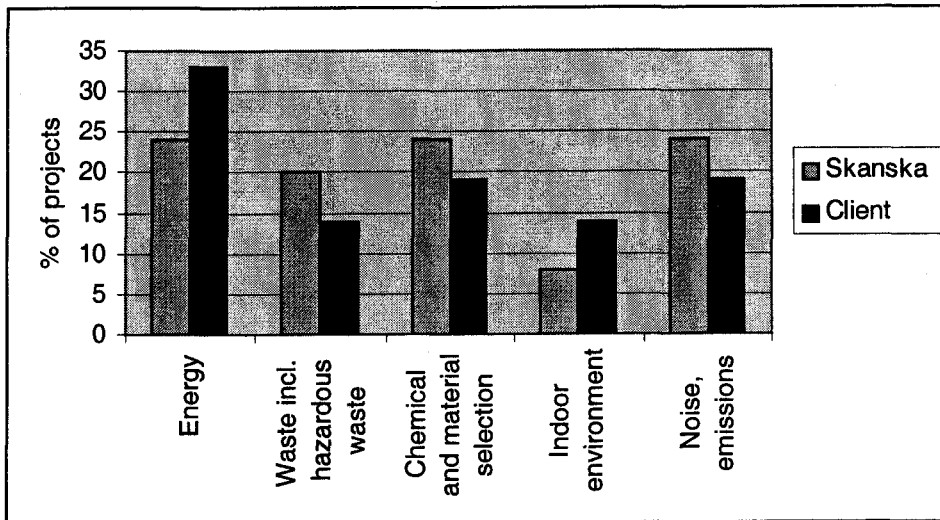
When developing tools for measuring environmental performance on group level Skanska found that if we wish to improve environmental performance we have to do it together with our clients. An important part of our EMS has to be to encourage our clients to improve environmental performance of the project. As a result, Skanska started to follow up number of projects (above USD 1 M) with environmental standards higher than legal requirements. This is a tool that can be used to show trends within construction sector but it shows also how Skanska's environmental competences are utilized in large projects. In table 2 figures for the last two years are presented. It is still too early to draw conclusions from these figures but they indicate an increase in clients with specific environmental requirements. The total order value of these projects with higher environmental standards was around USD 6,9 M, or about 46% of the total order bookings during 2001.

Table 2 Construction projects with higher environmental standards, 2000-2001

	Number of projects		Total contract sum, M \$	
	2001	2000	2001	2000
Client's initiative	350	156	1.750	1.850
Skanska's initiative	424	391	5.150	4.000
Total	774	547	6.900	5.850

Skanska is also following up prioritized environmental aspects that are highlighted by Skanska and clients respectively, see table 3 below. These environmental aspects are a part of our prioritized areas for the future.

Table 3 Prioritized environmental aspects



Finally, we have experienced several examples of projects where the client requires a certified EMS or being certified was one of the reasons why Skanska was awarded the contract. Unfortunately, it is still not possible to present figures of the number or value of these projects.

Conclusions

Skanska has been ISO 14001 certified only a few years but there is already a number of important conclusions that can be drawn from our experiences:

- Using the standard wisely, ISO 14001 can be an efficient tool in your environmental work - also for a project-oriented organization.
- It is even more important to define a common framework and terminology for a global company. This increases the possibility to act proactively.
- ISO 14001 can work as an important tool for the management group, especially for large organizations, by establishing a baseline for environmental work within the group and defining a mutual terminology and environmental agenda.
- Having a third party on a regular basis to audit your way of managing environmental issues is good risk management and ensures continuity into your environmental work.

- Establishing working groups in order to disseminate best practice can be an effective way to continually share experiences within a large organization.

- In Skanska's case there is an increase in the number of projects with environmental standards higher than legal requirements. Additionally, there are several examples worldwide where the client has required a certified EMS or that being certified has been one of the reasons why they decided to award Skanska the contract.

Good luck!

