

ANNEX 3

DETERMINING LEVEL OF ENVIRONMENTAL COMPETENCE AND CAPACITY IN INDUSTRIAL ENTERPRISES: THE CASE OF ESKİŞEHİR INDUSTRIAL AREA

Determining Environmental Competence and Capacity in Industrial Enterprises: The Case in Eskişehir Industrial Area

THE AIM

This study was conducted in the scope of “ESINKAP – Capacity Building for Innovation Strategies in Eskişehir” project carried out by Technology Development Foundation of Turkey (TTGV) and Eskişehir Chamber of Industry (ESO) between 2008 and 2009.

The aim of the ESINKAP Project was to improve competitiveness of industrial enterprises through research/development, innovation and eco-efficiency oriented activities. To achieve this objective project involved mainly awareness raising, capacity building and training activities.

The objective of this study is to assess current capacity, training needs and approaches of industrial enterprises, on eco-efficiency, cleaner production and eco-innovation concepts, operational in the region.

THE SCOPE

This study is mainly based on a survey carried out among enterprises as part of the ESINKAP project in Eskişehir region. The survey consisted of questions focused on research/development, technology, innovation and environmental subjects. In this study results of the survey was evaluated and discussed to formulate suggestions.

Abovementioned survey composed of 2 sections. The first section was dedicated to research/development and innovation kind of approaches and activities of enterprises while second section focuses on environmental competence. In this study, second section, namely environmental competence, was discussed.

THE METHODOLOGY

By means of the survey, training needs of companies on environmental subjects were determined. In the survey companies were asked to answer questions regarding core environmental concepts (e.g. environmental management, eco-efficiency, cleaner production, energy efficiency, environmentally conscious design), expected changes in environmental legislations through EU harmonization process, “best available techniques” applied in different sectors and environmental conscious approaches in the EU (e.g. Eco-labeling, Integrated Product Policy, Life Cycle Analysis). In addition, companies were also asked if they are facing difficulties in terms of export and competitiveness due to environmental norms and standards.

- In the Environmental Competence Survey companies were subjected to 17 questions
- Survey was carried out among 116 companies.
- Each company was graded out of 100 points.
- Depending on the points get, environmental competence levels (0–4) were assigned to each company.
- Sectoral outcomes were derived taking involved sectors into account.
- Core environmental topics/concerns were determined and assessments were made accordingly.

Level of Environmental Competence

Level of environmental competence indicates the level of knowledge and capacity concerning the relative environmental concepts. As it is given in Figure 1, there are 4 levels, namely 0, 1, 2, and 3, calculated for each of the companies. First digit of the number indicates the current level of the company while the digit after comma indicates how far the firm to the second level is.

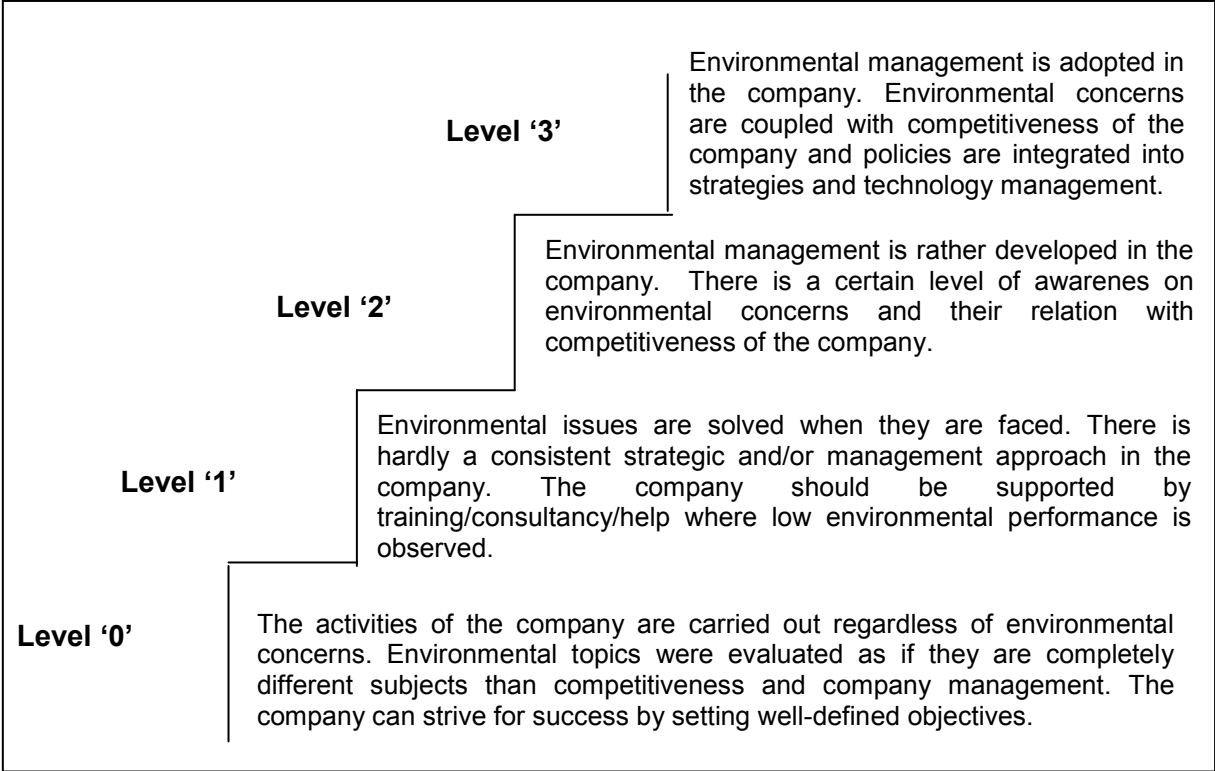


Figure 1. Levels of Environmental Competence

In this study, environmental capabilities of companies were assessed with their level of environmental competence determined as a result of the survey.

SURVEY RESULTS

When the answers of all 116 companies were taken into account, average level of environmental competence was determined as 1.63. In other words, the companies active in the region were below the general average level (2.00) in the whole scale (0.00–4.00) in terms of environmental performance.

1. Sectoral Results

Non-metallic minerals industry come forefront with 1,96 average level in relation to environmental awareness/competence and management among other industries (Table 1). In this sector, the levels of 14 companies were in between 0.36 and 3.28. Non-metallic minerals sector was followed by food sector with 1.87 average point. On the other hand

forestry sector was observed as the less developed sector in terms of environmental activities. Accordingly its environmental competence level was calculated as 1.01.

Table 1. Levels of Environmental Competence of the Enterprises According to Sectors

Sector	Number of Enterprises	Average Level	Scale of the Level
Non-metallic Minerals	14	1,96	0,36 – 3,28
Food	12	1,87	0,04 – 3,26
Paper - Printing	6	1,79	1,36 – 3,12
Main Metal	5	1,73	0,10 – 3,28
Chemical-Plastics	7	1,64	0,50 – 2,90
Weaving	5	1,63	0,36 – 2,70
Metal-Machinery	52	1,54	0,00 – 3,80
Mining	2	1,05	1,04 – 1,05
Forestry	3	1,01	0,72 – 1,18
Others (*)	10	1,70	0,36 – 3,26
In General	116	1,63	0,00 – 3,80

2. Focus on Environmental Concerns

In the scope of the study another aim was to assess environmental perspectives of the companies. So, it was aimed to determine the “popular ones” out of a number of environmental subjects including environmental management systems and new generation concepts.

Table 2. Levels of Competence of the Enterprises in terms of Environmental Issues

Environmental Subject	Level of Environmental Competence	Explanation
Environmental Management and Management Systems	1,9	14 Enterprise have ISO 14001 certificate
Eco-efficiency – Cleaner Production	1,8	4 Enterprise are implementing necessary measures
New Generation Concepts	1,7	14 Enterprise are aware of new generation concepts
Environmentally Friendly Products	1,6	23 Enterprise produces environmentally friendly products
Eco-innovation Background	1,6	21 Enterprise uses technology and innovation background in environmental field as well
Environmental Legislations and Standards	1,4	15 Enterprise follows EU legislations and takes necessary actions
Energy Management, Energy Efficiency	1,3	1 Enterprise implements high level energy management practices

Calculations and assessment results indicated that environmental management and management systems are more developed than the other subjects in concern. Environmental management systems were followed by eco-efficiency – cleaner production approaches. These concepts were receives more attention than the subjects like environmental legislations and eco-innovation. On the other hand energy related issues are the ones where lowest capacity is determined

3. Demands and Training Needs of Companies

With the help of a part of questions it was aimed to specify training needs and priorities of the companies. In this analysis energy efficiency came to forefront among other subjects receiving 305 points. On the contrary, topics such as environmental systems and applications in the EU remained below 135 points. This means company representatives think they need training about energy related matters other than EU oriented environmental concerns.

Table 3. Training Needs and Priorities of Companies

Training Subjects	Points
Energy Efficiency	305
Environmental Management Systems and Environmental Management Tools	183
Eco-Innovation	172
Cleaner Production, Eco-efficiency and Environmentally Friendly Products	163
Environmental Legislations throughout EU Harmonization Process and its Likely Effects to the Industry	146
Environmental Systems and Applications in the EU	133

RESULTS AND SUGGESTIONS

In this study the level of knowledge/awareness, competence and capacities of companies on environmental subjects were determined. Study was based on a survey carried out among 116 companies active in the region. Through this study, sectoral approaches as well as levels of competence of the enterprises in terms of environmental issues were identified.

When the survey results of 116 companies were evaluated, the average point was calculated to be 1.63, indicating the level of environmental competence in the region. Based on this result it can be postulated that the companies lack of consistent strategic and/or management approaches. In the companies environmental issues are solved when they are faced. It would be useful when companies are supported by training/consultancy/help where low environmental performance is observed. On the other hand, compared to the other subjects more developed ones (e.g. environmental management systems, cleaner production, eco-efficiency) in terms of level of awareness and capacity can be good starting points to reach to defined targets.

The training needs and priorities of companies were also identified by this study. One of the main findings was that companies take energy related concerns as priorities among other subjects. On the contrary, topics such as environmental systems and applications in the EU receive lower attention in terms of training needs and priorities.