

Evaluation of Environmental  
Impact Assessment procedure for  
the coastal zone development  
in Lithuania and Sweden

AUSRA JUNEVICIUTE



**ROYAL INSTITUTE  
OF TECHNOLOGY**

Master of Science Thesis  
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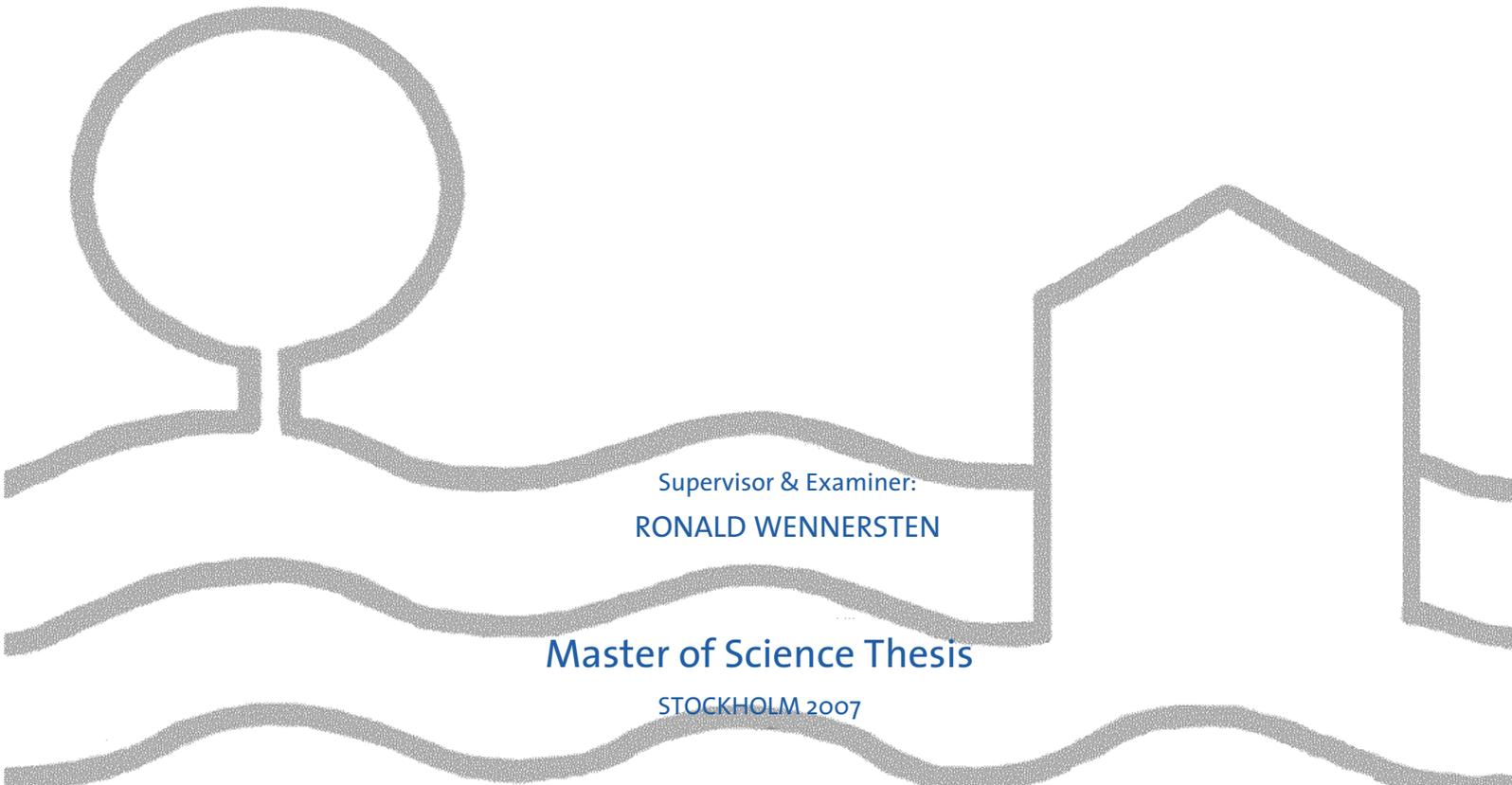




**KTH Energy and  
Environmental Technology**

Ausra Juneviciute

**EVALUATION OF ENVIRONMENTAL IMPACT ASSESSMENT  
PROCEDURE FOR THE COASTAL ZONE DEVELOPMENT  
IN LITHUANIA AND SWEDEN**



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**The Royal Institute of Technology  
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Master thesis**

**Evaluation of Environmental Impact Assessment  
procedure for the coastal zone development in Lithuania  
and Sweden**

**Written by: Ausra Juneviciute  
Supervisor: prof. Ronald Wennersten**

**Stockholm, 2006**

## **Abstract**

This Master Thesis “Evaluation of Environmental Impact Assessment procedure for the coastal zone development in Lithuania and Sweden” was done in the Master’s Programme in Sustainable Technology at the Royal Institute of Technology (KTH).

The process of Environmental Impact Assessment (EIA) is one of the most important steps in the coastal planning process. It is a procedure designed to identify the potential consequences for nature and the environment arising from development. This information is then used by decision makers to assess whether or in what form proposed activities should go forward.

The main aim of this report was to compare Environmental Impact Assessment procedure from legal and practical point of view in Lithuania and Sweden. Public participation in EIA procedure was an important issue to analyse, compare and discuss between two countries.

To be able to do this, a lot of factors were taken into consideration and were described and discussed in this Thesis Work. General characteristics of the regions, harbours, environmental management systems were important issues to make analysis more clear and informative.

Two EIA reports from Klaipeda, by one from Loudden and Bergs harbours was used as case studies to describe and compare EIA process in Lithuania and Sweden in practice. The questionnaire for Lithuanian stakeholders revealed their familiarity, knowledge and opinions about Environmental Impact Assessment and Strategic Environmental Assessment tools. Also some recommendations for improvements of EIA as it’s related to the costal zone management and suggestions for further studies were done.

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Stockholm, 2006

Ausra Juneviciute

## **Table of contents**

- Abstract
- Acknowledgement
- Table of Contents
- Glossary of terms
- Abbreviations
- 1. Introduction
  - 1.1. Aim and Objectives
  - 1.2. Work methodology
  - 1.3. Scope and limitations of study
  - 1.4. Outline of the report
  - 1.5. Background
- 2. The Study Area
  - 2.1. General information about Klaipeda harbour in Lithuania
    - 2.1.1. Harbour development
    - 2.1.2. The main activities and importance of harbour
  - 2.2. General information about Loudden harbour in Sweden
    - 2.2.1. Harbour development
    - 2.2.2. The main activities and importance of harbour
- 3. Description of environmental system analysis tools
  - 3.1. Environmental Impact Assessment
    - 3.1.1. EIA in general
    - 3.1.2. The EU Directives regulating EIA
    - 3.1.3. EIA development in the Baltic Region
    - 3.1.4. EIA importance for the costal zones management
    - 3.1.5. Public participation in EIA
    - 3.1.6. Strengths and weaknesses of EIA
  - 3.2. Strategic Environmental Assessment
    - 3.2.1. SEA in general
    - 3.2.2. The EU Directives regulating SEA
    - 3.2.3. Strengths and weaknesses of SEA
- 4. Comparison of Lithuania and Sweden
  - 4.1. National Environmental Management System in Lithuania
  - 4.2. Lithuania NGO and other private stakeholders
  - 4.3. EIA in Lithuania
    - 4.3.1. Lithuanian Republic Laws, regulating EIA process
    - 4.3.2. The aims and the objectives of Environmental Impact Assessment
    - 4.3.3. Environmental components, which EIA evaluates
    - 4.3.4. Activities of certain public and private projects, which needs to be evaluated by EIA
    - 4.3.5. The structure of EIA procedure
    - 4.3.6. The EIA program
    - 4.3.7. The EIA report
    - 4.3.8. Public participation in EIA procedure
    - 4.3.9. EIA statistical data
  - 4.4. SEA in Lithuania
  - 4.5. National Environmental Management System in Sweden
  - 4.6. Swedish NGO and other private stakeholders

- 4.7. EIA in Sweden
  - 4.7.1. Swedish Laws, regulating EIA process
  - 4.7.2. Environmental components, which EIA evaluates
  - 4.7.3. Swedish EIA decision making process
  - 4.7.4. Structure of EIA procedure
  - 4.7.5. Public participation in EIA procedure
- 4.8. SEA in Sweden
- 5. Comparison of EIA procedures in Lithuania and Sweden
  - 5.1. Objective
  - 5.2. Research Strategy
  - 5.3. Methodology
    - 5.3.1. The selection of case study
    - 5.3.2. Procedures of data collection
    - 5.3.3. Procedures of data analysis
  - 5.4. Data Collection
    - 5.4.1. Source of information
    - 5.4.2. Criticism of the source information
  - 5.5. The Data Analysis
    - 5.5.1. Case studies from Klaipeda harbour in Lithuania
      - 5.5.1.1. Analysis of official letters
      - 5.5.1.2. EIA report of methanol terminal of AB “KLASCO”
      - 5.5.1.3. EIA report of liquid fertilizer terminal of AB “KLASCO”
    - 5.5.2. Case studies from Loudden and Bergs harbours in Sweden
      - 5.5.2.1. EIA report on the petroleum depot of Preem Petroleum AB
      - 5.5.2.2. EIA report on Bergs oil harbour of Svenska Statoil AB
  - 5.6. Discussion
  - 5.7. Conclusions
- 6. Evaluation of EIA and SEA
  - 6.1. Designing a questionnaire
  - 6.2. Analysis of questionnaire for Lithuanian stakeholders
    - 6.2.1. Objective
    - 6.2.2. Research Strategy
    - 6.2.3. Methodology
      - 6.2.3.1. The selection of the case study
      - 6.2.3.2. Procedures for data collection
      - 6.2.3.3. Procedures to data analysis
    - 6.2.4. Data Collection
      - 6.2.4.1. Source of information
      - 6.2.4.2. Criticism of the source of information
    - 6.2.5. The Data Analysis
      - 6.2.5.1. Analysis of questionnaire
      - 6.2.5.2. Analysis of questionnaire responded by e-mail
      - 6.2.5.3. Analysis of questionnaire responded during “Coastman” conference
    - 6.2.6. Discussion
    - 6.2.7. Conclusions
- 7. Discussion
- 8. Conclusions
- 9. Recommendations for further studies
- References
- Appendices

Appendix 1. Sample of questionnaire  
Appendix 2. Questionnaire questions and objectives

## List of figures

*Figure 2.1. The map of Europe*

*Figure 2.2. Klaipeda State Seaport*

*Figure 2.3. Loudden oil harbour*

*Figure 4.1. Environmental protection structure in Lithuania*

*Figure 4.2. The EIA process*

*Figure 4.3. The Swedish EIA decision-making process*

*Figure 5.1. Methanol terminals at Klaipeda harbour*

*Figure 5.2. Liquid fertilizer terminal at Klaipeda harbour*

## **List of tables**

*Table 2.1. The main characteristics of Klaipeda State Seaport*

*Table 4.1. Relevant Environmental components*

*Table 4.2. Time allowed by law for the various parties to respond to each aspect of the Lithuanian EIA process*

*Table 4.3. EIA reports, evaluated by the responsible institutions in 2001-2005 in Lithuania.*

*Table 4.4. EIA reports, evaluated by KREPD in 2001-2005 in Klaipeda region*

*Table 6.1. Total of questionnaire response*

*Table 6.2. Questionnaire response by e-mail*

*Table 6.3. Questionnaire response in “Coastman” conference*

## **Glossary of terms**

**Environmental Assessment** – procedure that ensures that the environmental implications of decisions are taken into account before the decision are made.

**85/337/EEC** - Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

**97/11/EC** – Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

**2001/42/EC** – Directive 2001/42/EC of the European Parliament and of the Council of 27<sup>th</sup> June 2001 on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive).

## Abbreviations

EIA: Environmental Impact Assessment  
SEA: Strategic Environmental Assessment  
KSSA: Klaipeda State Seaport Authority  
MoE: Ministry of the Environment  
REPD: Regional Environmental Protection Department  
EPA: Environmental Protection Agency  
CA: Competent Authority  
PO: Project Organizer  
UPP: Utmost Permissible Pollution  
UPC: Utmost Permissible Concentration  
UAN: urea ammonium nitrate

MW: megawatts  
m<sup>3</sup>: cubic meters  
m<sup>3</sup>/day: cubic meter per day  
m<sup>3</sup>/year: cubic meter per year  
t: tonnes  
t/day: tonnes per day  
t/year: tonnes per year  
ha: hectares

## 1. Introduction

Worldwide, 20% of humanity lives less than 25 km away from the coast, and 39%, or 2.2 billion people, live within 100 km of a coastline. For reference, the 100-km-wide coastal strips account for only 20% of the world's land area. The percentage of population living within 100 km of a coast is 100% in Denmark, 88% in Sweden, 99% in Great Britain, and 79% in Italy (Lighthouse Foundation, 2005).

In future, both population growth and economic development worldwide will continue to be concentrated in coastal regions. In Europe, high growth is forecast for the Baltic Sea Region in particular, and its coastal zones will play a central role. These, most of all, will be subject to steadily rising pressure from human use (Lighthouse Foundation, 2005).

Conflicts over use can be triggered by: alternative energies, aquaculture, tourism, public health, transport, ports and maritime industry, conservation of landscapes and cultural heritage, coastal fishing, public access to coasts and beaches, urban sprawl, extraction of raw materials, pollution, destruction of habitats and loss of species diversity, natural disasters and climate change, coastal erosion and water management. For the future, this means that coastal zones must not only endure the reduction of their natural status, but could also suffer the loss of their socio-economic and ecological functions (Lighthouse Foundation, 2005).

In order to achieve sustainable development, as many potential impacts of the project implementation as possible should be identified, assessed and mitigated, and the most suitable variant for the development should be chosen. These are the aims of the environmental impact assessment process (EIA), whose particular steps are reflected in the environmental impact statement (EIS).

Environmental impact assessments have often been described as planning tools that help developers to present better project plans or authorities to improve their policies plans and programmes (Hildén, 1999).

The assessment of environmental effects is not a unique activity and practitioners and theoreticians should therefore not distance themselves from others dealing with related activities that try to come to grips with changes in society (Hildén, 1999).

Despite directives, handbooks and guidelines differences between assessments, assessment objectives and the role of assessment will persist between and within countries. In some countries there are parallel EIA and planning procedures; in others there may be a grafting on to an array of existing regulations and procedures.

There are of course many changes which could increase the impact of EIA on decisions further. These include, inter alia, the better integration of EIA into the planning process, more open procedures and better public participation (Glasson, 1999).

There is clear evidence that EIA has ensured that the environment is part of development decisions and that impact mitigation is addressed. Some of the best practice EIAs referred to in this volume provide examples of a process which does improve the openness, comprehensiveness, transparency and robustness of environmental decision making (Petts, 1999).

## **1.1. Aim and Objectives**

*The aim* of this project was to compare EIA procedure from legal and practical point of view in Lithuania and Sweden.

*The objectives* of this work were:

- To describe environmental system analysis tools - Environmental Impact Assessment and Strategic Environmental assessment in general
- To describe and analyse EIA structure in Lithuania and Sweden
- To compare EIA processes in Lithuania and Sweden in practice
- To describe and compare public participation process in EIA in Lithuania and Sweden
- To evaluate EIA influence to the decision making process
- To reveal the effectiveness of EIA for evaluation of impacts of new projects
- To propose improvement for EIA as it related to coastal zone management.

## **1.2. Work Methodology**

The information, which is used in this Thesis Work, was collected through:

- personal interviews with key persons at Klaipeda harbour companies, Klaipeda University, Pakruojis municipality in Lithuania;
- e-mails from the key persons at Ministry of the Environment, NGO's in Lithuania and Loudden harbour companies, The County Administrative Board at Stockholm Region in Sweden;
- visits to Klaipeda harbour company and County Administrative Board at Stockholm Region;
- brochures, documents, slides, which I got from Ministry of the Environment;
- laws, regulations, recommendations and acts, regulating EIA and SEA procedure in Lithuania and Sweden;
- internet from the home pages of Ministry of the Environment; different articles about Environmental Impact Assessment, Strategic Environmental Assessment and public participation in it;
- from the literature about EIA and SEA legislative basis, public participation in it in Lithuania and Sweden.

More detailed methodology of practical EIA report analysis is described in chapter "6. Comparison of EIA procedures in Lithuania and Sweden", paragraph "6.3. Methodology" and making and analyzing questionnaire for Lithuanian stakeholders - in chapter "7. Evaluation of EIA and SEA", paragraph "7.2.3. Methodology".

## **1.3. Scope and limitations of study**

The main attention in this report is focused on Environmental Impact Assessment procedure implementation in Lithuania and Sweden from theoretical and practical point of view. The analysis was concentrated on Klaipeda State Seaport in Lithuania and Loudden harbour in Sweden. Strategic Environmental Assessment is much related with EIA, but due to the limited time for the thesis writing, it was impossible to analyse this tool more detail.

In order to reveal the existing situation in both harbours, I have analysed the environmental management system in both countries and described harbours geographical location, main activities and importance.

Klaipeda and Loudden harbours are surrounded by sensitive nature; it makes EIA process longer and more complicated. The significance between two harbours differs. Klaipeda State Seaport is the only one in Lithuania and has big influence into Lithuanian economy, while Loudden oil harbour is local significance largest oil harbour in Stockholm region. Due to this, the comparison between them wasn't equal.

Public participation is an important issue in EIA process. The procedure and participation degree differs in Lithuania and Sweden. Due to the shortage of time and problems with reading material in Swedish language, it was difficult to make brief and informative analysis of public participation in EIA process in Sweden.

Since I don't know Swedish language, it was the biggest problem to find information in English about EIA procedure in Sweden. Due to this, Lithuanian EIA legislative system is described clearer and Lithuanian EIA reports are analysed more detail comparing with Swedish.

More detailed limitations of practical Thesis Work part are described in chapter "6. Comparison of EIA procedures in Lithuania and Sweden", paragraph "6.4.2. Criticism of the source information" and chapter "7. Evaluation of EIA and SEA", paragraph "7.2.4.2. Criticism of the source of information".

#### **1.4. Outline of the report**

To describe all information for fulfilling the aim and objectives of this Diploma, the report is divided on eight chapters. These chapters with the brief descriptions of the content are listed below:

##### **1. Introduction**

The chapter describes the aim and objectives of the Thesis Work, methodology of work, scope and limitation of study and background.

##### **2. The study area**

This chapter gives general information and the main problems at the Klaipeda harbour in Lithuania and Loudden and Bergs harbours in Sweden.

##### **3. Description of environmental system analysis tools**

The chapter describes EIA and SEA process implementation in general, main directives regulating it, EIA development in the Baltic Region and its importance for the costal zone management and public participation in these processes.

##### **4. Comparison of Lithuania and Sweden**

This chapter highlights the national environmental management system in Lithuania and Sweden. Also describes legal EIA process implementation and overseen SEA in both countries.

##### **5. Comparison of EIA procedures in Lithuania and Sweden**

EIA implementation process in practice from two chosen cases from Klaipeda harbour by one from Bergs and Loudden harbours are analysed in this chapter.

## **6. Evaluation of EIA and SEA**

This chapter reveals the results of questionnaire analysis for Lithuanian stakeholders.

## **7. Discussion**

All information about EIA process implementation in Lithuania and Sweden is analysed and discussed in this chapter. Also some suggestions and ideas for improvements are given.

## **8. Conclusions**

The main conclusions from this Thesis Work are stated in this chapter.

## **1.5. Background**

This Master Thesis “Evaluation of Environmental Impact Assessment procedure for the coastal zone development in Lithuania and Sweden” in Master’s Programme in Sustainable Technology was done at the Royal Institute of Technology (KTH).

This work is written to oversee and to compare the EIA process implementation from theoretical and practical point of view in Lithuania and Sweden.

At the beginning, this work was planning to be like comparison between Lithuania and Sweden, their EIA process implementation and public participation in it. During the work it became understandable that legal EIA process is similar in both countries. However, responsibility of EIA process implementation, final decision making and public participation differs between countries. Due to the difficulties to read and understand material in Swedish, analysis revealed Lithuanian EIA procedure more detail and clear comparing with Swedish.

Still, I think this Thesis work will be interesting and useful both for Lithuanian and Swedish stakeholders

## 2. The Study Area

In this Thesis Work the main attention is focused on Environmental Impact Assessment procedure implementation in Lithuania (Klaipeda State Seaport) and Sweden (Louden and Bergs harbours). To be possible to compare EIA procedure in these two countries, at first general characteristics of harbours should be overviewed (paragraph “2.1. General information about Klaipeda harbour in Lithuania”).

Both – Lithuania and Sweden are situated in Europe in the Baltic Sea Region (*Figure 2.1*). Still there are a lot of differences between them, especially in economic development and in environmental awareness and protection.

*Figure 2.1. The map of Europe (www.cnn.com)*

### 2.1. General information about Klaipeda harbour in Lithuania

#### 2.1.1. Harbour development

Klaipeda started to become involved in sea trade in the 13th century. For several centuries the magistracy and the merchants defended the port affairs and fought with the competitors: the ports of Gdansk, Königsberg, Liepaja. Up to the second half of the 18th century, when Klaipeda was a port-fortress, all the defence equipment and the waters belonged to the State. At the beginning of the 19th century the port was transferred to the jurisdiction of the Ministry of Transport of the Republic of Lithuania. Lithuania has allotted funds for the development of the port. Before the First World War, the Port of Klaipeda was known as a timber port. In the beginning of the 20th century, newly-built mineral fertiliser and cellulose enterprises stimulated the growth of the port. In 1935-38 the Port of Klaipeda exported 75%-78% of Lithuania's total exports and imported 66% of total imports (Randburg, 2006).

In 1986 the new International Ferry Terminal was constructed. The Terminal was constructed for serving Soviet Army, located in Germany. The biggest in the world rail ferries started to operate (KSSA, 2005).

In June 3, 1991 following the order of the Minister of Transport and Communications the state enterprise Klaipeda State Seaport Authority was founded and since 1993 it started managing the state-owned port infrastructure (KSSA, 2005).

In 1993-2003 Klaipeda State Seaport Authority and stevedoring companies invested nearly 2 billion litas into the developments of the port (KSSA, 2005).

Today Klaipeda State Seaport is the northernmost ice – free port on the Eastern coast of the Baltic Sea. It is the most important and the biggest Lithuanian transport hub, connecting sea, land and railway routes from East to West.

The shortest distances connect the port with the most important industrial regions of eastern hinterland (Russia, Byelorussia, the Ukraine and etc.). The main shipping lines to the ports of Western Europe, South-East Asia and the continent of America pass through Klaipeda port.

Detail Klaipeda State Seaport characteristics are listed in *table 2.1*.

**Table 2.1.** *The main characteristics of Klaipeda State Seaport (KSSA, 2005).*

<b>Characteristic</b>	<b>Amount</b>
Land territory	415 ha
Port waters	623 ha
Warehouse facilities	136 136 m <sup>2</sup>
Tanks for oil products	350 000 m <sup>3</sup>
Tanks for other liquid products	131 000 t
Warehouses for bulk cargo	198 500 t
Open storage sites	454 920 m <sup>2</sup>
Cold storage facilities	23 254 m <sup>2</sup>
Total length of quays	18 162 m
Length of railway tracks	36 000 m
The depth of the entrance channel	14.5 m
Maximum allowed vessels' draught	13.5 m

### **2.1.2. The main activities and importance of harbour**

When Lithuanian independence was restored, the idea of creating a united, modern and universal seaport was promoted. The structure of Klaipeda Port has been fundamentally reorganised to match the model of West European countries. In 1991, the Klaipeda State Seaport Authority was founded. It is in charge of the functioning of the port and its integration into the Lithuanian transport complex. The Port Authority is responsible for the maintenance, reconstruction and modernisation of the port infrastructure, while loading/unloading operations are managed by separate independent terminals. In 1996 Klaipeda Port Act was promulgated. The port's land and infrastructure belong to the state, but the superstructure can be privatised. Some private stevedoring companies already operate in the Port of Klaipeda (Randburg, 2006)

Klaipeda is a multipurpose, universal, deep – water port, providing high – quality services complying with the requirements of the European Union. 19 big stevedoring companies, ship - repair and ship – building yards operate within the port and all marine business and cargo handling services are being rendered (*Figure 2.2.*). The port is able to accommodate ships of up to 195 m in length with draughts of 10,5 m. Every year about 7000 ships enter the port from more than 45 foreign countries. The Port is able to handle up to 20 million tons of various cargoes: metal, fuel oil, fertilizers, timber, ro-ro containers and other general cargo. There are six stevedoring companies, three ship repair yards and one shipyard in the Port of Klaipeda. The annual port cargo handling capacity is up to 40 million tons. The port of Klaipeda handled almost 22 million tones of cargo in 2005. The port operates 24 hours a day, 7 days a week all year round (KSSA, 2005; Wikipedia, 2006).

**Figure 2.2.** *Klaipeda State Seaport (KSSA, 2005).*

Via regular shipping lines, Klaipeda is linked to Germany, Sweden, Denmark, Holland, the UK, Belgium, Spain, Russia, Poland, Ecuador, Morocco and South Korea. There are well-known shipping lines to Kiel, Copenhagen, Mukran, Ahus (operated by LISCO), a container line from Rotterdam and Felixstowe, the Kursiu Line, and the DFDS Baltic Line to Copenhagen and Malmö (Randburg, 2006)

Inland connections are perfect. The port is served by two railway stations. Motorways link Klaipeda to Moscow via Kaunas, Vilnius and Minsk. The nearest airport is at Palanga, 28 km away (Randburg, 2006)

## **2.2.General information about Loudden harbour in Sweden**

### **2.2.1. Harbour development**

Stockholm was founded in the middle of the twelfth century. The town was located to where lake Mälaren meets the Baltic sea. As a result of the land rise in the post 1000- era it was not possible for ships to travel from the sea to Mälaren. Stockholms strategic location made it an important point of defence and transshipping. During the seventeenth century Stockholm evolved into an important city of trade and shipping. Two centuries later the first real quays were built along the city's beaches. During the industrialisation several new quays were constructed and the harbour was connected to the railway system. The demand of oil caused by the industrialisation resulted in the construction of the oil port at Loudden in 1926 (Adeström et al., 1997). Until the 1950s the port of Stockholm was the biggest import port in Sweden. The city flourished and traded with all parts of the world. After the Second World War the trade with the Baltic States ceased and the ferries to Finland increased in numbers (Alverstad et al., 2004).

Today the port of Stockholm is the biggest port on the Swedish east coast and plays an important role in the provision of goods to the city and Mälardalen region. The port is divided into several separate harbours the most important being; Stadsgården, Frihamnen, Värtahamnen, Loudden and Masthamnen. Other harbours of importance in the Stockholm area are the outports of Kapellskär (90 km north of Stockholm) and Nynäshamn (60 km south of Stockholm). Besides Loudden, oil is handled in the Södertälje port (40 km south of Stockholm) and the Berg oil terminal in Nacka (Stockholms Hamnar, 2004).

### **2.2.2. The main activities and importance of harbour**

Loudden is the largest oil terminal in the Stockholm region and houses nine oil companies and two sanitation companies (*Figure 2.3.*). The port has a storage capacity of 954.500 m<sup>3</sup>. Every year about 130 tankers call at Loudden. In 2003 the port received 1 241 000 tonnes of oil in the forms of petrol (281 000), aviation kerosene (378 000), heating oils (541 000) and lubricants (41 000) (Alverstad et al., 2004).

*Figure 2.3. Loudden oil harbour (Ostendorf, 2003).*

Bergs oil terminal in Nacka is leased out by the township of Nacka to Statoil. Bergs has a storage capacity of 277.000 m<sup>3</sup> and about 700.000 tonnes of oil is handled in the port yearly. A big part is aviation kerosene destined to Arlanda (Länsstyrelsen i Stockholms län, 2001).

The oil terminal at Loudden is connected to transport services by road and by rail. Today all transportation of oil is carried out by road. Every day about 140 trucks drive the road section *Lindarängsvägen-Tegehuddsvägen-Lidingövägen-Valhallavägen-Roslagstull-Norrtull* on their way back and forth to the highways (E4, E18 and E20). The petroleum products are distributed to customers within the city, in the northern part of the county and to a small extent in the districts of Tierp and Uppsala. Aviation kerosene is transported (25 trucks a day)

to the airports of Arlanda and Bromma and to the navy (Länsstyrelsen i Stockholms län, 2001; Alverstad et al., 2004).

From the Berg oil terminal in Nacka about 50 trucks leave daily carrying petroleum products to customers within the county. Ten of them transports aviation kerosene to Arlanda airport (Länsstyrelsen i Stockholms län, 2001).

Both Loudden and Berg are situated in densely populated areas. The large quantities of oil and fuels handled at the oil terminals are associated with risks in terms of safety and environmental pollution. Accidents could result in discharges of substances hazardous to the environment and people in surrounding areas. Large quantities of fuels imply a risk of explosion and would put many peoples lives at risk in case of an accident (SWECO VIAK, 2003).

The future of Loudden lies in the hands of three actors: The private owners (the oil companies), the municipality of Stockholm and the Swedish government. The private owners run the oil harbour in Loudden and lease the land from the city. The government is interested in the harbour of Stockholm since it is important for a larger region than just Stockholm. The intention to terminate the activities at Loudden comes from the municipality, neither the private owners nor the state support this decision (Länsstyrelsen i Stockholms län, 2001).

### **3. Description of environmental system analysis tools**

#### **3.1. Environmental Impact Assessment (EIA)**

##### **3.1.1. EIA in general**

Environmental Impact Assessment (EIA) is now practised in many countries around the world, including all EU states following the Council of the European Union Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. The development of EIA began in 1969 and nowadays it is one of the most used tools in environmental system analysis. Many states have incorporated an Environmental Impact Assessment requirement into the law of natural resources.

EIA procedure ensures that the environmental implications of decisions are taken into account before the decision is made. Environmental Impact Assessment process involves an analysis of the likely effects on the environment, recording those effects in a report, undertaking a public consultation exercise on the report, taking into account the comments and the report when making the final decision and informing the public about that decision afterwards (85/337/EEC).

The EIA Directive outlines which project categories shall be made subject to an EIA, which procedure shall be followed and the content of the assessment (85/337/EEC).

Specific EIA procedures vary between countries but there are certain core elements from which common issues arise. These include:

- *Screening*: the procedure for determining whether a particular proposed activity (project) will require a full EIA or a less rigorous environmental assessment procedure.
- *Scoping*: the procedure for determining which issues are likely to be important and should be examined in an EIA.
- *Production of an Environmental Impact Assessment or Statement*: the document which describes the potential environmental impacts of a proposed activity. It should also contain a discussion of possible alternative courses of development, including a non-development option, along with an analysis of their potential environmental impacts. In addition, the EIA/EIS should describe how eventual impacts will be monitored and any mitigation techniques that will be applied.
- *Baseline Studies*: a detailed description of present environmental and socio-economic conditions against which subsequent changes can be assessed.
- *Review*: a review of the EIA/EIS is undertaken and its acceptability assessed.
- *Decision*: a decision is made regarding whether or in what form a proposed activity can proceed (Coastal guide, 2006).

First of all, EIA is an aid to decision making. For decision-makers (e.g. local authorities) it provides a systematic examination of the environmental implications of a proposed action before a decision is taken. The EIA process has the potential to be a basis for negotiation between the developer, public interest groups and the planning regulator. It is not a substitute for decision-making, but it can help in this process.

### **3.1.2. The EU Directives regulating EIA**

Environmental Impact Assessment is a key instrument of European Union environmental policy. Since passage of the first EIA Directive in 1985 (Directive 85/337/EEC) both the law and the practice of EIA have evolved, an amending Directive was published in 1997 (Directive 97/11/EC) (European Commission, 2001).

The EIA Directive covers a broad range of activities ranging from industrial to infrastructure projects. It introduces procedural elements to be followed such as the provision of an environmental impact statement and consultation with the public and environmental authorities within the framework of development consent procedures for the activities covered. Member States may regulate the EIA procedure as a permitting procedure or by adding it to existing permitting procedures under other pieces of Community (or national) legislation. The results of the EIA procedure have to be taken into consideration in the development consent procedure (IMPEL Network, 1998).

According to the Directive 97/11/EC, the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and the direct and indirect effects of a project on the following factors:

- human beings, fauna and flora;
- soil, water, air, climate and the landscape;
- material assets and the cultural heritage;
- the interaction between the factors mentioned in the first, second and third indents.

Few corrections and supplements are dawn into directive 97/11/EC. Member States shall take the necessary measures to ensure that, if the developer so requests before submitting an

application for development consent, the competent authority shall give an opinion on the information to be supplied by the developer. The competent authority shall consult the developer and authorities before it gives its opinion. The fact that the authority has given an opinion shall not preclude it from subsequently requiring the developer to submit further information.

The information to be provided by the developer shall include at least:

- a description of the project comprising information on the site, design and size of the project;
- a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects;
- the data required to identify and assess the main effects which the project is likely to have on the environment;
- an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects;
- a non-technical summary of the information mentioned in the previous indents (97/11/EC).

Where a Member State is aware that a project is likely to have significant effects on the environment in another Member State or where a Member State likely to be significantly affected so requests, the Member State in whose territory the project is intended to be carried out shall send to the affected Member State as soon as possible and no later than when informing its own public, inter alia:

- (a) a description of the project, together with any available information on its possible transboundary impact;
- (b) information on the nature of the decision which may be taken and shall give the other Member State a reasonable time in which to indicate whether it wishes to participate in the Environmental Impact Assessment procedure, and may include the information (97/11/EC).

When a decision to grant or refuse development consent has been taken, the competent authority or authorities shall inform the public thereof in accordance with the appropriate procedures and shall make available to the public the following information:

- the content of the decision and any conditions attached thereto,
- the main reasons and considerations on which the decision is based,
- a description, where necessary, of the main measures to avoid, reduce and, if possible, offset the major adverse effects (97/11/EC).

Five years after the entry into force of this Directive, the Commission shall send the European Parliament and the Council a report on the application and effectiveness of Directive 85/337/EEC as amended by this Directive.

Other the European Union legislative acts regulating EIA procedure are:

- the “Espoo (EIA) Convention” - Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991);
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora;
- Directive 96/91/EC concerning integrated pollution prevention and control;
- Directive 2003/35/EC;

- Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the effects of certain plans and programmes on the environment.

The Espoo (EIA) Convention stipulates the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. The Espoo Convention entered into force on 10 September 1997 (UNECE, 2006).

Following the signature of the Aarhus Convention by the Community on 25 June 1998, the Community adopted in May 2003 Directive 2003/35/EC amending amongst others the EIA Directive. This Directive intends to align the provisions on public participation in accordance with the Aarhus Convention on public participation in decision-making and access to justice in environmental matters (Europa, 2005).

SEA Directive (2001/42/EC) will be described more detail in paragraph 3.2. "Strategic Environmental Assessment".

### **3.1.3. EIA development in the Baltic Region**

The countries on the Eastern shores of the Baltic Sea are fast developing their environmental policies. The first laws concerning the environmental impact assessment (EIA) were adopted straight after the restoration of independence when countries started to develop their own environmental legislation. Then the first legal acts - laws and regulations on environmental impact assessment requiring to be performed prior to major investments were introduced. That was the first period of introduction of EIA procedures, which was followed by the development of domestic capacities in this field. Today all the countries have amended the legislation, adopted new legal acts or intending to do so (SEI, 2006)

EIA as a formal process was introduced relatively late in the Nordic countries if seen from an international perspective. NEPA, which introduced EIA into the US came into effect in 1969 and the EU directive (85/337/EEC) on EIA dates from 1985, although in its present form it is from 1997 (revised as 97/11/EC). Denmark passed comprehensive legislation in 1989, Norway in 1990 and Finland and Iceland in 1994. A requirement in the Planning and Building Act (PBA) for environmental assessment came into effect in 1994 in Sweden (Markus and Emmelin, 2003).

In Estonia the first steps on elaboration of legislation in the field of environmental impact assessment were taken promptly after their independence was regained in 1991 and eventually resulted in the governmental regulation No.314 of 13 November 1992 "On the EIA Procedure". This regulation establishes the main principles of EIA and the list of activities and projects which require EIA. A separate list included the objects which require EIA procedure at the national level (Tammemäe, 2006).

Environmental impact assessment is based on Environmental Impact Assessment and Environmental Auditing Act forced in January 01, 2001. The main objective of the assessment is to provide information for the decision-maker about possible environmental impacts what will or may be caused by the proposed activity (Tammemäe, 2006).

Environmental impact shall be assessed if the construction works, use of a structure or changes in the use of an existing structure are intended which would result in a significant environmental impact and require an application to be made for the right to exploit natural resources or for a permit for release of pollutants or waste into the environment, or amendment of an existing permit (Tammemäe, 2006).

Assessment is carried out by the licensed expert. The licence is issued by the Minister of Environment if the expert has relevant competence (education, knowledge and work experience). Supervision of environmental impact assessment shall be exercised by the Minister of Environment or County Environmental Departments (InvestINestonia, 2006).

The EIA legislation in Latvia was established in 1990 with the coordination of Finish EIA legislation (Law on State Ecological Expertise (also frequently referred to as Law of Environmental Impact Assessment), October 9, 1990).

Nowadays Environmental impact assessment is carried out in accordance with the provisions stipulated in the Law "On Environmental impact assessment", passed on October 14, 1998 and the Cabinet of Ministers regulations No. 4 of January 6, 2004 "Statutes of the Environmental Impact Assessment State Bureau" (Tammemäe, 2006).

Therefore existing legislation in Latvia is in conformity with relevant EU directives:

- Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment 85/337/EEC;
- Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (Tammemäe, 2006).

EIA in Latvia is performed at two different institutional levels: at the Regional Environmental Board level, and by the State Environmental Expertise Board (or EIA Board). The State Environmental Expertise Board - SEEB takes care of those projects that have a larger geographical scope, but Regional Boards are responsible for the projects of a regional importance. The SEEB is not a part of the Ministry, but is subordinated to it. This Board mainly has technical tasks, while policy responsibility remains to the Environmental Protection Department in the Ministry (Tammemäe, 2006).

There was no formal EIA process in the USSR before 1985, although environmental consequences of selected major actions (projects and plans) were appraised by various sectoral expert committees or "ekspertizas". After the breakdown of the Soviet Union in December 1991, one of the first laws of the Russian Federation was the Federal Act on the Protection of Natural Environment (1991) which declared that no project could go ahead without prior approval by State Environmental Review (SER). In 1992 and 1993, the Ministry of Environment published a set of regulations guiding the SER process and, in 1995, the special Federal Environmental Review Act (1995) was passed by the Parliament (EIA centre, 2006).

All proposed economic or other activity is assumed under Russian law to be a potential environmental hazard (Federal Environmental Audit Act (No. 174-FZ, 23 November 1995), art. 3. Collected Statutes of the Russian Federation, 1995 (Vol. 48, p. 4556); 2004 (Vol. 35, p. 3607; Vol. 52 (Part I), p. 5276). To evaluate the degree of risk and devise measures to minimize potentially harmful environmental and other consequences, conducting an

environmental impact assessment and an environmental audit is a mandatory requirement in the Russian Federation. These are the two mandatory components of the national environmental assessment procedure. An environmental impact assessment is statutorily defined as “an operation to detect, analyse and record the direct, indirect and other environmental consequences of proposed economic or other activity with a view to deciding whether or not to proceed” (Federal Environmental Protection Act (No. 7-FZ, 10 January 2002), art. 1. Collected Statutes of the Russian Federation, 2002 (Vol. 2, p. 133); 2004 (Vol. 35, p. 3607). An environmental audit is defined as “the operation of measuring proposed economic or other activity against environmental standards and determining whether it is justified to proceed, so as to prevent the potential adverse impacts of such activity on the natural environment with their associated social, economic and other implications” (Federal Environmental Audit Act (No. 174-FZ, 23 November 1995), art. 14. Collected Statutes of the Russian Federation, 1995 (Vol. 48, p. 4556); 2004 (Vol. 35, p. 3607; Vol. 52 (Part I), p. 5276). An official environmental audit is conducted only if EIA documentation is submitted in the audit dossier, i.e. environmental impact assessments must be performed for all categories of proposed activity; the Russian system of environmental assessment thus differs from Western systems, in which the need for an environmental assessment and the degree of detail and comprehensiveness thereof depends upon the type of activity envisaged. Russian laws and regulations do not envisage any special procedures for EIAs of proposed activities with potential transboundary effects, since the Russian Federation is not a Party to the UNECE Convention on Environmental Impact Assessment in a Transboundary Context. Nevertheless, current national EIA Regulations specify that if a proposed activity has potential transboundary effects, EIA research and documentation shall be prepared with due regard for the said Convention. (Regulations on Environmental Impact Assessment of Proposed Economic or Other Activities in the Russian Federation (para. 2.9). Environmental Audit and Environmental Impact Assessment, 2000, No. 5. ) (Grishin, 2006).

Law on environmental Impact Assessment of the Proposed Economic Activity 18 April 2000 (No. VIII-1636) is the main law, regulating the environmental impact assessment process and relationships between parties in Lithuania. It came into force on 1<sup>st</sup> of June, 2000.

More detailed information about EIA aims, objectives and implementation process is described in chapter 4.3. “EIA in Lithuania”.

In Sweden the EIA Directive is mainly implemented by the Chapter 6 of the Swedish Environmental Code (Miljöbalken), which was adopted in 1998.

More detailed information about Swedish EIA process will be described in chapter 4.7. “EIA in Sweden”.

In some Member States review of the adequacy of EIS before they are used for decision making is a mandatory stage in the EIA procedure. In these cases the review may be undertaken by the competent authority or by an independent organisation on behalf of the competent authority. Where the EIS is considered to be inadequate, the developer will be asked to provide additional information and the development consent decision process will not start until this information has been provided. There will usually be a procedure for appeal against requests for further information (European Commission, 2001).

In other Member States there is no formal stage of review in the EIA procedure but competent authorities will usually undertake some sort of review before starting the decision-making

process, to ensure that the requirements of the legislation have been met. They will then usually have the power to ask for further information from developers before the decision-making process starts, if they consider the EIS to be inadequate. Review may also be undertaken informally by the developer prior to submitting the EIS to the competent authority or by consultees after it is submitted, to check that the information is adequate (European Commission, 2001).

#### **3.1.4. EIA importance for costal zone management**

The process of Environmental Impact Assessment (EIA) is one of the most important steps in the coastal planning process. It is a procedure designed to identify the potential consequences for nature and the environment arising from development. This information is then used by decision-makers to assess whether or in what form proposed activities should go forward. Some assessments can be carried out on a broad scale in order to evaluate the consequences of an entire policy or programme consisting of many individual projects (known as Strategic Environmental Assessment), or on a smaller scale to evaluate potential impacts from the individual projects themselves (Coastal guide, 2006).

Information, consultation and public participation and the transparency of decisions are integral to the process of environmental impact assessment. When vigorously pursued, and begun at the earliest stages of a project, the benefits of public information, consultation and participation can be significant. For example, if controversies are discussed early in the process, while there is still time to alter plans and mitigate possible damages, there is a greater likelihood of eventual public commitment to or acceptance of decisions. This may help to reduce costly delays later in the process. In this respect, it is important to refer to the provisions of the Convention on Access to Information, Public Participation in Decision – Making and Access to Justice in Environmental Matters (Aarhus, 1998).

The unique problems and pressures on the coastal zone should be recognised when deciding which developments require an Environmental Impact Assessment (EIA). Development inland might be considered benign whereas the same activities, if carried out in the coastal zone, may be likely to have severe impacts. A precautionary approach should be taken in the EIA screening process whereby if there are doubts about the potential for a proposed activity or programme to cause significant impact, an EIA should be undertaken.

Alternatives to the preferred activity as described in an EIA/EIS should differ significantly. For example, alternatives should not only consider different locations of the same activity.

#### **Habitat Creation and Translocation**

Habitat creation or re-creation is often carried out as a mitigation measure when natural areas are destroyed as a result of development. For important natural sites, however, such measures should be avoided as they contain complex and often poorly understood ecosystems which have evolved over a long time frame. New habitats are rarely as diverse as the habitats they replace. As a general principle in coastal areas where geomorphological forces of wind, tides, river flows and sediment movement are the main determinants of the nature of the coastal and nearshore marine areas, the larger the area for rehabilitation the better. This should enable these natural forces to reassert themselves and in so doing develop a more resilient ecosystem which mirrors the original and natural habitats (Coastal guide, 2006).

## Habitat Translocation

Habitat translocation or transferral may be slightly more successful than habitat creation, as it involves the re-use of components of the original ecosystem, such as soils, plants, and perhaps wildlife. While certain methods of translocation work better than others, as with habitat creation these measures are not likely to fully compensate for the loss of a high value site (Coastal guide, 2006).

Important nature conservation areas therefore should be avoided when considering development. For less valuable sites identified for unavoidable development, however, habitat re-creation or translocation (or some combination of the two) are important mitigating measures which should be carried out by or in consultation with trained ecologists familiar with the local habitats and ecosystems. New habitats should be created prior to the destruction of an existing habitat and should be equal or greater in size. However, re-created or translocated habitats should not displace existing high quality habitat (Coastal guide, 2006).

Habitat re-creation and translocation (and ultimately destruction) should be timed seasonally to ensure minimal disruption of breeding animals.

The cumulative effects of development in the coastal zone should be considered in the EIA process. The EIA/EIS should demonstrate how the proposed activity fits with coastal policies, programs and plans by international, national, regional and local governments or governmental bodies (Coastal guide, 2006).

### **3.1.5. Public participation in EIA**

Public participation is one of the key elements of Environmental Impact Assessment. Glasson et al. (1999) state that participation by the public in the EIA process can help to ensure the quality, comprehensiveness and effectiveness of EIA. The World Bank (1999) points out public participation as the key to the identification of environmental impacts as well as to the design of mitigation measures.

According to King (1999), *participation* is the involvement and collaboration of the private sector, NGOs, citizens' groups and other non-institutional organisations or individuals interested in or affected by the management of the coast. Structures to achieve participation may include core steering groups of key stakeholders, general forums that meet regularly, technical panels, newsletters and various topic or issue groups as required.

**Public** - one or more physical or legal entities and, in accordance with national legislation or practice, their associations, organisations or groups (CoastLearn, 2006).

Clark (1994) suggests that public participation in EIA has a critical role to play in helping to integrate economic, social and environmental objectives, *i.e. move towards more sustainable development by acting as a device to strengthen and increase public awareness of the delicate balance between economic and environmental trade-offs*. It also safeguards against bad or politically motivated decisions. Public participation is necessary for minimizing or avoiding public controversy, confrontation and delay, and can make a positive contribution to the EIA process.

Possible reasons for including public participation in environmental impact assessment are that it is a political and democratic goal in itself, i.e. the wish is to improve citizen rights; that it is a part of economic restructuring of all public services, i.e. there is a wish for good public relations or economic savings; and that it is of relevance to producing better science, i.e. the wish is to improve knowledge. Public participation can give a new understanding of the environmental problem because the local people have a different general view of their environment, which complements scientific knowledge about the area (Forrester, 1999).

Public participation is not about “giving information”, but about mutual exchange of information. If a person feels involved, he/she will to a higher degree accept the decision taken even if it does not totally agree with his/her personal ideas Ljung (2000).

According to Ljung (2000), the aim of public participation is the goal of making the changes feel meaningful to the people, because they have been involved and understand the context. However, since people are concerned about different issues and have different views about what participation really means, it will always be difficult to create a feeling of participation.

Participation demands that the public accepts to be actively involved in the EIA. Depending on the stage and the purpose of the event, participation can take many forms (Boverket, 1997).

The World Bank (1999) strongly recommends participation by affected stakeholder groups and local NGO's during at least two stages of the EIA. The public should be involved shortly after the EIA category has been assigned – at the scoping stage – and also once a draft EIS has been prepared. Participation should be encouraged during the preparation stage, especially for the projects that affect people's livelihood and culture and projects that are community-based by their nature.

According to the World Bank (1999), Glasson et al. (1999) and Coastal guide (2006), public should participate at most stages of the EIA process:

- in determining the scope of an EIA;
- in providing specialist knowledge about the site;
- in evaluating the relative significance of the likely impacts;
- in proposing mitigation measures;
- in ensuring that the EIS is objective, truthful and complete;
- in monitoring any conditions of the development agreement.

To make the public review of the draft EIS meaningful, those involved should be allowed enough time before the actual events occur, to examine the findings and recommendations in the report. The records emerging from these participation events should be made available to the participants for their review. It is also considered good practice to continue the contact with NGO's and local people on EIA – related matters during project implementation (The World Bank, 1999).

Formal opportunities for public participation in EIA are defined in legislation. While rights of involvement in many countries are limited to opportunities for viewing and commenting on finalised reports, in principle, public consultation and participation can occur at every stage in the EIA process (EC, 1999).

Practically in all national systems of EIA there are mandatory requests, which foresee:

- Publication of the EIA report, and making it available to the public in a public place
- Offering the public the possibility to get acquainted with the documentation and to give comments;
- Collection of public comments and notes;
- Accounting for the public's opinion while making the decision (CoastLearn, 2006).

A public meeting, where the public is a more or less passive audience (a hearing) does not seem to be right forum for the exchange of information or opinion and it is seldom helpful as a contribution to environmental decision making Glasson et al. (1999).

A wide range of participants will generate diversity of opinion. Additional stakeholders who should also be involved may include those indirectly affected, other interested sectors of society, others who may contribute local knowledge, or those who want to be involved (e.g. groups concerned about or highly knowledgeable about the issues). Construction companies sometimes object that some of the groups participating in public participation programmes do not belong in the process. The World Commission on Dams stresses that this is a mistake, because excluding groups of people, who are motivated by their own concerns or interests to participate in the process, only increase their efforts to mobilise opposition. Their interests remain unmet and their sense of fairness is violated. Also, integrative solutions or creative ideas they might bring to the process will not be included (WCD, 2000).

The public often feels that decisions have already been made which gives rise to distrust between citizens and the EIA team (Forrester, 1999).

Other reason for lack of participation may be that certain groups do not know that they are stakeholders or that they have not been notified about the process of the EIA. In other cases, stakeholders know about the process but do not prioritise their involvement. It is likely that people who may be negatively affected by the project, do not see themselves as stakeholders in a problem solving process, as they feel excluded from decision making (WCD, 2000).

Factors such as culture, economics, class, race, religion and gender may all affect whether specific people participate. For vulnerable groups, the process might also be too expensive to attend, too far away, or too technically difficult to understand. The process is also likely to be conducted in a cultural setting very different from their own. It is important that the process designers consider how to facilitate the participation of these groups. The ability of local groups to represent themselves is greatly improved when an effort is made to both bring representatives to meetings in the town, and to visit local villages (The World Bank, 1999).

All groups of stakeholders do not necessarily need to be consulted on every project detail. For instance, there are decisions that are completely technical and do not need public input. However, other decisions affect the living conditions of the inhabitants so much that the affected communities should take direct part in the decision-making process or make the decisions themselves (The World Bank, 1999).

### **3.1.6. Strengths and weaknesses of EIA**

#### Strengths ( + ) and weaknesses ( - )

+

- Gives decision-makers environmental aspects of the project proposed (Moberg, 1999).

- Public consultation and participation (Moberg, 1999).
- Well-known and often performed (Moberg, 1999).
- Legally required (Moberg, 1999).
- Both qualitative and quantitative method (Moberg, 1999).
- EIA has created attention, discussion and debate (Theodórsdóttir, 1999).

- Thorough EIA:s are expensive (Thérivel et al., 1992).
- Lack of testing what really happens (Thérivel et al., 1992).
- EIA-performers often rely on too weak data from regional authorities (Moberg, 1999).
- Small possibilities to correct bad EIA's (Glasson et al., 2002).
- Might be seen as a necessary evil and an administrative exercise (Glasson et al., 2002).

## **3.2. Strategic Environmental Assessment**

### **3.2.1. SEA in general**

Strategic environmental impact assessment (hereinafter referred to as the “strategic EIA”) is a process the aim of which is to assess possible effects of sectoral policy, policy plan, action programme and other strategic documents and regulations upon the environment. This process analyses what direct or indirect modifications in the environment could emerge and how they would affect human environment, nature environment, biodiversity, climate as well as landscape and material values. The strategic EIA provides an opportunity, at early stage of planning and elaboration of strategic document, to examine possible effects of implementation of solutions included in the document, as well as to select the best alternative. The strategic EIA has to be carried out in preparation phase of plans and programmes before they are adopted or submitted to legislative procedure (Semėnienė, Stanikūnienė, 2003).

Strategic Environmental Assessment (SEA) can be seen as a complement to the Environmental Impact Assessment (EIA), which is mainly performed on a project level (Tema Nord, 1996:538). It is usable earlier in the decision-making process. According to Balfors (1997), SEA is the environmental assessment of a strategic action, and strategic actions are defined as policies, plans and programmes. Different countries define this method in different ways.

Strategic Environmental Assessment is demanding for strategic actions that are considered to result in large environmental impact (Prop. 1997/98:45). SEA on policies, plans and programmes are performed at varying detail, policies are often much more vague in their presentation and may cover broad areas (geographical and social) whereas some programme SEAs may be performed at almost the same details as project EIAs (Thérivel and Partdário, 1996).

This tool is used as decision-support at a strategic level; it also functions as a tool for integration sustainability into planning and assessment processes. This tool is used at an earlier level than project EIA. This analysis can be used in a prospective perspective, predicting future effects. Thérivel and Partdário (1996) argues, that four main interest groups are involved in SEA: the action leading agent (proponent), the complement authority, the environmental authority and the public.

### 3.2.2. The EU Directives regulating SEA

While analysing the EIA process, some issues were identified for solution of which the EIA cannot be exercised, for example, the effect of broad economic activities in the context of whole region. In order to solve this problem the Directive of the European Parliament and of the Council 2001/42/EC of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment was adopted, which serves as basis for strategic EIA.

The Directive sets the minimum requirements for carrying out strategic assessment of effects on environment, as well as plans and programmes defined, for which this is a compulsory demand. These fields/sectors are:

- agriculture,
- forestry,
- fishery,
- power industry,
- industry, transport,
- waste management,
- management of water resources,
- telecommunications,
- tourism,
- territory planning measures, which are mentioned in the Annexes of the EIA Directive 97/11/EC.

The strategic EIA is compulsory also for plans and programmes, which can affect territories of Nature-2000 in accordance with articles 6 and 7 of the Directive 92/43/EEC. For other sectoral plans and programmes the strategic EIA is not compulsory.

The Directive identifies three cases and provides assessment criteria, when the state has a possibility to evaluate necessity to carry out the strategic EIA in some fields/sectors. Among these plans and programmes are those, the implementation of which might cause substantial effect on environment and:

- relate only small territory of local government and the use of it on local level;
- there are just small adjustments to be done in the plans/programmes;
- they form basis or the main conditions to adopt the planned economic activities in future (Semėnienė, Stanikūnienė, 2003).

When making a decision to carry out the strategic EIA, it is necessary to consult with environment protection bodies and competent institutions as well as to inform citizens about assessment results.

One of the main steps in making a strategic EIA is the preparation of a report on assessment of effect on environment. This report is to be prepared by the institution responsible for elaboration of the plan or programme in accordance with requirements defined in Annex 2 to Directive 2001/42/EC. These requirements concern mainly description of the programme, its relation to other plans and programmes, as well as analysis of possible effects in different aspects (Semėnienė, Stanikūnienė, 2003).

If necessary, the initiator attracts experts to carry out the strategic EIA or, if essential, consults with national institution, which is responsible for strategic EIA.

In the report it is important to assess all substantial effects on environment, but also to assess proposed alternative solutions. The prepared report has to be laid open for evaluation in the society, environmental institutions, as well as in the institutions responsible for elaboration of the programme (plan). In cases when in result of implementation of the plan or programme a neighbouring country might be affected, the consultations must be started with competent institutions of this state, as well as society of the neighbouring country has to be informed.

Before adoption of the plan or programme the comments and suggestions given by interested institutions and society have to be analysed, and they have to be taken into account working on final version of the plan/programme. In the evaluation process the interested parties have to be introduced with the final version of the report, where responses to the following questions should be given:

- why this particular alternative has been adopted
- how environmental issues are integrated in the programme
- how viewpoints of society and interested institutions have been taken into account when making decisions
- which solutions are suitable to do the monitoring (Semėnienė, Stanikūnienė, 2003).

Unlike EIA Directive, the strategic EIA Directive emphasizes necessity to carry out the monitoring. In order to assess effectiveness of plans and programmes from environmental point of view, it is possible to use already existing practice of monitoring and accessible data, for example, annual report of environmental situation.

The requirements of the Directive become binding upon the EU Member States from 21 July 2004.

Public participation process is similar to the public participation process in Environmental Impact Assessment (see paragraph “3.1.5. Public participation in EIA”).

### **3.2.3. Strengths and weaknesses of SEA**

#### Strengths ( + ) and weaknesses ( - )

+

- Makes it possible to investigate alternatives early in the decision-making process, which also gives experts more time to collect relevant data (Thérivel et al., 1992).
- Helps to put principles of sustainability into operation (Thérivel et al., 1992).
- Gives an opportunity for public involvement in policy formulation (Thérivel et al., 1992).
- Ensures systematic appraisal of choices (Thérivel et al., 1992).
- It is possible to see cumulative effects (but maybe hard).
- Makes consideration of more diverse alternatives possible than when using EIA.
- Facilitates more continuous communication between different actors (Balfors, 1997).

-

- Proposals for plans and policies are often diffuse, and decisions are often made in an incremental and not clearly formulated way, which may make the performance of SEAs hard (Thérivel et al., 1992).
- Problems with system boundaries may occur. Many potential decisions flow from a higher-level decision, which leads to analytical complexity (Thérivel et al., 1992).

- A large number of varieties of alternatives have to be considered at the different stages of policy formulation (Thérivel et al., 1992).
- There is a high uncertainty in trying to tell the future, especially concerning effects of policies. This is worsened by the limited accessibility of information at early strategic levels (Glasson et al., 1999).
- There are only a few models for performance of SEA, because there are few reports of successful SEAs (Glasson et al., 1999).
- The high diversity in situation where SEA is needed makes standardisation of guidelines difficult (Balfors, 1997).
- Using the SEA as a way of integrating sustainability aspects in policies, plans and programmes may have a disadvantage by being a very long-term approach and also because sustainable development parameters may be hard to set as well as carrying capacity levels, since many outside factors contribute (Glasson et al., 1999).

## 4. Comparison of Lithuania and Sweden

### 4.1. National Environmental Management System in Lithuania

The underlying provision of environmental management is that general guidance of environmental protection is provided, on national scale, by the supreme legislative body. According to the Constitution of the Republic of Lithuania (1992), such body is the *Seimas* of the Republic of Lithuania. The *Seimas* formulates a common national environmental policy and establishes general organisational measures in the area of environmental protection and efficient use of natural resources (Semėnienė, Stanikūnienė, 2003).

The Government of the Republic of Lithuania as the supreme executive body is responsible for the implementation of environmental laws enhanced by *Seimas*. The Ministry of Environment (MoE) is the main executive body implementing overall environmental management in the Republic of Lithuania (Semėnienė, Stanikūnienė, 2003).

In the regions, the MoE has delegated its functions to Regional Environmental Protection Departments (REPDs) and Environmental Protection Agencies (EPAs). There are 8 REPDs and 56 EPAs empowered by ministry of Environment.

Municipalities represent lower administration units exercising the right of self-government. Management functions are performed by local self-government institutions, which are duly empowered and act in accordance with the Law on Local Self-Government of the Republic of Lithuania (1994).

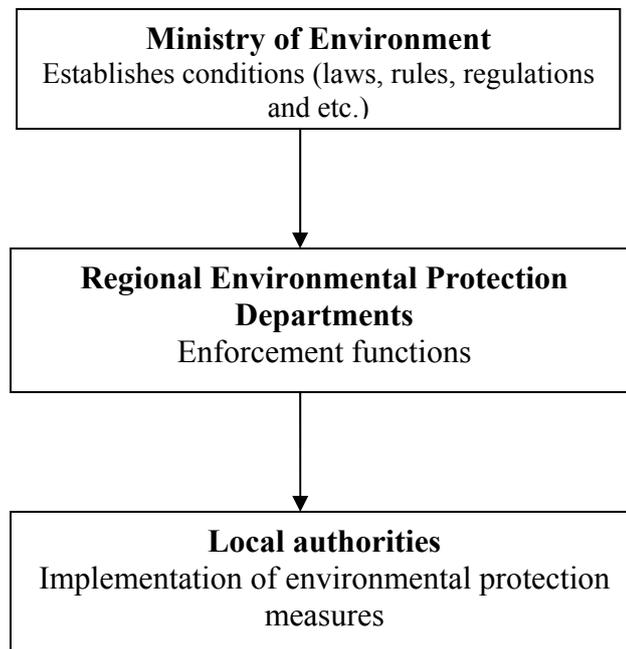
The Law on Environmental Protection (1992) is the main law defining responsibilities of state institutions in area of environmental protection. It provides for the Ministry's responsibility for drafting of laws and other legal acts and drafting and approving of environmental protection standards, rules and regulations. The Ministry of Environment exercises state control over protection of the environment and use of natural resources. It establishes conditions for the use of natural resources and permits issuance procedures, elaborates national environmental programmes and exercise control over their implementation. MoE is also responsible for integrated environmental monitoring.

On the regional level, Ministry of Environment is represented by Regional Environmental Protection Departments, which carries out control over compliance with environmental

legislation by local authorities, companies, organisations and residents and issues permits to use natural resources. The REPDs also take part in the elaboration of environmental programmes and perform programme enforcement functions.

Local government institutions as the lowest level may establish (where necessary) for their territories standards stricter than the national standards. They manage, use and protect natural resources and environmental objects assigned to them and allocate natural resources. There are 60 municipalities in Lithuania and each of them prepares, approves and implements a municipal programme for environmental protection and use of natural resources. Municipalities are entitled to establish and dispose of environmental protection funds.

*Figure 4.1.* below shows structure of Environmental protection in Lithuania.



*Figure 4.1.* Environmental protection structure in Lithuania

In the Order of investigating the Environmental Impact Assessment documents at the Ministry of the Environment and subordinate institutions, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 333, August 7, 2000, functions of Ministry of the Environment and its subordinate institutions during investigation of EIA documents are prescribed.

*Ministry of the Environment* coordinates the environmental impact assessment process. Investigates and ratifies the programs of environmental impact assessment, examines reports of environmental impact assessment and makes justified decisions if the proposed economic activity, taking into account its nature and size, may be carried out in the chosen site for the planned economic activities that are included in the List of Proposed Economic Activities that Shall Be Subject to the Screening for Obligatory Environmental Impact Assessment. EIA is performed in compliance with the United Nations Convention on Environmental Impact Assessment in a Transboundary Context (ESPOO). The proposed economic activity can be proposed to be carried out in the territory of several Counties of the Republic of Lithuania, in the territories supervised by several Regional Environmental Protection Departments of the

MoE or the proposed economic activity may cause impacts on the environment of several Counties (regions) of the Republic of Lithuania (The Order No. 333, 2000).

*Regional Environmental Protection Departments of the Ministry of the Environment* coordinates the EIA process, performs screening for the planned economic activities that are included in the List of Proposed Economic Activities that Shall Be Subject to the Screening for Obligatory Environmental Impact Assessment and prepare screening conclusions regarding obligatory environmental impact assessment for these economic activities. Investigates and ratifies the programs of environmental impact assessment, examines reports of environmental impact assessment and makes justified decisions if the proposed economic activity, taking into account its nature and size, may be carried out in the chosen site for the planned economic activities that are included in the List of Proposed Economic Activities that Shall Be Subject to the Screening for Obligatory Environmental Impact Assessment. REPD provides written conclusions regarding the possibilities to carry out the proposed economic activity when the decision is made by the MoE or by the Hydrographic Network Service of the Ministry. Cases when decision shall be made by the Hydrographic Network Service of the Ministry of the Environment are exception for the REPD (The Order No. 333, 2000).

*Hydrographic Network Service of the Ministry of the Environment* coordinates the environmental impact assessment process, performs screening, investigates and ratifies the programs of environmental impact assessment, examines reports of environmental impact assessment and makes justified decisions if the proposed economic activity, taking into account its nature and size, may be carried out in the chosen site for the following types of economic activities:

- Installation of ponds (amount of water held back or stored is less than 5 million m<sup>3</sup> but more than 200 000 m<sup>3</sup>, or the area is less than 250 ha but more than 10 ha);
- Installations for hydroelectric energy production or installations that use the hydroelectric energy (hydroelectric power stations, mills, sawmills) (with a maximum power of more than 0,1 MW);
- Construction of inland waterways, ports, piers or terminals which can take vessels of less than 1350 tonnes but with an area of more than 1 ha;
- Hydrotechnical flood-relief installations (with an area of more than 1 ha);
- Installations of long-distance aqueducts (with a length of more than 1 km);
- Transfer of water resources between river basins where the amount of water transferred is less than 100 million m<sup>3</sup>/year or where the multi-annual average flow of the basin of abstraction is less than 2 000 million m<sup>3</sup>/year and where the amount of water transferred is less than 5 % of this flow;
- Lake purification and regulation of lake water level (when purified of regulated water area exceeds 0,5 ha);
- Extraction of sediments from the bottom of the sea or inner water bodies for such purposes as construction, "beach-feeding" or industry (The Order No. 333, 2000).

#### **4.2. Lithuanian NGO and other private stakeholders**

According to ICM Progress (2002) and The Coastal Union - EUCC (2000) following Lithuanian NGO's are:

Coalition Clean Baltic (CCB) - the first environmental NGO-network established in the Baltic Sea Region, established in 1990. Today it has 25 member organisations in all 9 countries bordering the Baltic Sea. The main goal of CCB is the protection and improvement of the

Baltic Sea environment and natural resources. It is gathering, producing and distributing information about environmental problems in the Baltic Sea Area.

Environmental Centre for Administration and Technology - Lithuania (ECAT-Lithuania) is a support unit for Lithuanian municipalities and organisations involved in environmental issues. It is an independent non-profit-making and non-governmental organisation.

EUCC Baltic Office - a branch office of the European Union for Coastal Conservation aims to promote an integrated approach towards coastal management. The Office is a partner in a number of nature conservation projects.

Lithuanian Fund for Nature - an independent charity organisation promoting any activities aimed at the preservation of living nature. The Fund was established in 1991 and it was the first public organisation in Lithuania that accumulated funds and was supporting programmes and projects designed to preserve wildlife and vegetation.

Lithuanian Green Movement (LGM), or Friends of the Earth Lithuania, was established in 1988 and it is among the biggest and strongest Lithuanian environmental NGOs. Its most famous actions influenced the process of democratisation of Lithuania in the period 1988-1990. LGM is an umbrella union of environmental clubs, groups and individuals. Its main activities are protection of the Baltic Sea, conservation of protected territories and natural landscape, an energy campaign that works for decentralisation and democratisation of the existing energy system, and air pollution and acid rain. Environmental education is a big part of LGM work, focusing on sustainable development and creation of a pluralistic, democratic society.

The Regional Environmental Centre for Central and Eastern Europe (REC) is a non-advocacy, not-for-profit organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The Centre fulfils its mission through encouraging co-operation among non-governmental organisations, governments and businesses, supporting the free exchange of information and promoting public participation in environmental decision-making.

### 4.3. EIA in Lithuania

#### 4.3.1. Lithuanian Republic Laws, regulating EIA process

**Law on Environmental Impact Assessment of the Proposed Economic Activity 15 August 1996 (No. I-1495)** (*Lietuvos Respublikos Planuojamos ūkinės veiklos poveikio aplinkai vertinimo įstatymas. 1996 m. rugpjūčio 15 d. Nr. I-1495*) is the main law regulating the environmental impact assessment process and relationships between the parties. This law is a legal background of Lithuanian Environmental Impact Assessment Law. It gives general ideas how this procedure should be done (EIA programme, evaluation of procedure) and specifies responsible institutions evaluating EIA. The Government had half of month for preparation of the legal acts, which were necessary for the implementation of this law, and law came to force on 30 of August, 1996.

There were many changes and improvements in Lithuanian legislation during past 10 years, especially after joining the European Union. Due to these reasons, Law on Environmental Impact Assessment and laws connected to this were improved several times.

**In the Law on Environmental Impact Assessment of the Proposed Economic Activity 18 April 2000 (No. VIII-1636)** (*Lietuvos Respublikos Planuojamos ūkinės veiklos poveikio aplinkai vertinimo įstatymo pakeitimo įstatymas. 2000 m. balandžio 18 d. Nr. VIII-1636*) first corrections and improvements were made. According to this law, "Environmental impact

*assessment*" means the process of identifying, characterising and assessing the potential environmental impacts of the proposed economic activity. *"Environmental impact"* means anticipated change in the environment caused by a proposed economic activity. *"Proposed economic activity"* is defined as building of new construction works, reconstruction of the existing construction works, implementation of new technologies, modernisation or change of the production process and technologies, change of the mode of production, the production output or type, exploitation of entrails of the earth and other natural resources, as well as the economic activity provided for in land survey, forest and water management projects.

The latest improvements of Law on Environmental Impact Assessment have been made in 21<sup>st</sup> of June, 2005 (No. X-258). New concepts described below were added in this edition.

*"Responsible institution"* – Ministry of the Environment or other institution, empowered by the government, which coordinates the environmental impact assessment process evaluation and performs other functions, provided by this law ([translated from Lithuanian](#)).

*"Organiser (client) of the proposed economic activity"* means a natural or legal person, also company branches of the EU state members or other foreign countries companies operated in Lithuania, that intends to start the proposed economic activity and is responsible for performing the procedures of environmental impact assessment, established by this Law ([translated from Lithuanian](#)).

*"Preparer of the environmental impact assessment documentation"* means a natural person, obligated by the organiser (client) of the proposed economic activity, having appropriate higher education or qualification in the field, satisfied to the preparation of EIA documents or its parts particularity, or legal person, having specialists with appropriate higher education or qualification in the field, satisfied to the preparation of EIA documents and its parts particularity ([translated from Lithuanian](#)).

*"Significant impact to the environment"* - anticipated environmental change, for whose impact to the environment avoidance, minimisation, compensation or its consequences elimination, is necessary to provide appropriate means ([translated from Lithuanian](#)).

*"Society"* is one or several natural or legal persons and its organizations, associations and groups ([translated from Lithuanian](#)).

*"Interested society"* – society, for which proposed economic activity will make or can make the impact; or it has interest in the proposed activity. According to this definition nongovernmental organizations, participating in solving of environmental protection problems and operating by the Lithuanian legislation requirements are considered as interested society too ([translated from Lithuanian](#)).

There are many other laws, rules, orders and regulations, connected and regulating EIA procedure in Lithuania. Below I am describing very shortly just most important ones.

**Regulations on preparation of the Environmental Impact Assessment program and report, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No.262, June 30, 2000** (*LR Aplinkos ministro 2000 06 30 įsakymas Nr.262 "Dėl Poveikio aplinkai vertinimo programos ir ataskaitos rengimo nuostatų patvirtinimo"*). These regulations are applied when preparing the program of environmental impact assessment.

Program and report is prepared whenever environmental impact assessment is obligatory and included in the lists of the types of Proposed Economic Activities that shall be subject to the Environmental Impact Assessment and shall be subjected to the screening for obligatory EIA. When the participants of the environmental impact assessment process require that screening for obligatory environmental impact assessment shall be performed also for the proposed activity not included in the lists [5.5.4. paragraph] Ministry of the Environment or other empowered institution decides that environmental impact assessment is obligatory for this activity.

**Methodological guidelines on the screening of Proposed Economic Activity, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 263, June 30, 2000** (*LR Aplinkos ministro 2000 06 30 įsakymas Nr.263 "Dėl Planuojamos ūkinės veiklos atrankos metodinių nurodymų patvirtinimo"*). These guidelines are applied when performing the screening of proposed economic activities for the obligatory environmental impact assessment. Screening is performed for the planned economic activities that are included in the list of Proposed Economic Activities that Shall Be Subject to the Screening for Obligatory Environmental Impact Assessment [they are listed in paragraph 5.5.4.]. The aims of screening is to determine if environmental impact assessment is obligatory for a particular proposed economic activity and to ensure that the environmental protection issues are considered in the earliest stage of the planning of the economic activity thus enabling provisions for integrated impact prevention and avoidance measures instead of technical negative impact abating solutions.

**The Order of informing the public and public participation in the process of Environmental Impact Assessment, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 277, July 10, 2000** (*LR Aplinkos ministro 2000 07 10 įsakymas Nr.277 "Dėl visuomenės informavimo ir dalyvavimo planuojamos ūkinės veiklos Poveikio aplinkai vertinimo procese tvarkos patvirtinimo"*). This Order regulates the process of informing the public about the environmental impact assessment as well as participation of the public in the environmental impact assessment. In cases when an economic activity that is proposed to be carried out in the territory of the Republic of Lithuania may cause a significant negative impact on the environment of any other State that has signed the UN Convention of 1991 on Environmental Impact Assessment in a Transboundary Context, or upon request of such a State, the public is participating in the process of environmental impact assessment in accordance with the requirements of the above mentioned Convention, international agreements between relevant States and the Republic of Lithuania, the Law on Environmental Impact Assessment of Proposed Economic Activities of the Republic of Lithuania, and other relevant legal acts.

**Guidelines on the quality control of the Environmental Impact Assessment of the Proposed Economic Activity, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 305, July 17, 2000** (*LR Aplinkos ministro 2000 07 17 įsakymas Nr.305 "Dėl planuojamos ūkinės veiklos Poveikio aplinkai vertinimo atlikimo kokybės įvertinimo atmintinės patvirtinimo"*). These guidelines aim at giving guidance to the competent authority (Ministry of the Environment or other empowered institution), relevant parties of the environmental impact assessment and the organiser (developer) of the proposed economic activity or the preparer of the environmental impact assessment documents, obliged by the organiser of the proposed economic activity. The aims of it are to determine if environmental impact assessment procedures, regulated by the Law No. VIII-1636 and supplementary legal acts have been carried out properly. To evaluate if the organiser of the

proposed economic activity or the preparer of the EIA documents has provided complete information required to make a justified decision if the proposed economic activity by virtue of its nature and environmental impacts, may be carried out in the chosen site. To perform long term monitoring of the EIA system quality, e.g. to identify the most problematic stages of the EIA process, the procedures that are improperly carried out, environmental components that are most complicated to assess, etc.

**The Order of investigating the Environmental Impact Assessment documents at the Ministry of the Environment and subordinate institutions, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 333, August 7, 2000** (*LR Aplinkos ministro 2000 08 07 įsakymas Nr.333 "Dėl planuojamos ūkinės veiklos Poveikio aplinkai vertinimo dokumentų nagrinėjimo Aplinkos Ministerijoje ir jai pavaldžiose institucijose tvarkos patvirtinimo"*). Functions of the competent authority shall be performed by the Ministry of the Environment, Regional Environmental Protection Departments of the Ministry of the Environment and the Hydrographic Network Service of the Ministry of the Environment as defined in the Law on Environmental Impact Assessment of the proposed Economic Activity. These institutions perform screening, ratify the programs of environmental impact assessment, examine the proposals of the public, the reports of environmental impact assessment and conclusions issued by other relevant parties regarding the environmental impact assessment programs, reports and the feasibility of the proposed economic activity, and make justified decisions (if needed, with an assistance of consultants or experts) if the proposed economic activity, taking into account the nature, size or proposed location of the economic activity may be carried out in the chosen site.

**Instructions concerning society information and participation in Proposed Economic Activity Environmental Impact Assessment evaluation process, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No.D1-370, July 15, 2005** (*Visuomenės informavimo ir dalyvavimo planuojamos ūkinės veiklos poveikio aplinkai vertinimo procese tvarkos aprašas. Patvirtinta Lietuvos Respublikos aplinkos ministro 2005 m. liepos 15 d. įsakymu Nr. D1-370*). This inventory regulates informing of society about planned activity environmental impact assessment evaluation process and society participation in this it. It establishes procedures of society informing and participation, specifies responsible persons and theirs functions for informing society.

**Declaration forms and institutions responsible for monitoring declaration confirmation and subscription of ecological network of nature areas NATURA 2000 environmental impact assessment evaluation of investment projects, financed but the European Union, Approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. D1-44, January 27, 2004. In May 10, 2004 it was improved, No. D1-269** (*LR Aplinkos ministro 2004-01-27 įsakymas Nr. D1-44 "Dėl Europos sąjungos finansuojamų investicinių projektų poveikio aplinkai vertinimo deklaracijos formos ir institucijos, atsakingos už Europos ekologinio tinklo NATURA 2000 teritorijų monitoringą, deklaracijos formos patvirtinimo bei šių deklaracijų pasirašymo" (nauja redakcija 2004-05-10 Nr. D1-269)*).

#### **4.3.2. The aims and the objectives of Environmental Impact Assessment**

Environmental Impact Assessment is a process that predicts, examines and evaluates potential environmental impacts of a project and ensures that the decision makers are provided with in

formation about negative environmental effects which are likely to arise from development actions and know the public opinion before giving development consent (MoE, FEI, 2001).

The aim of an Environmental Impact Assessment is to predict the likely effects of a proposed development on the environment, assess their significance, and devise means whereby any significant negative impacts can be mitigated (reduced to acceptable levels) (JICA et al, 2004).

The main objectives of EIA are:

- to assess potential environmental effects of a project and ensure that environmental matters are taken into account before development consent is given;
- to provide information on the project for all EIA participants;
- to optimize project design and planning by identifying those aspects of location, chosen technical solutions, construction and operation that may cause adverse environmental effects;
- to identify and evaluate viable alternatives of the project, enabling to choose the most attractive one;
- determine if the proposed economic activity by virtue of its nature and environmental impacts may be carried out in the chosen site;
- to devise measures for avoiding, minimizing, remedying or compensating negative impacts (MoE, FEI, 2001).

#### 4.3.3. Environmental components, which EIA evaluates

The term "environment", used in the very definition of EIA might be interpreted differently in various countries. The Environmental Protection Law of the Republic of Lithuania defines the environment as "the whole of mutually related elements functioning in nature (the earth's surface and underground, air, water, soil, flora fauna, organic and inorganic material, anthropogenic components), as well as the natural and anthropogenic systems uniting them". It is very important to realize that EIA does not deal merely with impacts on the natural environment but also evaluates potential effects on the man made environment, including human health, security, social cultural and economical welfare (MoE, FEI, 2001).

In the *table 4.1.*, environmental components, which are considered performing EIA, are listed.

**Table 4.1. Relevant Environmental components (MoE, FEI, 2001).**

<b>Physical environment</b>	
Atmosphere, climate	air quality, temperature, rainfall, wind, etc.
Water resources	water quality and quantity
Soil and geology.	erosion, contamination, etc
Flora and fauna	aquatic and terrestrial vegetation; birds, mammals, fish, etc.
Human beings	physical and mental health and well-being
Landscape	landscape characteristics
Cultural heritage	protected areas, built heritage, historic and archaeological sites
Energy	light, noise, vibration, etc.
<b>Socio - economic environment</b>	
Economic base	labour market characteristics, labour supply and demand, etc.
Demography	population structure and trends

Housing	supply and demand
Local services	supply and demand of services: health education, police, etc.
Socio-cultural	quality of life, social problems, community stress and conflicts

#### 4.3.4. Activities of certain public and private projects, which needs to be evaluated by EIA

The Law on Environmental Impact Assessment (2000) specifies effects of certain public and private projects on the environment, which shall be subject to the EIA. These are:

1. Agriculture and aquaculture
  - 1.1. Rearing of pigs (900 and more places for sows; 3 000 and more places for other pigs)
  - 1.2. Rearing of poultry (85 000 and more places for broilers; 60 000 and more places for hens)
  - 1.3. Dams and ponds installation (when the amount of water held back or stored is 5 millions m<sup>3</sup> or more)
2. Extractive and processing industry
  - 2.1. Extraction and processing of oil (excluding undertakings manufacturing only lubricants from crude oil)
  - 2.2. Extraction of natural gas (when the amount extracted exceeds 500 000 m<sup>3</sup>/day)
  - 2.3. Extraction of peat (with the surface of the site of 150 ha or more)
  - 2.4. Quarrying and extraction of other mineral resources (when the surface of the site is 25 ha or more)
3. Energy industry
  - 3.1. Thermal power stations and other combustion installations including industrial installations for producing electricity, heat, steam or hot water (with an output of 300 MW or more)
  - 3.2. Nuclear power stations and other nuclear reactors including decommissioning of such power stations or reactors (\*)
  - 3.3. Production, processing, enrichment, storage and disposal of nuclear fuel
  - 3.4. Gasification or liquefaction of coal or bituminous shale (with a capacity of 500 t/day or more)
4. Production and processing of metals
  - 4.1. Initial smelting of steel and cast-iron
  - 4.2. Production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes
5. Mineral and building material industry
  - 5.1. Extraction of asbestos and for the processing and transformation of asbestos and products containing asbestos for asbestos-cement products, with an annual production of more than 20 000 t/year of finished products, for friction material, with an annual production of more than 50 t/year of finished products, and for other uses of asbestos, utilization of more than 200 t/year
6. Chemistry industry
  - 6.1. Manufacture on an industrial scale of the following chemical substances:
    - organic chemicals;
    - inorganic chemicals;
    - phosphorous-, nitrogen- or potassium-based fertilizers (including compound fertilizers);
    - other agrochemicals, including biocides;

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(\*) Nuclear power stations and other nuclear reactors cease to be such an installation when all nuclear fuel and other radioactively contaminated elements have been removed permanently from the installation site

- pharmaceutical products.

Installation for storage (warehouses and storage grounds) of petroleum, petrochemical, or chemical products with a capacity of 20 000 t or more)

- 6.2.
- 6.3. Production of explosives
7. Wood and paper industry
  - 7.1. Production of paper and board (with a production capacity exceeding 200 t/day)
  - 7.2. Production of pulp from timber or similar fibrous materials
8. Objects of infrastructure
  - 8.1. Construction of sea ports, piers or terminals (for loading and unloading) which can take vessels of 1 350 t or larger
  - 8.2. Construction of inland waterways, ports, piers or terminals (for loading and unloading) which can take vessels of 1 350 t or larger
  - 8.3. Construction of express motorways and highways
  - 8.4. Construction of a new road of 4 or more lanes, or reconstruction of an existing roads as to provide 4 or more lanes (where such new road, or reconstructed section of road would be 10 km or more in a continuous length)
  - 8.5. Construction of lines for public railway traffic
  - 8.6. Installation of airports or aerodromes with a basic runway length of 2 100 m or more
  - 8.7. Construction of pipelines for the transport of gas, oil or chemicals with a diameter of 800 mm or more and a length of 40 km or more
  - 8.8. Construction of overhead electrical power lines with a voltage of 220 kV or more and a length of 15 km or more
9. Other types of propose economic activity
  - 9.1. Groundwater abstraction (where the annual volume of water abstracted is equivalent to or exceeds 10 million m<sup>3</sup>)
  - 9.2. Artificial groundwater recharges schemes (where the annual volume of water recharged is equivalent to or exceeds 10 million m<sup>3</sup>)
  - 9.3. Transfer of water resources between river basins where the amount of water transferred is equivalent to exceeds 100 million m<sup>3</sup>/year or where the multi-annual average flow of the basin of abstraction is equivalent to or exceeds 2 000 million m<sup>3</sup>/year and where the amount of water transferred is equivalent to or exceeds 5 % of this flow
  - 9.4. Waste water treatment plants for cities, tows and villages with a capacity equivalent to or exceeding 50 000 and more population equivalent
  - 9.5. Installations for processing, usage, storage and disposal of radioactive waste including the decommissioning of such installations
  - 9.6. Installations for disposal or usage of hazardous waste
  - 9.7. Installations for disposal or usage of non-hazardous waste via incineration or chemical treatment (with a capacity equivalent to or exceeding 100 t/day)

Other list shows proposed economic activities that shall be subject to the screening for obligatory Environmental Impact Assessment and the Ministry of the Environment or other empowered institution after performing the screening decides that environmental impact assessment is obligatory for this activity. As my work is focused on Klaipeda harbour where are many different kind companies, which need to full fill requirement for specific industries

companies, I will exclude just these activities, which are connected directly with works and impact to the Baltic Sea coastal zone. These are:

- Building of storage facilities (warehouses and storage grounds) for petroleum, petrochemical and chemical products with a capacity of less than 200 000 tonnes but more than 5000 tonnes)
- Reclamation of land from the sea
- Installations for the harnessing of wind power for energy production (wind farms) with a height of more than 10 m (including vane length) or having 2 or more turbines
- Installations for the constructions and repair of ships (shipyards)
- Construction of railway, motor, air or sea transport freight distribution or transshipment facilities or terminals (with an area of more than 0,5 ha)
- Construction of sea ports, piers or terminals which can take vessels of less than 1350 t but with an area of more than 1 ha
- Construction of inland waterways, ports, piers or terminals which can take vessels of less than 1350 t but with an area of more than 1 ha
- Deepening of the entrance channels and water space of sea ports
- Hydrotechnical flood-relief installations (with an area of more than 1 ha)
- Coastal installations for combating erosion or other types of coastal works capable of altering the coast such as dykes, moles, etc.
- Construction of bridges (with a length of more than 250 m)
- Selection of the dumping sites for extracted soil
- Extraction of sediments from the bottom of the sea or inner water bodies for such purposes as construction, "beach-feeding" or industry
- Yacht or boat marinas (with an area of more than 0,2 ha)

#### 4.3.5. The structure of EIA procedure

It should be clearly noted that EIA should be a cyclical activity, with feedback and interactions between the various stages. EIA should be performed only for activities that have the potential for significantly affecting the environment due to the nature, size or proposed location (MoE, FEI, 2001).

There are 12 main activities in the approach to EIA as defined by Lithuanian law. These are in the order in which they occur:

**Screening:** The developer (or their consultants) submits to the Competent Authority (CA) information on the characteristics of the site and the proposed development (size; technology; use of raw materials and natural resources; production of waste; pollution or nuisance; accident prevention). The CA then follow a legally-defined procedure to determine the level of study required, with the aid of lists of projects for which EIA is mandatory, or which need to be screened on a case-by-case to determine whether EIA is necessary. The CA then notifies the developer of their conclusions.

**Public Consultation:** The developer informs the public about the screening conclusion or the forthcoming EIA, by placing announcements at public places and in the press, plus TV and radio if possible. Within 10 days the public and the developer both have the right to present justified proposals to the CA for them to reconsider the screening conclusion. In this event the CA invites the EIA parties to participate in preparing the final conclusion.

**Scoping:** The developer (or their consultants) defines the scope of the EIA by preparing an EIA programme and contents of the EIA report, following guidance provided in legislation. These are submitted to the EIA parties, who either provide their conclusions or require amendments to the programme before providing conclusions on the revised version. The developer then submits the programme and conclusions to the CA for ratification, after which the EIA study may begin.

**Baseline Data Collection:** The developer (or their consultants) collects both qualitative (e.g. aesthetic and historical values) and quantitative (e.g. pollution and noise levels) information to characterise environmental conditions at and around the area likely to be affected by the development (directly or indirectly). This is found in documents, maps and databases, but may require additional field studies and interviews with local communities. Fields to be covered are defined by the approved scope of the EIA programme, and include socio-economic, biological, physico-chemical and cultural factors.

**Impact Identification and Significance:** The issues identified through scoping are then analysed in more detail to determine the expected impacts of the project (positive, negative, direct, indirect, cumulative; both when it is built and when it is in operation). This uses appropriate methodologies, which may include impact prediction checklist, matrices, networks or overlay maps, aided by mathematical modelling and other techniques where appropriate. According to the Lithuania EIA Manual the significance of each impact should be assessed on the basis of: environmental and other standards; scientific and professional judgement; level of public concern; magnitude, extent, duration and reversibility of ecological change; impacts on social values and quality of life; and the availability of mitigation.

**Mitigation:** Measures are then devised and included in the project to avoid altogether or reduce to acceptable levels all adverse environmental effects. In the extreme case of highly significant and adverse impacts, abandoning the project may be the only effective mitigation, although it is more normal to modify design, construction or scheduling practices to avoid environmental damage. Mitigation can be included at any stage, and if it is considered early enough many impacts can be avoided by selecting alternative locations, timings etc. the developer is responsible for devising and implementing mitigation and the authorities approving or regulating the project must ensure that the approved measures are carried out and prove effective.

**EIA Report Preparation:** The EIA is then presented in a report prepared by the developer (or consultants), following the ratified EIA programme. This contains detailed information on all topics included in the EIA, and includes an analysis of the alternative developments considered, a plan for environmental protection monitoring, an indication of any difficulties encountered, and a summary of all information provided in the report.

**Public Consultation:** The developer then organises public hearings at which the contents of the EIA report are presented, the questions of the public are answered, and the comments or proposals of the public (made before or during the meeting) are evaluated. The hearings are advertised as before, and are held in the territory of the administrative unit(s) in which the development would be located, during non-working hours. The developer (or consultants) then analyses the proposals of the public in a separate document, and revise the EIA report to take the proposals into account. Both documents are submitted to the EIA parties, who provide their conclusions on the report and the possibility of the development going ahead (JICA et al, 2004).

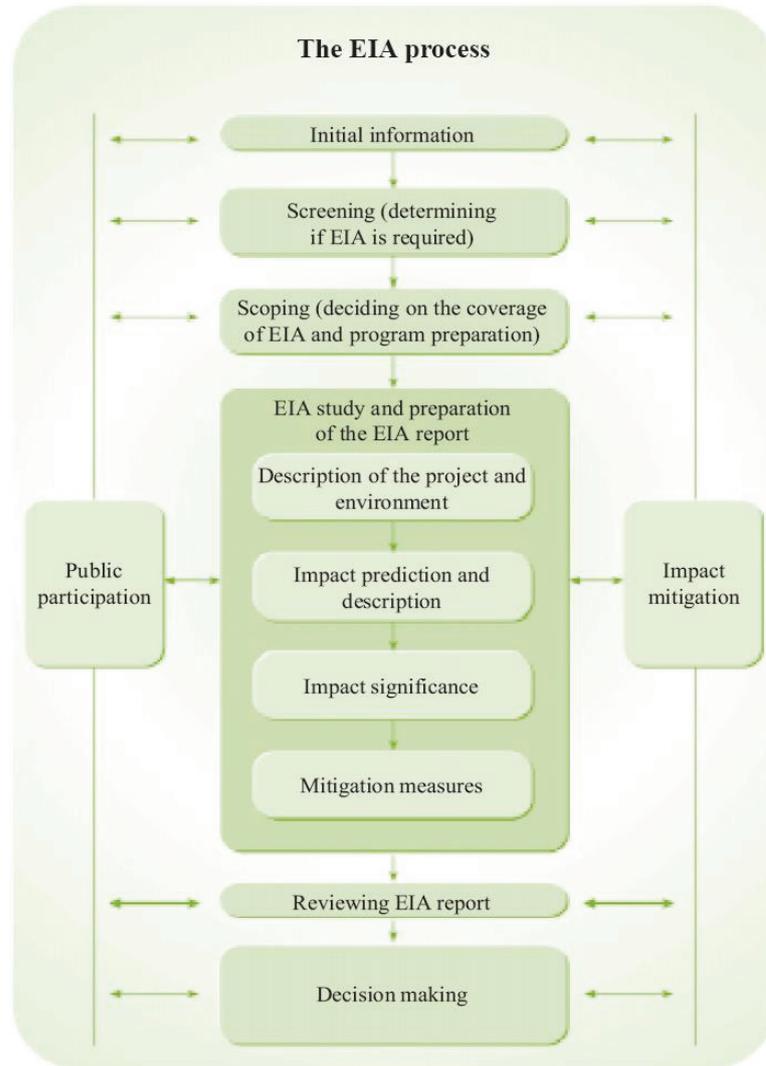
**Reviewing EIA report:** If CA decides that the quality of EIA report is not satisfactory, or some topics are described not comprehensively enough, the organizer (developer) of the proposed economic activity or the preparer of the EIA documents should revise and amend the report. The relevant parties of EIA (governmental institutions, responsible for health protection, fire-prevention, protection of cultural assets, development of economy and agriculture, and municipal administrations) in accordance with their competence examine the environmental impact assessment programs and reports, and provide conclusions regarding the environmental impact assessment programs, reports and the feasibility of the proposed economic activity. After preparing the EIA report, the organiser (developer) is obliged to organise public hearings. If justified proposals regarding the EIA study or report are received from the public, the organiser (developer) or the preparer of EIA documents must take them into account by amending the report and before submitting the report to the relevant parties of EIA. Additionally, proposals of the public must be evaluated in a separate document (MoE, FEI, 2001).

**Decision-Making:** The developer submits to the CA the EIA report, the evaluation of the proposals from the public and the conclusions of the EIA parties, and the CA makes a justified decision on whether the development, taking into account its nature, size, location and environmental impacts, may be carried out at the chosen site. To avoid any bias, particular emphasis is placed on the conclusions of the EIA parties, who are experts in their particular fields. The CA decision is binding, and a positive decisions remains in force for five years.

**Public Consultation:** The CA informs the public of its decision by placing on its Internet homepage and in the official newspaper *Valstybes Zinios*, information on the decision, any attached conditions, and if necessary the main mitigation and compensation measures. The public can request more comprehensive information on the decision if they wish. The developer also informs the public of the decision, via the media as before.

**Monitoring:** The Lithuanian law on EIA requires that the EIA report includes a plan for environmental protection monitoring, and a decision by the CA in favour of a development would normally include a condition requiring that the monitoring plan is implemented. Monitoring should include confirmation and evaluation of impacts, verification of predictions and the effective functioning of mitigation measures. It can be conducted by the project operator, a contractor, an independent monitoring institute, or a government agency. If monitoring detects impacts that are different or greater than predicted in the approved EIA then the developer would be required to take action to avoid or reduce those impacts to the predicted level (JICA et al, 2004).

The *Figure 4.2.* below presents schematic EIA process.



**Figure 4.2.** The EIA process (MoE, FEI, 2001).

#### 4.3.6. The EIA programme

Scoping is the identification of environmental impacts that are most likely to be significant and therefore require investigation during the possible EIA study. Scoping is designed to identify the main issues and those issues perceived as being of importance in the eyes of the participants of the EIA process (including the public) (MoE, FEI, 2001).

Additionally, scoping should specify the impact prediction and assessment methods, set realistic boundaries for the assessment and specify key environmental criteria to be addressed (MoE, FEI, 2001).

The main aims of scoping (EIA program preparation):

- to determine the contents of the environmental impact assessment report (hereafter called "report"), its scope and the topics that shall be investigated in it;
- to ensure that only significant environmental impacts will be extensively investigated in the report and that the report will include all information that is required to make a

justified decision if the proposed economic activity by virtue of its nature and environmental impacts, may be carried out in the chosen site;

- to provide incentives for considering negative environmental impact prevention and mitigation measures and alternatives in the early stage of the planning of the economic activity;
- to plan the methods that will be used to predict of environmental impacts of the proposed economic activity, to determine their significance and for their assessment;
- to facilitate further procedures of project preparation and planning that shall be performed by the organiser (developer) of the proposed economic activity and to ensure that the relevant parties of the environmental impact assessment can participate in the process and provide their conclusions in proper time (MoE, FEI, 2001).

The Lithuanian law on EIA stipulates the maximum time that the Competent Authority, the EIA parties and the public are given in which to respond to the developer in the various stages (JICA et al, 2004). These are shown in the *Table 4.2.* below.

**Table 4.2.** Time allowed by law for the various parties to respond to each aspect of the Lithuanian EIA process (JICA et al, 2004).

<b>Procedure</b>	<b>Maximum duration (working days)</b>	<b>Responsible body</b>
<i>Screening:</i> determining whether EIA or screening is required	20	Competent Authority
<i>Scoping:</i> providing conclusions on the EIA programme	10 (+5 if EIA programme is resubmitted)	EIA parties
<i>Scoping:</i> ratification of EIA programme	10	Competent Authority
<i>Consultation:</i> presenting EIA report to the public	10	Developer
Providing conclusions on the EIA report and the possibility of the development going ahead	20 (+10 if EIA report is resubmitted)	EIA parties
Making a justified decision on whether the development may be implemented at this site	25	Competent Authority

This indicates that the EIA process will last a maximum of 95 working days (19 weeks) if the proposed development undergoes screening (plus 15 additional days if EIA documents are not properly prepared and have to be resubmitted), and 75 days (15 weeks) if screening is not required (again plus 15 days if documents have to be resubmitted) (JICA et al, 2004).

However this timescale relates to the response times of the official review and approvals process, and does not take into account the time taken for the developer or their consultants to conduct the EIA and prepare the various documents, to devise and design mitigation measures, and particularly the time required to collect sufficient survey data to prepare a reliable baseline of existing conditions (JICA et al, 2004).

In practice the EIA process takes much longer time because usually EIA report needs to be improved and this procedure requires additional time.

#### **4.3.7. The EIA report**

The EIA study is the systematic, reproducible and interdisciplinary prediction, identification, and valuation of impacts of a proposed development. Information that is generated during the study is presented in the EIA report (MoE, FEI, 2001).

The main requirement is to provide detailed information on all topics provided in the EIA program, to include an analysis of the alternatives that have been examined by the preparer of EIA documents, a plan for environmental protection monitoring, an indication of any difficulties (technical or practical deficiencies) encountered by the organiser (developer) of the proposed economic activity or the preparer of EIA documents in performing the environmental impact assessment, and a summary of all information provided in the report (MoE, FEI, 2001).

This phase of the EIA focuses on several main tasks:

- baseline environmental information;
- further work on impact identification, refining the understanding of the nature of impacts, extensive analysis of the impacts to determine their magnitude, extent and effect;
- judgement of the significance of the impacts and the needs for mitigation measures (MoE, FEI, 2001).

Baseline information should be determined and obtained considering local and scientific knowledge on the area including socio-economic issues. Both qualitative (e.g. aesthetic and historical values) and quantitative (e.g. pollution levels, noise level) information should be compiled. Baseline information can be usually found in documents, maps and databases, but sometimes additional field studies and interviews with local communities are necessary (MoE, FEI, 2001).

It is important to describe and analyze the accumulation of change to the environment due to project-related impacts, even though the projects may be small and their impacts minor. Therefore, spatial and temporal boundaries of the assessment of cumulative impacts should be established, and the activities (past, existing and proposed activities, including those associated with the present project under assessment) that will be addressed in the assessment should be identified. In this stage of the EIA, issues identified through scoping are analyzed and expected impacts are defined. This analysis should:

- identify the types of impact (socio-economic, biological, physico-chemical, cultural);
- predict the magnitude, the probability of occurrence, and the extent of the impact;
- determine the significance of the impact (MoE, FEI, 2001).

Checklists, matrices, various computer based mathematical models, methods of statistical and economical analysis, networks or overlay maps can be used in this stage.

Once the impacts have been identified, the potential magnitude, extent and duration of each one must be predicted. The identified and predicted impacts should be then evaluated (ranked) by assigning relative significance, and determining the order in which impacts are to be avoided, mitigated or compensated.

#### **4.3.8. Public participation at EIA procedure**

An EIA should ensure effective and well-timed public participation and consultation. All interested citizens and interest groups have the right to express their opinions, both while the EIA program is being prepared and when the EIA report has been completed. Public consultation and participation can be employed at virtually every stage of the EIA process, and can be especially useful in the procedures of screening, scoping, and EIA report preparation / review (MoE, FEI, 2001).

The Lithuanian Law on EIA defines the rights and functions of the public, ensuring public participation throughout the whole process of Environmental Impact Assessment:

- in the screening stage the public receives information about the screening conclusion (or information about the upcoming obligatory EIA in those cases when the proposed activity is included in the List of the Types of Proposed Economic Activities that Shall Be Subject to the Environmental Impact Assessment);
- during the stage of EIA report preparation, the public participates in an open meeting, organised by the organizer (developer) and also may submit motivated (justified) proposals regarding the environmental impact assessment and EIA report. These proposals shall be taken into account both by the competent authority and the organizer (developer);
- in the decision making stage, the public receives information about the decision if the proposed economic activity by virtue of its nature and environmental impacts, may be carried out in the chosen site both from the organizer (developer) and the competent authority;
- provisions of the Law on EIA also ensure that the public will be able to obtain information from other participants of the EIA process about potential environmental effects of the proposed economic activity, and that the organizer (developer) of a proposed economic activity will finance and organize public participation in the environmental impact assessment process (MoE, FEI, 2001).

Procedural details of public participation are provided in **The Order of informing the public and public participation in the process of Environmental Impact Assessment, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 277, July 10, 2000.**

In **The Order of Informing the Public and Public Participation in the Process of Environmental Impact Assessment, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. D1-370, July 15, 2005** (new redaction) definitions such as “*society*”, “*interested society*”, “*motivated suggestion*” and “*motivated suggestions evaluation made by arguments*” and few procedures are described more detail.

According to it, public participates in three stages:

- 1) when the upcoming environmental impact assessment of a proposed activity is included in the List of the Types of Proposed Economic Activities that Shall Be Subject to the Environmental Impact Assessment or about the screening decision if the proposed activity is included in the List of the Types of Proposed Economic Activities that Shall Be Subject to the Screening for Obligatory Environmental Impact Assessment. Also if participants of the EIA process require and the competent authority decides that screening shall be performed also for a proposed activity not included in the Lists. When it is announced about prepared EIA programme;
- 2) at the public presentation of the EIA report to the public,
- 3) when the public is informing about the decision of the competent authority.

During *the first stage*, the organizer (developer) of the proposed economic activity is obliged to inform the public about the obligatory EIA or the screening conclusion by announcing information required by the provisions of the Order in the places of public gatherings (e.g. on the municipal announcement boards), in the press of the city (-ies) or district (-s) where the proposed activity is planned to be carried out, and if the proposed activity is included in the List of the Types of Proposed Economic Activities that Shall Be Subject to the Environmental Impact Assessment - also in the national press and if possible - on the radio and television. Also, on the request of the public, the competent authority is obliged to provide more comprehensive information about the screening decision. Having all this information, the public may require reconsider the screening conclusion by presenting justified proposals to the competent authority within 10 days since the screening conclusion is published (MoE, FEI, 2001).

If the final reconsidered conclusion conflicts with the initial screening conclusion, the organizer (developer) shall inform the public again. If both conclusions are the same, it's the competent authority's obligation to provide a motivated answer regarding the final screening conclusion to the members of the public that have submitted the proposals. Throughout this stage (until the public meeting is commenced) the public may also submit their proposals regarding the ongoing EIA to the organizer (developer). Proposals should be registered.

During *the second stage* the organizer (developer) of the proposed economic activity is obliged to organize a public meeting where information about the proposed activity and the EIA report is presented the questions of the public are answered, and the comments or proposals of the public are evaluated (also those received in written form before the meeting). Before organising such meeting (at least 10 days in advance), the organizer (developer) shall announce about it via the means of mass media already noted before. The Order requires that the public meeting should be held in the territory of the administrative unit (-s) in which the proposed activity is intended to be carried out and during the non-working hours (advisable on weekends and holidays). Proposals of the public are taken into account by the organizer (developer) or the preparer of the EIA documents during amendments of the EIA report; analysis of the public proposals is submitted to the competent authority together with the report and the conclusions of relevant parties (MoE, FEI, 2001).

*The third stage* consists of two correlative procedures. Firstly, the competent authority, after making its decision regarding the proposed activity, places in its Internet homepage (and if the proposed activity is included in the List of the Types of Proposed Economic Activities that Shall Be Subject to the Environmental Impact Assessment - also in the official newspaper "Valstybes Zinios") information on the content of the decision and any conditions attached thereto, the main reasons and considerations on which the decision is based, and, if needed, the main mitigation/compensation measures. On the request of the public, competent authority is obliged to provide more comprehensive information about its decision on the possibility to carry out the proposed economic activity in the chosen site. Secondly, after receiving the decision of the competent authority, the organizer (developer) is obliged to inform the public about it, providing brief information via the above mentioned means of the mass media (MoE, FEI, 2001).

In the case public wants to get EIA report, done some time ago, the Law on Society Information (2000, 29 of August, No. VIII-1905) can guide how to do this. This law establishes procedures of collection, preparation, publishing, spreading of public information and responsibilities, duties of information makers, owners, journalists. According

to it all subjects, which have EIA reports should give it to requesting person. If there is no need to prepare additional data for requested information, then it should be given during 1 working day, no later. Information, which needs to add some additional data, should be given during 1 week no later. If institutions, empowered by Government or Municipality, don't give requested information, they need to inform and explain officially by the document requesting person, company and etc. why they didn't this. They should do this no later then other work day. Information is free of charge. Only tax for documents copying, services connected with searching of requesting information can be taken. This tax can't be bigger then real price of information input. Other institutions, companies, professional, political, public and other organizations, gives public information to requester by the regulations, they have created themselves.

There are noticed few exceptions in this law, in which cases organization from which information is requested, can't provide it. Institutions, empowered by Government or Municipality, other organizations, companies can't give requested public information if it is concerned by laws as governmental, official, professional, and commercial or bank secret or it is private information. Information which is forbidden to give by other laws, because giving of it would affect safety and defence interests of the state, criminal person's persecution, would disturb integrity of the state and public procedure are not given too. If not giving information would put a stop to abuses for difficult legal violations or would be very important for protection of human health, then information are nor given too.

Concerning the regulations of law, information requester should be informed personally by written document constituting the reasons why there was no possibility to give information.

#### **4.3.9. EIA statistical data**

The statistical data was provided by Banga Laurutėnaitė - specialist at the EIA department at the Ministry of the Environment (MoE).

From the *Table 4.3* data it is seen, that total selection of compulsory evaluation of impact to the environment of planned activity, evaluated by the responsible institutions was increasing yearly. Comparing the data from 2001 with the data from 2005, the selection has increased nearly five times (150 cases in 2001 and 713 in 2005)

Compulsory evaluation varied from year to year: 41 in 2001, 35 in 2002, 39 in 2003, 48 in 2004 and 29 in 2005. Similar situation has happen with not compulsory evaluation. Comparing the data from 2004 with the data of 2005, not compulsory evaluation has increased nearly twice (Table 4.3.).

Total decisions for permissibility of planned activity increased approximately 1,5 times comparing 2001 year with 2005. The same situation has happen with the permissible decisions. One negative decision has been made by the responsible institutions every year, except years 2003 and 2005 (Table 4.3.).

According to the given data, total selection of compulsory evaluation of impact to the environment of planned activity, evaluated by Klaipėda Regional Environmental Protection Department (KREPD) was increased from 73 cases in 2001 to 108 in 2005 (Table 4.4.).

In 2001, 15 cases were request for the compulsory and 58 for not compulsory evaluation. While in 2005, 11 cases were request for the compulsory and 97 for not compulsory evaluation. This situation have showed, that during five years, compulsory evaluation of impact to the environment of planned activity have decreased, while not compulsory evaluation to the environment increased nearly two times (Table 4.4.).

The same situation has happen with the decisions, taken by the KREPD. The total decisions made by it decreased twice comparing 2001 and 2005 years. In 2002, Klaipeda Regional Environmental Protection Department has been made the decision to permit planned activity in four cases, from five compulsory. The last one decision was made by the MoE (Table 4.4.).

KREPD evaluates mainly half of projects very year by itself. Other part is evaluated by the MoE. In 2005, 11 cases were selected to evaluate compulsory. Six decisions were made by KREPD, while other 5 by the MoE. This situation shows that projects in Klaipeda region are very significant and often requires evaluation of the highest priority institution – MoE (Table 4.4.).

During 2001-2005, there were no cases, that Klaipeda Regional Environmental Protection Department has been made not permissible decision for the evaluated planned activity (Table 4.4.).

Comparing the data from both tables, it is seen, that big part of total evaluated projects and decisions have been made, were done in Klaipeda region. In 2001, 150 cases were selected of compulsory evaluation of impact to the environment of planned activity in Lithuania and 73 in Klaipeda region. In 2005, 11 compulsory cases were evaluated in Klaipeda region and 29 in Lithuania.

**Table 4.3.** *EIA reports, evaluated by the responsible institutions in 2001-2005 in Lithuania.*

Year	Selection of compulsory evaluation of impact to the environment of planned activity			Decision for permissibility for planned activity		
	Total	Compulsory	Not compulsory	Total	Permissible	Not permissible
2001	150	41	109	23	22	1
2002	209	35	158	26	25	1
2003	224	39	185	34	34	0
2004	422	48	374	33	32	1
2005	713	29	684	38	38	0

**Table 4.4.** *EIA reports, evaluated by KREPD in 2001-2005 in Klaipeda region.*

Year	Selection of compulsory evaluation of impact to the environment of planned activity			Decision for permissibility for planned activity		
	Total	Compulsory	Not compulsory	Total	Permissible	Not permissible
2001	73	15	58	6	6	0
2002	51	5	46	4	4	0
2003	50	7	43	5	5	0
2004	121	11	110	6	6	0
2005	108	11	97	3	3	0

#### 4.4. SEA in Lithuania

**In Order of Assessment of the Effects of Certain Plans and programs on the environment, approved by the decision of August 18, 2004. No. 967 of the Government of the Republic of Lithuania,** Strategic Environmental Assessment is defined as definition, description and assessment process of possible environmental effects of implementation of certain plans and programmes, during which strategic environmental assessment documents are prepared, consultations are carried out, results of assessment and consultations are taken into consideration before adoption and (or) ratification of plan and programme, information related to adoption and (or) ratification of the plan and program is provided.

The objectives of the assessment of the effects of plans and programs on the environment (hereinafter referred to as “the Assessment”):

- To identify, characterize and assess potential effects of plans and programs on the environment;
- To ensure that consultations with certain governmental/municipal institutions and the public are carried out, and the results of these consultations are taken into account.
- To ensure that the organizer of a plan or program will have sufficient and reliable information related to potential effects of implementation of a plan or program on the environment and will take this information into account (The Order No. 967, 2004)

For the purposes of legislation, transposing the requirements of the SEA Directive, *plans and programs are defined* as planning documents of national, regional, district or local level (action plans and programs, development plans (programming documents), development plans and programs of branches of economy, strategies, concepts, territorial planning documents, etc., including plans and programs which are jointly financed by the European Union), which are prepared, approved and (or) ratified according to the legislation in force or according to the competence carrying out public administration and the effects of which may be significant to the environment, including complete or partial amendments to such plans and programs (The Order No. 967, 2004).

Provisions of legislation, transposing the requirements of the SEA Directive are applied for:

- 1) Plans and programs, which preparation have been started after the legislation came into force;
- 2) Territorial planning documents, preparation of which started before the decision concerning the order No. 967 (2004) came into force, but preparation of the planning solutions has not reached the specification stage according to the Law on Territorial Planning
- 3) Other plans and programs, preparation of started before the decision concerning the order No. 967 (2004) came into force, but which are planed to be adopted and (or) approved after July 21<sup>st</sup>, 2006.

Legislation, transposing the requirements of the SEA Directive, provides the requirements for obligatory assessment of the effects of the following plans and programs:

- 1) Plans and programs which are prepared for industry, energy, transport, telecommunications, tourism, agriculture, forestry, fishery, water management, waste management, territorial planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to the Law on Environmental Impact Assessment of the Proposed Economic Activity of the Republic of Lithuania;

- 2) Comprehensive territorial planning documents of a national, regional and district levels and major changes of these documents;
- 3) Plans and programs, implementation of which is related to established or potential „Natura 2000“ territories or to the environment within a vicinity of such territories, and institution responsible for organization of protection and management of such territories determines that pursuant to the provisions of Directive 92/43/EEC, implementation of such plan or programme (separately or in combination with other plans and programs) might have significant effects to the established or potential „Natura 2000“ territories;
- 4) Plans and programs for which a decision regarding obligatory assessment is made during the screening procedure (The Order No. 967, 2004).

Legislation, transposing the requirements of the SEA Directive, provides the requirements for the screening for the strategic assessment of the effects of plans and programs on the environment in order to decide if a certain plan or program shall be subject to the assessment for the following plans and programs:

- 1) Plans and programs referred to in paragraphs 1 and 2 above ((1) Plans and programs which are prepared for industry, energy, transport, telecommunications, tourism, agriculture, forestry, fishery, water management, waste management, territorial planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to the Law on Environmental Impact Assessment of the Proposed Economic Activity of the Republic of Lithuania (Žin., 1996, Nr. 82-1965; 2000, Nr. 39-1092) and (2) Comprehensive territorial planning documents of a national, regional and district levels and major changes of these documents), which determine the use of small areas at local level as well as minor modifications to such plans and programs.
- 2) Other plans and programs which set the framework for future development consent of economic activities projects to be approved by environmental authorities (The Order No. 967, 2004).

In order to ensure the quality of the Assessment and of the Assessment documents (the Screening document, the Scoping document and the Assessment Report), legislation of Lithuania lays down several cycles of obligatory consultations with relevant governmental and municipal institutions responsible for environmental protection, health protection, management and protection of protected territories, protection of cultural assets, as well as the public. The level of participating institutions depends on the level of the plan or program under preparation.

The following institutions are participating in the Assessment of national level plans and programs:

- 1) Ministry of Environment;
- 2) Ministry of Health Protection;
- 3) Protected Areas Service under the Ministry of Environment;
- 4) Ministry of Culture;
- 5) Administrations of the Governors of Counties.

The following institutions are participating in the Assessment of regional level plans and programs:

- 1) Ministry of Environment or it's authorised institution;
- 2) Ministry of Health Protection or it's authorised institution;

- 3) Protected Areas Service under the Ministry of Environment;
- 4) Ministry of Culture or it's authorised institution;
- 5) Administrations of the Governors of Counties;
- 6) Municipalities within the territory of the region;

The following institutions are participating in the Assessment of district and local level plans and programs:

1. Relevant Regional Environmental Protection Department of the Ministry of Environment;
2. Relevant territorial division of the Ministry of Health Protection;
3. Protected Areas Service under the Ministry of Environment;
4. Relevant territorial division of the Ministry of Culture;
5. Municipalities within territory of the district or locality.

The public participates in the Assessment of plans and programs of any level.

Lithuanian legislation lays down the following functions of the participants of the Assessment, ensuring the quality of the Assessment documents:

- 1) Relevant governmental and municipal institutions according to their competence examine the screening and scoping documents and assessment reports and provide conclusions concerning the quality of assessment and assessment documents. When a plan or program is assessed due to possible significant effects to established or potential „Natura 2000“ territories, (alone or in combination with other plans and programs), institution, responsible for organization of protection and management of protected territories, according to it's competence examines scoping documents, assessment reports and provides conclusions concerning the quality of assessment and assessment documents, as well as conclusions concerning adoption or approval of the plan or program related to established or potential “Natura 2000” territories. These conclusions are binding for organisers of preparation of plans and programs.
- 2) The public participates in the Assessment in accordance with the requirements for the following obligatory participation procedures:
  - Announcement about the SEA of a plan or program;
  - Presentation of the SEA report and draft plan or program to the public;
  - Information about decision made concerning approval of plan or program ((The Order No. 967, 2004).

#### **4.5. National Environmental Management System in Sweden**

Sweden is a monarchy with a democratic institution and has a three-tier system of democratic government. Central government is an elected Parliament (Riksdag) and government (Regering). Government rules the country and determines the areas of responsibility of each Ministry and authority, which assists the government in its duties.

The Swedish Government takes all decisions collectively with the Ministry of Sustainable Development preparing decisions on environmental policy matters. However all ministries have responsibilities for environmental consequences in their field (Regeringskansliet, 2006).

The ministries are comparatively small and policies and programmes are implemented by government agencies with the help of regional offices in the county administrative boards. Implementation of environmental policies is coordinated by some of the central environmental agencies, but all agencies are responsible for environmental impacts in their

fields. Municipalities have broad responsibility for the enforcement of environmental regulations at local level (Regeringskansliet, 2006).

Sweden is divided into 21 counties with the current 289 municipalities. Municipalities (kommun) have to ensure that industry, traffic, waste management and energy use take environmental considerations into account. They are responsible for the maintenance and improvement of the built and natural environment, including health and safety issues. Each county has an Administrative Board, a governmental body working in direct and continuous contact with the people it serves. The County Administrative Board has a unique position in Swedish democracy. It is an important link between people and municipalities on the one hand, and the government and central authorities on the other. The work of the County Administrative Board is led by the County Governor (CAB, 2006).

Within its areas of responsibility, it is each Board's job to ensure that the decisions taken by the government and Parliament are put into effect with maximum impact throughout the county.

The main tools used by the Board in doing this are:

- advice and information;
- supervision (checking that a range of bodies observe relevant laws and guidelines);
- regulatory duties (granting of licenses, trying of appeals against municipal decisions, data collation, etc.);
- coordination of the county's resources (through facilitating a range of meetings and activities);
- financial support for various activities (CAB, 2006).

The implementation of the Swedish EIA and SEA systems are the responsibility of three main authorities:

- The Ministry of Sustainable Development
- The Swedish Environmental Protection Agency
- The National Board of Housing, Building and Planning.

#### **4.6. Swedish NGO and other private stakeholders**

In recent years NGOs have been more active in the planning process, especially in trying to protect certain areas for natural and cultural purposes. The new Environmental Code also enables NGOs to participate in decision making in a substantial form (ICM Progress, 2002; EUCC, 2002).

According to Integrated Coastal Management Progress database, some of the most important NGOs in Sweden concerned with nature conservation limited with respect to the coast are:

Agenda 21 Forum Skåne is a network of organisations for the promotion of sustainability in the Swedish province of Skåne. The forum is multi-sectoral with business, municipalities, adult education societies, universities, and regional government as members.

Baltic Marine Ecologists - an international non-governmental scientific organisation whose aim is to promote studies on the biological diversity, structure, function and sustainable management of the Baltic Sea ecosystems.

Coalition Clean Baltic (CCB) - the first environmental NGO-network established in the Baltic Sea Region, established in 1990. Today it has 25 member organisations in all 9 countries bordering the Baltic Sea. The main goal of CCB is the protection and improvement of the

Baltic Sea environment and natural resources. It is gathering, producing and distributing information about environmental problems in the Baltic Sea Area.

Erosionskade Centrum - an NGO involved in shoreline management.

National Association for Swedish Archipelago - an NGO that was closely involved in the National Archipelago Project.

The Centre for Natural Resources and Environment research of the University of Stockholm is a public institute that provides research in the field of efficient environmental planning along the Baltic coast line and is closely aligned with Ballad, an independent forum for networking in the Baltic region.

The Green Library Lund Association is an information centre for environmental issues which gives free service to the public, in this way contributing to raising the level of knowledge among the public as well as among decision makers.

The Stockholm Environment Institute (SEI) provides information for sustainable development at a systems level for the Baltic Sea Region (so-called Baltic 21) leading to cleaner production and improved environmental management.

The Swedish Society for Nature Conservation was established in 1909. Today the organisation is the biggest nature conservation and environmental organisation in Sweden, with 274 local branches across the whole country and 140,000 members.

The World Wide Fund for Nature (WWF) Sweden is part of one of the largest NGOs for the conservation of nature.

## **4.7. EIA in Sweden**

### **4.7.1. Swedish Laws, regulating EIA process**

In Sweden the EIA Directive is mainly implemented by the Chapter 6 of the Swedish Environmental Code (Miljöbalken), which was adopted in 1998 and entered into force on 1 January 1999, and a support Ordinance on EIA (1998:905). This Environmental Code amalgamates the rules which were previously contained within 15 Acts and includes environmental rules of general importance with more detailed supporting provisions being laid down in Government Ordinances. However EIA is also required under other legislation e.g. the Roads Act, the Construction of Railways Act, the Minerals Act, the Certain Pipelines Act, the Certain Peat Deposits Act, the Electricity Act and the Planning and Building Act. For most of this legislation the EIA requirements are wholly/partly compatible with the general EIA provisions in the Environmental Code. An exception was the EIA provision in the Planning and Building Act which related to certain detailed development plans which were distinct from the requirements in the Environmental Code. The Planning and Building Act has however now been amended to link these EIA requirements to those in the Environmental Code (when the SEA Directive was implemented) (Sheate et al., 2005).

According to the Swedish Environmental Code an EIA report shall be included in the project permit application, as regards operations with environmental impact. Before the Environmental Code came into force, the EIA decree and the Law on Environmental Protection stipulated the rules for the Swedish EIA system (Severinsson, 2004).

### **4.7.2. Environmental components, which EIA evaluates**

Today, the EIA is conducted to describe an operation's impact on the environment and the economic administration of resources. The law does not only refer to the nature but moreover

to the environment for human beings, the landscape frame and the cultural environment (Severinsson, 2004).

Resources taken into consideration are:

- land,
- water
- the rest of the physical environment,
- raw material,
- energy (The Baltic University, 2005).

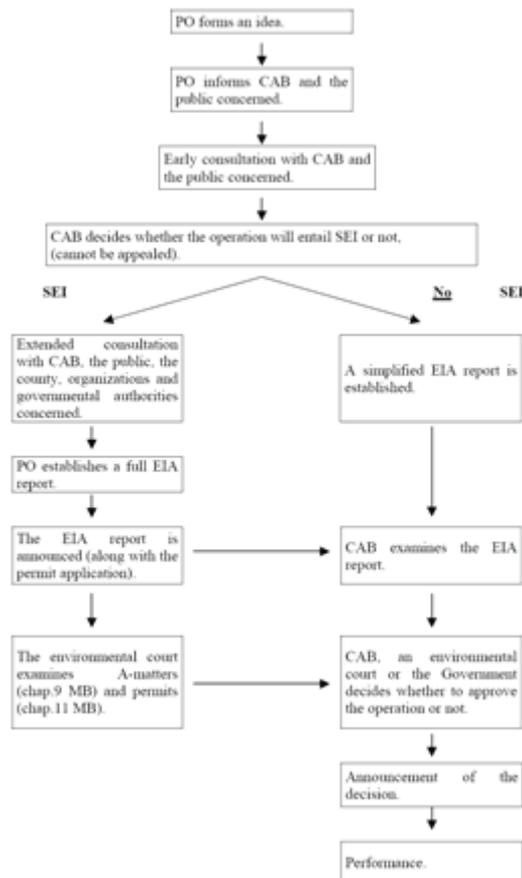
#### **4.7.3. Swedish EIA decision making process**

There are two appendixes to Decree 1998:905 on EIA that CAB uses in the decision-making process. Appendix 1 lists the operations that always shall entail significant environmental impact (SEI). Regarding these operations, CAB only has to refer to this list when demanding a thorough EIA report. Appendix 2 includes three criteria that CAB shall consider when deciding on SEI. The criteria are:

- the project's characteristic qualities,
- the project's localisation
- the plausible effects' characteristic qualities (Severinsson, 2004).

If the operation is deemed to have SEI, the project owner has to conduct extended consultation and apply a full EIA report along with the project application. If the operation is deemed not to have significant environmental impact, the extended consultation is not compulsory and a simplified EIA report is established instead of the full EIA (Severinsson, 2004, The Baltic University, 2005).

The *figure 4.3.* bellow describes the Swedish EIA decision-making process.



**Figure 4.3.** *The Swedish EIA decision-making process (Severinsson, 2004).*

#### 4.7.4. Structure of EIA procedure

Before the EIA is conducted, the County Administrative Board shall take a decision on whether the operation/project will entail Significant Environmental Impact (SEI) or not. The screening is decisive to how thorough the EIA report shall be and therefore constitutes an important part of the EIA decision-making process (Severinsson, 2004).

Projects having significant environmental impact conduct a full EIA, whilst the other projects only have to conduct smaller environmental analyses. (Severinsson, 2004).

The application is handed in to the County Administrative Board (Länsstyrelsen) in the county the activity is to be carried out. CAB forwards the application to the environmental board in the municipality, to achieve their opinion about if the application needs any complementary additions. When the application is considered complete, Länsstyrelsen asks for opinions from various institutions. At the same time CAB announces the application in local news papers.

After that moment all authorities, stakeholders or others have the opportunity to give comments to the application. These have to be sent to the County Administrative Board within a preset period of time (usually 3-6 weeks). The comments are then sent to the company who made the application. In this way the company will have the opportunity to respond to the comments given.

If considered necessary, a public meeting is held, where everyone who wants can participate. At the meeting everyone gets the opportunity to orally give their comments on the issue. The date and place of the meeting is announced in local newspapers and an invitation letter is also sent personally to the ones affected by the application/decision. This procedure is done by CAB too.

After this, a decision is made by länsstyrelsens miljöprövningsdeligation. The decision is announced in local newspapers and anyone affected by the decision and who disagrees with the decision has the right to appeal within three weeks of the announcement. The appeal is made to the environmental court (miljödomstolen).

#### **4.7.5. Public participation in EIA procedure**

The fourth paragraph in the sixth chapter of the environmental code, stipulates that the project owner (PO) shall conduct early consultations with the County Administrative Board (CAB) and people from the public specifically affected. Before the actual consultation is taking place, material including information on the planned operation's localisation, size and shape and its predicted environmental impact, is distributed to involved parties. Before CAB makes a decision, the permit approval board, which is the municipality or CAB themselves, shall be given the possibility to submit one's comments (Severinsson, 2004).

The objective with the early consultation is to grasp the environmental issues and force them into the decision-making process at an early stage, make clear specified research questions, develop alternatives for the operation and to support the project owner in delimiting the EIA report (Severinsson, 2004).

The early consultation shall give the opportunity/possibility for authorities and the public, to influence the project owner's views, and to lay the foundation for CAB's decision on whether the operation will lead to significant environmental impact or not (Severinsson, 2004).

The environmental law does not stipulate that the early consultation has to be documented, but both SEPA and MPD (Miljöprövningsdelegationen) advises that the project owner shall document the early consultation (Severinsson, 2004).

#### **4.7. SEA in Sweden**

Prior to transposition of the SEA Directive, Sweden already had requirements for a form of environmental assessment for some of the plans and programmes which could potentially fall within the scope of the Directive e.g. municipal detailed development plans (Nordic Centre for Spatial development, 2006).

In Sweden SEA Directive was transported by 21 July 2004. A Government Bill containing the legal amendments necessary for the implementation was adopted by the Swedish Parliament on 26 May 2004 and entered into force on 21 July 2004. Most of the provisions of the SEA Directive have been introduced into Chapter 6 of the Environmental Code following the EIA provisions. Amendments referring to the new Environmental code have also been made to the Planning and Building Act (in relation to municipal comprehensive plans and detailed development plans) and to the Act on municipal energy planning. The Environmental Code will be supported by an Ordinance with more detailed requirements. A draft of the Ordinance was circulated for comments in late 2004, but the final version has yet to be adopted by

Government. It is likely that the final version will be adopted by amendment of the Ordinance on EIA and that this will happen very shortly (Sheate et al., 2005).

The Environmental Code itself does not specify which plans and programmes are subject to the new requirements, although the Government is able to specify by Ordinance the plans and programmes that will always be likely to have significant environmental effects and therefore require SEA and those that will not require SEA. The Government is also able to make further requirements in consultation in such an Ordinance (Sheate et al., 2005).

However, it is thought that only a few types of plans/programmes (perhaps around five types) will require SEA under the requirements of the SEA Directive. The plans and programmes that are likely to require SEA include:

- County Transport Infrastructure Plans;
- Municipal comprehensive plans;
- Municipal energy plans (although not many of these tend to be produced);
- Certain programmes of measures e.g. for air quality (in big cities), water, waste (Sheate et al., 2005).

Municipal comprehensive plans will probably always require SEA under the requirements of the Directive. But many of the other plans e.g. detailed development plans will only require SEA if screening determines that they are likely to have significant environmental effects. Hence, screening is likely to be a key issue and one on which guidance would be helpful (Sheate et al., 2005).

## **5. Comparison of EIA procedures in Lithuania and Sweden**

### **5.1. Objective**

The aim of this analysis was to find out how Environmental Impact Assessment procedure is executed in practice in Lithuania and Sweden.

The objectives of my analysis were:

- To find out how EIA reports can be received in Lithuania and Sweden
- To find out responsible institutions for EIA evaluation in Lithuania and Sweden
- To compare EIA process implementation in Lithuania and Sweden
- To compare public participation process in Lithuania and Sweden
- To compare the structure and the complexity of EIA reports in Lithuania and Sweden
- To find weaknesses and strengths of EIA reports in Lithuania and Sweden.

### **5.2. Research Strategy**

This analysis was a part of my thesis project and since I had analysed Environmental Impact Assessment tool theoretically, the main aim was to find out how it is executed in practice in Lithuania and Sweden.

During my literature research and interviews with stakeholders, I found the main trend, that EIA is more theoretical tool and not always working well in practice. It was the main reason why I decided to make this analysis. For me it was also interesting to see how this procedure

is done in Lithuania and Sweden. I choose two EIA reports from each country to get more reliable comparison.

### **5.3. Methodology**

#### **5.3.1 The selection of case study**

The EU Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment was the main source for Lithuanian and Swedish governments to establish their national Law on Environmental Impact Assessment. Still the law and its implementation process differ comparing to these countries.

According to economical, environmental, cultural and social aspects in Lithuania and Sweden, differences in public participation process in EIA process are found. Concerning my literature research I found, EIA is evaluated by different institutions in these two countries. Therefore public information and participation system is also different. I decided to check by myself how EIA reports can be got in both countries. According to Lithuanian and Swedish public information rules, I tried to get EIA report for my analysis. As I have read critical articles about complexity and bad structure of EIA reports, it was one of the reasons why I decided to read and to evaluate few of them by myself. In such a way I will draw weaknesses and strengths of EIA reports I have read.

Since my thesis will be a part of the EU project “Coastman”, I and my supervisor agree to analyse and to compare EIA reports from Lithuanian and Swedish harbour companies. I choose the largest oil harbour in the Stockholm region in Sweden – Loudden harbour and Klaipeda harbour in Lithuania, since it is the only one here. Both of them are connected to the Baltic Sea, which is very sensitive and receives big negative impact of harbour activities, pollution and etc.

#### **5.3.2 Procedures of data collection**

Concerning Lithuanian Ministry of Environment information, during 2001 - 2004 there were done 14 Environmental Impact Assessment reports for Klaipeda harbour companies. The County Administrative Board in Sweden reviews 2000-3000 documents done under the regulations in the Environmental Code every year.

Since I collected data from two different countries, I have used different methods.

##### *Klaipeda harbour - Lithuania*

I was writing my thesis project in Sweden, so there was no possibility to go to the Klaipeda harbour companies to get EIA report and to interview persons, responsible for EIA in each company. For this reason I wrote official letter to the directors of companies with request of getting EIA report which they have done during 2001-2004. In 7<sup>th</sup> of September, 2005 I have sent eighth official letters in total, because few Klaipeda harbour companies have made several reports during this period.

I add few questions into official letter, which I found are complex and important. I asked did they get any offers from society, NGO's to change something in planned activity and if yes, did they took this into consideration. How company informs society and NGO's about EIA

reports they have been making or make. Also I asked to give contacts of person, who is responsible for EIA in each company with the purpose for possible future communication.

#### *Loudden and Bergs harbours – Sweden*

Since I was in Sweden, getting EIA reports was much easier. My colleague Åsa Larsson helped me in this stage. We had few meetings and discussions concerning my thesis. As I don't know Swedish language, she wrote e-mail to the County Administrative Board (Länsstyrelsen) which has and evaluates all EIA reports. Åsa Larsson has contacted Rasha Ishaq - person working here and responsible for the oil harbours. During the meeting with her we have made copies of EIA report of Preem Petroleum AB. At the same time I couldn't get second EIA report from Loudden harbour, so I have chose similar to Loudden – Bergs oil harbour situated in Nacka municipality, Stockholm region. I have contacted Svenska Statoil AB who has sent their EIA report by post to the Industrial Ecology Department at KTH.

### **5.3.3 Procedures of data analysis**

As I have mentioned before, in total I have four Environmental Impact Assessment reports (two from each country). I have made small plan related to the analysis objectives, which guided me in its analysis. Lithuanian reports I have read and analysed by myself. Since, I don't know Swedish language my colleague Erika Peipke, read them. After few meetings and discussions with her, I made analysis of Swedish EIA reports.

## **5.4. Data Collection**

### **5.4.1 Source of information**

I described shortly in paragraph “3.2 Procedures for data collection” where from I got EIA report for my analysis.

I have found list of EIA reports, done in Klaipeda region in 2001-2004, in Coastal and Lagoon Resource Centre website ([www.coast.lt](http://www.coast.lt)). After research in internet I have choose companies, working at Klaipeda harbour. There were 14 EIA reports done during this time in Klaipeda harbour.

I have send eight official letters to the Klaipeda harbour companies with request of EIA report they have been made. Four answers I gave back and there was only one company – AB “KLASCO”, which agreed to give me EIA report I need. I had interview in Lithuania with Laura Jasiūnaitė, responsible person for EIA in the company. During this time we have discussed EIA reports of methanol and liquid fertilizer terminals, she answered to my questionnaire.

Other contact person – Giedrius Juodis is responsible for EIA in UAB “Bega” company. We were communicating by e-mails. I describe it more detail in paragraph “5.1 Analysis of official letters”.

During the “Coastman” meeting in Klaipeda, I met my Lithuanian supervisor Saulius Gulbinkas, who was developing EIA reports for AB “KLASCO”, I have chosen to analyse. We have discussed ideas report preparation, shortcomings and public participation processes. As I have mentioned before, one Swedish EIA report I got from the County Administrative Board in Stockholm Region (Länsstyrelsen), another one – from the company itself.

Additional and more detail implementation process of EIA reports of Preem Petroleum AB and Svenska Statoil AB was described by Rasha Ishaq - person working and responsible in these cases at Länsstyrelsen.

#### **5.4.2 Criticism of the source information**

First of all I want to mention, it was the first time I have analysed Environmental Impact Assessment reports. Since I'm not experienced in this, some improvements for analysis can be made in the future.

The most important thing was to get idea how this procedure is done in practice in Lithuania and Sweden. It was difficult to analyse Swedish EIA reports, since I couldn't read them by myself. It is one of the reasons, why Lithuanian reports are analysed more detail and clear. Both Lithuanian EIA reports are developed by the same company - Klaipeda University Coastal Research and Planning Institute. In my opinion, better comparison could be seen from the reports of different developers, but in my case I could get just these reports. Considering this, it should be putting more efforts to get EIA reports from other Klaipeda harbour companies.

My first idea was to compare EIA reports from the companies at Klaipeda and Loudden harbours. Unfortunately I couldn't get second report from Loudden. I got it from Bergs oil harbour at Nacka municipality, Stockholm region. So my idea to make comparison between two harbours wasn't confirmed.

The other shortcoming was because of significance of Loudden and Klaipeda harbours. Since Klaipeda is State port and Loudden just local, comparison of EIA reports are not equal. Both reports from Lithuanian company are large and complex because new activities were planned. Building methanol terminal was new activity in whole scale of Lithuania. Planning of liquid fertilizer terminal was criticized because of chosen sensitive area and its transportation. These situations required to get much permission from responsible institutions, to make improvements in report and etc. While in Loudden harbour company – Preem Petroleum AB and Bergs harbour company Svenska Statoil AB already existing activities were expanding. It can be one of the reasons that Lithuanian EIA reports can be seen as more complex and difficult to understand. Nevertheless, taking all this into account, I tried to analyse and to compare these reports.

### **5.5. The Data Analysis**

#### **5.5.1. Case studies from Klaipeda harbour in Lithuania**

##### **5.5.1.1. Analysis of official letters**

Four from eight Lithuanian companies working at Klaipeda harbour answered to official letters I have sent.

UAB “Mestilla” announced they don't have opportunity to provide information I was asking at the moment, but they will inform me, when they will have possibility to do this.

Klaipeda State Seaport Authority informed me, they can't send me EIA reports, I need, but suggested to come to the company and to get acquainted with material they have in office.

UAB “Bega” answered to me by email. Company representative – Giedrius Juodis informed me it was done mistake in Ministry of Environment data base in internet that this company did EIA I was requesting. He answered to other questions I asked in letter. He is responsible for ecology and work safety in UAB “Bega”, so he is connected with EIA procedure mostly. UAB “Bega” is known as the Klaipeda harbour company communicating with society, media, NGO’s and other stakeholders most. They have held many conferences, discussions and presentations about their activities in Klaipeda harbour. Since I was communicating with company representative – Giedrius Juodis several times, I got and overview how they are doing things, connected with EIA procedure. They are always informing society about activity, they are planning to start, its selection, conclusions of selection and so on. Company follows legislative instructions concerning society information and participation in Proposed Economic Activity Environmental Impact Assessment evaluation process (No. D1-370, July 15, 2005). Concerning this UAB “Bega” are putting article into city newspaper, information in their internet home page, announcement on special board for this in Municipality. Usually there are written many articles concerning activity, company is planning to make, or are making. There is a possibility for simple people, communities, NGO’s and everyone who is interesting in it, to come to company, to talk, to ask what is unclear, to see vision of planning activity, to give motivated, substantiated suggestions.

Experience from other companies’ shows, there is very low society participation in it. People usually get involved in environmental issues as soon as their personal living standard is negatively affected by the environmental impact of human activity (for example, when all needed document are ready and some building is started). UAB “Bega” didn’t have such problems, but others companies, especially those, making big projects are faced with this very much. In Giedrius Juodis opinion, people dissatisfaction usually is connected with their financial condition losses and attempting to improve their position. For example, one mill was started to built in Klaipeda Free Economical zone, people became very active when they thought this neighbouring mill will reduce the price of their private land. After this citizens started dissatisfaction with a help of media and were asking for compensation. Giedrius Juodis argue if there is planning a large project (expansion of Klaipeda harbour) then it will be interesting for media, different organizations, there will be many discussions in different levels, so people, they want or not, will be involved in it.

Representative from AB “KLASCO” informed me by email, that they are preparing EIA reports for sending to me. I was going to participate in “Coastman” conference in Klaipeda, so I agreed with company representative, Laura Jasiunaite, to take them myself and to have an interview with her. She is engineer of technical department and she is responsible for EIA procedures in company. AB “KLASCO” informs society, NGO’s and other stakeholders about EIA procedure concerning instructions No. D1-370, July 15, 2005. They are doing everything what is required by these instructions.

### **5.5.1.2 EIA report of methanol terminal of AB “KLASCO”**

#### **Short description of planned activity**

In 2001, AB “KLASCO” was planning to build methanol terminal with capacity of 26 000 m<sup>3</sup>, where 100 000 t/year methanol would be loaded. This terminal will be situated in the northern part of Klaipeda harbour at the company’s’ industrial territory (*Figure 5.1.*). Two existing terminals of concentrated ammonium nitrate will be reconstructed into methanol

terminals. In the chosen area railway and motor transport connections are developed very well. Ships would come to embankment No.4 where ships with large tonnage can be accepted. In the terminal it is planning to install two methanol storage reservoirs, with capacity of each terminal of 13 000 m<sup>3</sup>. Methanol would be transported in cisterns by railway. Loading capacity – 3 x 30,3 t/hour. Three cisterns can be loaded at the same time. Methanol will be loaded on ships in embankment No. 4. At an average one ship per month will load (capacity 2000 – 20 000 t). Maximal efficiency of ship loading equipment – 500t/hour.

*Figure 5.1. Methanol terminals at Klaipeda harbour (AB “KLASCO“, 2005).*

### **Possible impacts of proposed activity to the different environmental aspects**

In the EIA report, possible impacts of methanol terminal to different environmental aspects were analysed. There won't be any impact to Klaipeda strait ecosystem, because technologies, used for methanol loading will guarantee methanol won't disperse into the water. The most important impact of methanol terminal is to human living environment and human health. According to the rules of maintenance and determination of sanitation zones (V.z. No 5, 2001) chapter 26 “Transport, storage and networks” (“*Transportas, sandėliavimas ir ryšiai*”) paragraph 26.2 “Port trade territory” (“*Prekybos uosto teritorijai*”) sanitation zone ascribed to 300 m. If it is evaluated from stationary organised sources, then living houses are not included in it. There will be some pollution from railway cisterns loading post and if sanitation zone is evaluated from this point, then one living house in Sportininku st., No. 35, where 10 people lives, included in it. Concerning calculations, made by EIA developers, there won't be any over fulfilment of utmost permissible concentration (UPC) and any impact to human health of air pollution. When terminal will start to work, monitoring program of measuring actual methanol vapours will start and sanitation zones will be defined more accurate according the results.

It is mentioned in the report large impact to environment can be because of some accidents by methanol transportation by railway. If accident will happen not in local area, then whole Northern harbour complex will be influenced by it. According to the transportation scheme of Northern city port approved by city Council in 1998 October 22 (No. 173) projecting terminal transportation should be held through “northern egress from State Seaport”. This transportation will ensure minimal pollution of urban areas.

### **Implementation process**

According to the Law on Environmental Impact Assessment of the Proposed Economic Activity (2000) methanol terminal is included in the first annex which shall be subject to the EIA “8. Objects of infrastructure” (“*Inžineriniai statiniai*”), “8.1 Construction of sea ports, piers or terminals (for loading and unloading) which can take vessels of 1 350 t or larger” (“*Jūros uostų, prieklaukų ir terminalų (pakrovimo ar iškrovimo) įrengimas (laivams, kurių keliamoji galia – 1 350 ir daugiau tonų)*”) and the second annex where economic activities shall be subject to the screening for obligatory Environmental Impact Assessment “6. Chemical industry” (“*Chemijos pramonė*”) “6.3 Building of storage facilities (warehouses and storage grounds) for petroleum, petrochemical and chemical products with a capacity of less than 200 000 tonnes but more than 5000 tonnes” (“*Naftos produktų bei cheminių medžiagų saugojimo statinių (sandėlių ar aikštelių) statyba (kai talpa – mažiau kaip 200 000 tonų bet daugiau kaip 5 000 tonų)*”).

Organizer of proposed economic activity:

AB “Klaipėdos jūrų krovinių kompanija”

Address: Zauerveino 18, LT – 5813, Klaipėda

Contact person: Benediktas Petrauskas, development director of AB “KLASCO”

Developer of environmental impact assessment documentation:

Klaipėda University Coastal Research and Planning Institute

Address: H. Manto 84. LT – 92294, Klaipėda

Contact person: Saulius Gulbinskas, vice director of Klaipėda University Coastal Research and Planning Institute

Since methanol wasn't loaded through Klaipėda harbour before, Ministry of Environment agree German standards can be used for planning methanol terminal. German company Krupp Udhe who has big experience in projecting of dangerous load terminals made study of possible methanol loading through Klaipėda harbour.

### **Responsibility of EIA**

Concerning the impact on human health, methanol conforms to 3<sup>rd</sup> harmfulness class according Lithuanian hygienic standard HN 23-1993. Due to this, and to sensitivity of chosen area, much permission was needed to get.

According to Klaipėda city general plan, there were no plans of storing dangerous material in chose area. By the order of Klaipėda Seaport Authority, new detail plan was made and approved by city Council in 200 August 3 (No. 108). Concerning it in the territory between N. Uosto st., AB “Laivitė” and “Krovinių terminalas” harbour territory liquid fertilizer terminal can be built. As I mentioned before, two of these terminals will be reconstructed into methanol terminals.

Institutions, evaluated EIA report of methanol terminal of AB “KLASCO”:

- Klaipėda Regional Environmental Protection Department
- Department of Architecture and Urbanistics of Klaipėda Municipality
- Department of Nature Protection of Klaipėda Municipality
- Klaipėda Human Healthcare Centre
- Klaipėda County Head Administration
- Department of Civil safety of Klaipėda County Head Administration
- Department of Protection of Cultural Values of Klaipėda County
- Klaipėda city fire protection and rescue post

### **Public participation process**

In 8<sup>th</sup> of August, 2001, it was announced in “Klaipėda” newspaper, AB “KLASCO” is introducing public with Environmental Impact Assessment report of methanol terminal. During this time public can became more acquainted with planned activity and can give motivated suggestions. Public consideration of EIA report of methanol terminal was held on 27 of August in 2001 in company's administrative building.

Four representatives from AB “KLASCO”, 8 from EIA report developer, 1 from governmental institution 21 from different NGO's and 2 journalists were participating in this

consideration. In the beginning of meeting short presentation of methanol terminal by representative from company and EIA report developers was made. Several questions were held by different representatives from NGO's. They were interesting mostly in methanol terminal reconstruction from concentrated ammonium nitrate terminals, reconstruction stages, terminal expenses.

Few respondents were interested in sanitation zone and house, which is included in it. After discussions it became clear, that similar kind terminals in Germany are building 70 m near living territory. According the rules of Ministry of Health, AB "KLASCO" will build methanol terminal 300 m from living territory and will make air monitoring in that area. Representative from Lithuanian Green Movement "Lietuvos žaliųjų judėjimas" mentioned, EIA procedure provides alternative analysis, but methanol terminal alternatives wasn't analysed. According to EIA report developer, it was possible to build these terminals in other two places, but AB "KLASCO" wanted to build these terminals in its own territory. It was possible to build these terminals in southern or northern harbour territory, because State Port Authority gave permission to transport methanol in whole harbour. The problem was, that in southern part there is no good railway connection and company should build new ones for dangerous material transporting. It would take 2-3 years. While in the northern part company needs just to reconstruct 2 concentrated ammonium nitrate terminals into methanol terminals. That's why this alternative was chosen.

In the end of consideration, few respondents made summarizing talks. According to person from AB "KLASCO", when such terminals like methanol are building it is very important to inform society and to avoid negative opinion in such way. This work won't finish with EIA report presentation. In the future company is planning to organise conferences, where representatives from society and NGO will be invited. According to person from NGO, their purpose is not to suspend development of industry, but it should be done with safety security. For representatives from NGO it was important to become acquainted with methanol terminal technologies and prevention. Other respondent from NGO agree it is better to built methanol terminal in harbour territory because it is used mostly for different kind of activities, instead of building it in new not industrial place. Person from Klaipeda city fire protection and rescue post mentioned there is risk for people, that's why some suggested prevention means should be adopted (to build safe-house in methanol terminal for employees safety; people, living in Sportininku, Pusyno and Svyturio st., should joined in the warning information system).

### **The final decision**

In November 14, 2001 Klaipeda Regional Environmental Protection Department by its final decision allowed to build methanol terminal. However company decided not to build this terminal. According to AB "KLASCO" engineer of technical department Laura Jasiūnaitė, there was a big interest and strike protest of journalists, media and NGO's in this project that's why finally company decided not to build this terminal at all. Methanol terminal developer argues it became unprofitable to build it, that's why company didn't do this.

### **Overview of report**

While reading this report I find out it was written in complicated way. The structure of report seems to me confusing. I did find some parts which disagree in whole report and EIA programme. Mainly everywhere there are no explanations of measurement units, references to data. Report language is much technical and difficult to understand. There were explained

existing environment (air, water, flora, fauna, living people) but not possible impacts to it from methanol terminal.

### **5.5.1.3. EIA report of liquid fertilizer terminal of AB “KLASCO”**

#### **Short description of planned activity**

According to the company's plan of development AB “KLASCO” decided to build liquid fertilizer terminal with the purpose of loading liquid nitric fertilizer – urea ammonium nitrate (UAN). UAN solution with general nitrogen amount of 28-32% and nitric nitrogen amount of 16% fulfils all technical and safety requirements (according to the safety data list of the EU directive).

Liquid fertilizer will be loaded in cisterns by railway to the terminal. Here it will be spilled by railway pier mechanism and pumped to the reservoirs. Storehouse of liquid fertilizer consists of 5 metallic reservoirs, which spilling altitude is 18,4 m and general capacity – 87 000 tonnes. Fertilizers by pumps go to the embankment where through ship loading equipment gets into ships- cargo tanks, which tonnage can be 60 000 tonnes. These ships moor to the embankment No. 4 with 14 m depth (*Figure 5.2.*).

There were no other place alternatives for building liquid fertilizer terminal. Tonnage plan was changed several times while the best, now existing, option was found. In the terminal there is possibility to load production to the ships and from the ships.

*Figure 5.2. Liquid fertilizer terminal at Klaipeda harbour (AB “KLASCO“, 2005)*

#### **Possible impacts of proposed activity to the different environmental aspects**

In the EIA report, possible impacts of liquid fertilizer terminal to the water, air, land, biodiversity, landscape and socio-economical environment were analysed.

Two alternatives of loading liquid fertilizers were chosen. 1.) liquid fertilizer, consisting 0,03% of free ammonia; 2.) liquid fertilizers produced by the best available technologies without free ammonia. After analysis, it was decided to load better alternative fertilizers – urea-ammonium nitrate without free ammonia.

Rain and snow melting water from area concrete cover, green tracks, rainwater from building roofs and drainage water from designed loading platform will be flooded to the rainwater network. According to preliminary data, pollution of rainwater by oil products will exceed standard data (1 mg/l). That's why rainwater will be agglomerated and ejected for cleaning into the waste water treatment mechanism, which was installed before. Comparing cleaned water results with utmost permissible pollution (UPP) standards, it was seen, polluting materials do not exceed permissible concentration, so there was no reason to make additional tools for water protection. Cleaned water will be drained to the Curonian Lagoon.

Utmost permissible concentration (UPC) of ammonia in atmospheric air is 0,2 mg/m<sup>3</sup>. After calculations concerning both alternatives (liquid fertilizer, consisting 0,03% of free ammonia and liquid fertilizers without free ammonia) it was seen that UPC was no exceed in 1000 m distance from liquid fertilizer terminal. According calculations - maximum concentration could be 0,14563598474 mg/m<sup>3</sup>. Seeing that starting terminal work there won't be any excess

of ammonia concentration, prospective building can't cause negative impact to the human health. On purpose of avoiding ammonia pollution formation it was suggested to load material without free ammonia. Due to the best available technologies, urea – ammonium nitrate won't consist free ammonia, so it can't cause negative impact to the employees health. Risk analysis of possible accidents showed, that in case when liquid fertilizers will spill out, air won't be polluted and there won't be impact to the employees working near terminal and to the surrounding residents.

In the building stage, detected polluted unwarrantable concentration ground will be removed and utilised by the valid nature protection rules.

According to the proportion of concentrated nitric fertilizer and ammonium nitrate in urea-ammonium nitrate, it is foreseen in the case of accident 500 kg of concentrated nitric fertilizer and 2000 kg of ammonium nitrate will be spilled into Klaipeda strait. Long-term one-off spilling impact to the Baltic Sea and Curonian Lagoon eutrophication processes is minimal due to small inorganic nitrogen amount. As Klaipeda strait is characterized as multiplex climate of hydraulic and water currents, it is unable to forecast dispersion of ammonium nitrate and concentrated nitric fertilizer in spilling accident case. Considerably enlargement of concentrations of ammonium nitrate and concentrated nitric fertilizer can have negative impact to Klaipeda strait biotopes, especially for passing fish resources. Possible short-term impact would be maximal if accident would happen at the migration time of salmon family fishes.

Planning terminal won't have negative impact to the landscape since company decided to make grass fields in the territory, to secure sidewalk near the pump "house", to build concrete road and to paint terminals with the colours similar to the exiting landscape.

Liquid fertilizer terminal won't have negative impact for the development of urban structure if sanitation zones won't limit social, sport and living objects.

This fertilizer terminal will attract additional flow of cargo, about 1 million tonnes per year. In the future it is planned to have 2,6 millions tonnes of cargo per year. Liquid fertilizers will be loading to the ships 285 days per year. Activity of this terminal will create 21 new job places. After evaluation impacts to the environment of AB "KLASCO" liquid fertilizer terminal and provided preventive means for minimizing this impact, the most important environmental aspects, which monitoring should be done is water and air. It was suggested to make measurements of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO) and ammonia (NH<sub>3</sub>) concentrations in 3 places. Analysis should be done once during one season, 3 times during the day time. After one year, according analysis results it should be decided about necessity to continue this monitoring. Building and exploitation of liquid fertilizer terminal is connected with Klaipeda State Seaport environment monitoring ("*Klaipėdos valstybinio jūrų uosto aplinkos monitoringą*") which is doing now. According it in AB "KLASCO" territory underground water level and chemical composition is monitored. Water level will be measured 1-3 times every month, other measurments in spring (April) and autumn (October). This monitoring is very important for analysing Klaipeda strait water quality. With the tendence of analysing existing situation and that biggest pollution can be caused by accidents in ships loading place, was suggested to make water quality monitoring in the ship moor place before exploitation will start. After results evaluation, it will be decided about necessity to continue this monitoring

## **Implementation process**

According to the Law on Environmental Impact Assessment of the Proposed Economic Activity (2000) liquid fertilizer terminal is included in the first annex which shall be subject to the EIA “8. Objects of infrastructure” (*“Inžineriniai statiniai”*), “8.1 Construction of sea ports, piers or terminals (for loading and unloading) which can take vessels of 1 350 t or larger” (*“Jūros uostų, prieplaukų ir terminalų (pakrovimo ar iškrovimo) įrengimas (laivams, kurių keliamoji galia – 1 350 ir daugiau tonų)”*) and the second annex where economic activities shall be subject to the screening for obligatory Environmental Impact Assessment “6. Chemical industry” (*“Chemijos pramonė”*) “6.3 Building of storage facilities (warehouses and storage grounds) for petroleum, petrochemical and chemical products with a capacity of less than 200 000 tonnes but more than 5000 tonnes” (*“Naftos produktų bei cheminių medžiagų saugojimo statinių (sandėlių ar aikštelių) statyba (kai talpa – mažiau kaip 200 000 tonų bet daugiau kaip 5 000 tonų)”*).

### Organizer of proposed economic activity:

AB “Klaipėdos jūrų krovinių kompanija”

Address: Zauerveino 18, LT – 5813, Klaipėda

Contact person: Benediktas Petrauskas, development director of AB “KLASCO”

### Developer of environmental impact assessment documentation:

Klaipėda University Coastal Research and Planning Institute

Address: H. Manto 84. LT – 92294, Klaipėda

Contact person: Saulius Gulbinskas, vice director of Klaipėda University Coastal Research and Planning Institute

UAB “Bega” was doing loading and storing of liquid fertilizer, so its experience guided AB “KLASCO” to make EIA report. Company has improved rules of storing of urea-ammonium nitrate several times.

## **Responsibility of EIA**

As I have mentioned before, UAB “Bega” is loading liquid fertilizers, so it was easier for AB “KLASCO” to make Environmental Impact Assessment report and all other documents they need to start this activity.

According to the EU classification concentrated nitric fertilizer and ammonium nitrate are not considered as dangerous material. In Lithuanian there are no identified marginal values of these materials for the working place or drinking water.

According to AB “KLASCO” detail territorial plan approved by Klaipėda city Council in 2000 August 3 (No. 108) liquid fertilizer terminal was planned to build in the area.

Environmental Impact Assessment report was evaluated and adjusted by Klaipėda Regional Environmental Protection Department, Department of Architecture and Urbanistics of Klaipėda Municipality, Department of Nature Protection of Klaipėda Municipality, Klaipėda Human Healthcare Centre, Klaipėda County Head Administration, Department of Civil safety of Klaipėda County Head Administration, Department of Protection of Cultural Values of Klaipėda County and Klaipėda city fire protection and rescue post.

## **Public participation process**

In 26 of September, 2000, it was announced in “Klaipeda” newspaper, AB “KLASCO” is introducing public with Environmental Impact Assessment report of liquid fertilizer terminal. During 10 days period, public can become more acquainted with planned activity and can give motivated suggestions. Public consideration of EIA report of liquid fertilizer terminal was held on 7<sup>th</sup> of October, 2000 in company’s administrative building.

Four representatives from AB “KLASCO”, four from EIA report developer and one from society were participating in this consideration.

Person from society was interested in the product which will be loaded in liquid fertilizer terminal and its chemical characteristics, riskiness. Any motivated suggestions were got. In this meeting difficulties arose during developing of EIA report were discussed. The biggest one was evaluation of sanitation zone. Liquid fertilizer terminal according to valid standards and laws does not ascribed to any group of objects. Atmospheric pollution calculations done according AB “Bega” data, showed there won’t be any overfulfilment of UPC during loading stage, so it was decided to leave sanitation zone 50 m., suggested by projector. Concerning new technologies liquid fertilizers will be without free ammonia, so there won’t be any ammonia exhaustion in atmosphere during loading and storage of liquid fertilizers. The other problem of EIA report development was information delay, which made development work harder.

During this consideration monitoring plan was discussed. It was suggested to reconcile it with the plan of Klaipeda State Seaport monitoring plan.

### **The final decision**

In November 15, 2000 Klaipeda Regional Environmental Protection Department by its final decision allowed to build liquid fertilizer terminal.

### **Overview of report**

The report is well structured and written in easy understandable way. All parts follow each other and it makes easier to understand the whole report. Possible impacts to the air, water, flora, fauna and living people from liquid fertilizer terminal were explained in EIA report. Much attention in the report is given to the employee safety and risk management. There were many regulations connected to the storage of urea-ammonium nitrate in the appendices. These regulations were improved several times. This part was confusing and tricky.

### **5.5.2. Case studies from Loudden and Bergs harbours in Sweden**

#### **5.5.2.1. EIA report on the petroleum depot of Preem Petroleum AB**

##### **Short description of planned activity**

Preem Petroleum AB asks permission to expand its activities at Loudden harbour. Initially Preem wants to handle 490 000 tonnes of petroleum products (compared to the 302 600 tonnes handled in 2004) and after the removal of “air plane fuels” the amount of petroleum products will be 380 000 tonnes. The amount of “air plane fuels” handled today at Preem’s facilities in Loudden harbour is 238 000.

This increased handling of petroleum products is only planned to go on for a limited time. In 2006 the handling of “air plane fuels” will move from Loudden to Gävle harbour. When the transfer of the handling of “air plane fuels” has been realized, Preem wants to transfer some of the handling of other petroleum products (a total of 125 000 tonnes) from Bergs harbour to Loudden. As a result, the planned activities of these two transfers will be about 380 000 tonnes in total.

The application includes the reception, storage and delivery of petroleum products at the terminal in Loudden harbour.

The reason to the expansion at Loudden is the increased market demand for Preem’s products among its customers. There are mainly logistic reasons to the transfer of the handling of some petroleum products from Bergs to Loudden (shorter transport distances etc).

### **Implementation process**

According to the Swedish Environmental Code (Miljöbalken) environmental impact assessment analysis should be done for petroleum products storage. In this case EIA report was done by SWECO VIAK AB. EIA documentation was done in 16 of March, 2005. Complementary additions to the EIA report were done in 29<sup>th</sup> of November, 2005.

#### Developer of EIA documentation:

SWECO VIAK AB

Gjörwellsgatan 22, Box 34044, 100 26 Stockholm

#### Developer of the complementary additions to the EIA documentation:

SWECO VIAK

Södra Ringvägen 12, Box 33, 721 03 Västerås

Contact person: Ann-Charlotte Carlsson AB

### **Responsibility of EIA**

Concerning the Swedish Environmental Code, the application for Preem Petroleum AB permit of petroleum products storage was handed to the County Administrative Board of Stockholm Region (Miljöprövningsdelegationen inom Länsstyrelsen i Stockholms län). Länsstyrelsen forwarded the application to the environmental board in the municipality, to achieve their opinion about if the application needs any complementary additions. When the application was considered complete, länsstyrelsen asked for opinions from various institutions. In this case the Swedish Environmental Agency, the Swedish Rescue Services Agency, the local authority and its fire department, municipal water treatment plants non-profit and voluntary organisations with the interest in the case (Djurgården-Lilla Värtan). At the same time länsstyrelsen announced the application in local news papers.

### **Public participation process**

Länsstyrelsen announced the application about Preem Petroleum AB proposed activity in “Mitt i Östermalm” (17 of January, 2006), “Dagens Nyheter” (18 of January, 2006) and “Svenska Dagbladet” (18 of January, 2006) newspapers.

Announcement describes place and description of planned activity and brief impacts to the different environmental aspects (air, water, ground, noise, risk of accidents etc.). Also it is explained where to send any comments (Länsstyrelsen) concerning planned activity and the latest time for doing this (February 15, 2006).

### **The final decision**

Since I was making my analysis, final decision has not been taken yet. In a decision taken on the 10<sup>th</sup> of October 2005 the County Administrative Board of Stockholm Region (Miljöprövningsdelegationen inom Länsstyrelsen i Stockholms län) asked Preem Petroleum AB to make some complementary additions to the EIA report.

### **Overview of report**

According to a Swedish colleague and student at the Royal Institute of Technology in Stockholm, the report language was easy to understand and to read. The report was well structured and not too much text. However few impacts to different environmental aspect weren't described clearly. Since the main aim of EIA analysis is to evaluate impacts to the different environmental aspects, it makes some report parts complex and confusing.

#### **5.5.2.2. EIA report on Bergs oil harbour of Svenska Statoil AB**

##### **Short description of planned activity**

Svenska Statoil AB asks permission to expand its activities at Bergs oil harbour in Nacka municipality. Statoil wants to increase the current amount of petroleum products handled yearly (700 000 tonnes) with 400 000 tonnes. The reason of the expansion at Bergs harbour is increased market demand.

In the application the requested alternative, 1 100 000 tonnes of petroleum products, is compared to the current situation ("the zero-alternative").

The need to apply for permission for this type of activities is stated in the Swedish environmental code (miljöbalken)

##### **Implementation process**

The first part of the EIA report – the environmental impact statement (Miljökonsekvensbeskrivning) was done by BEWIC company. The contact person - Lennart Wickman. There was no any other information about this developer in the report, internet or Swedish phone book.

The technical description, safety report and risk analysis were done by the company itself – Svenska Statoil AB.

##### **Responsibility of EIA**

Rasha Ishaq – representative from the County Administrative Board of Stockholm Region, provided information about EIA evaluation procedure of Preems Petroleum AB, but she wasn't working here when EIA report of Svenska Statoil AB was evaluated. According to her

the procedure is similar for all kinds of environmentally hazardous activity. So it was the same for Statoil.

The application was handed in to County Administrative Board of Stockholm Region (Miljöprövningsdelegationen inom Länsstyrelsen i Stockholms län). Länsstyrelsen forwards the application to the environmental board in the municipality, to achieve their opinion about if the application needs any complementary additions. When the application is considered complete, länsstyrelsen asks for opinions from various institutions. At the same time länsstyrelsen announces the application in local news papers.

### **Public participatory process**

Länsstyrelsen announced the application about Svenska Statoil proposed activity in “Dagens Nyheter” (19 of March, 2003) “Svenska Dagbladet” (19 of March, 2003) and “Lokaltidningen Mitt i Nacka” (25 of March, 2003) newspapers.

The announcement concerns the final decision and announces that a decision has been taken by länsstyrelsen about the terms of condition at Statoil AB’s activities at Bergs harbour in Nacka. It is also described where the acts can be found (Länsstyrelsen and Miljöförvaltningen) and the latest date for an appeal (April 11, 2003)

### **The final decision**

In a decision taken on the 14<sup>th</sup> of March 2003 the County Administrative Board in Stockholm Region allowed Svenska Statoil AB to handle 1 100 000 tonnes of oil yearly.

### **Overview of report**

According to a Swedish colleague and student at the Royal Institute of Technology in Stockholm, the report is well structured and easy understandable. The main weaknesses she found, there is no introduction and summary. Other weakness we have found, it was impossible to find contacts of the company BEWIC who have made part of EIA report.

### **5.6. Discussion**

The idea of this comparison was to get more acquainted from practical point of view with EIA procedures in Lithuania and Sweden. The reports I have got weren’t significantly equal, so this analysis is more like pilot study, which structure could be used as a guidelines for the further analyses.

The first thing I have faced to was receiving Environmental Impact Assessment reports from Lithuania and Sweden. At that time I was studying in Sweden, so the easiest way to get material from Lithuania was to write requesting official letters to the companies at Klaipeda harbour. The result wasn’t so good I was expected. Just one company agreed to give information I needed. This situation could happen because I asked to send me copies of EIA reports, which are quite large. Making copies requires time, human resource and money, so I think it was the main reason why I have got just one company agreement. However mostly all companies answered to my letter and explained why they can’t give me EIA reports I was requesting. My experience have showed that information can be got in Lithuania in

accordance with specific legislation, providing information receiving or having contacts with the key person at the companies, governmental institutions.

Getting Swedish EIA for me was difficult and complicated process. The main reason – I didn't know Swedish language. Swedish colleague helped me with writing e-mails to the companies at Loudden harbour and asking EIA reports. EIA report of Preem Petroleum AB I have got from the County Administrative Board (Länsstyrelsen). We copied this report at Länsstyrelsen and paid for this. The EIA report of Svenska Statoil AB was send by the company itself without any request to pay. This situation became very interesting for me. The private company didn't asked money for the report copy, while governmental institution did. In my opinion the only reason why this could happen is because EIA report at Länsstyrelsen was given to us by other man, who maybe didn't know all rules, since the women I always was communicating with was at the vocation. My experience have showed that, contacting key persons from private companies or governmental institutions and having motivated request results in EIA reports receiving in Sweden.

Both EIA reports from Klaipeda harbour were evaluated by the Klaipeda Regional Environmental Protection Department (KREPD), while EIA reports from Loudden and Bergs harbours - by the County Administrative Board of Stockholm Region (Länsstyrelsen).

The developer of both Lithuanian EIA reports had to make sure that report is evaluated by various institutions which permissions are needed. He was empowered by the activity organizer – AB “KLASCO” for pursuing all procedure. Klaipeda University Coastal Research and Planning Institute was the developer of both Lithuanian EIA reports I have analysed. He was sending the report to the responsible institutions which permits and evaluates economic activity. Announcement about application of proposed economic activity, date, time and place of public consideration with it, developer publicised in local newspaper “Klaipeda”. All interest parties, stakeholders could give motivated suggestions to the developer within seven days. The public consideration was held also by the developer and the final decision about proposed economic activity was announced in the same local newspaper by the same developer.

Concerning Swedish Environmental Code the applications regarding “environmentally hazardous activities” (in this case Preem Petroleum AB and Svenska Statoil AB) is handed to the County Administrative Board of Stockholm Region (Miljöprövningsdelegationen inom i Stockholms län). Firstly Länsstyrelsen forwarded the application to the environmental board in the municipality and then to various institutions, to achieve their opinion about if the application needs any complementary additions. Länsstyrelsen announced the application about proposed economic activity in the local newspapers. After this announcement all stakeholders had the opportunity to give comments to the application. These had to be sent to Länsstyrelsen within a preset period of time. The comments were then sent to the SWECO and BEWIC - companies who have made the application.

I couldn't found any information about public meeting concerning Swedish EIA reports I have analysed. Since it was expansion of existing activities at Preem Petroleum AB and Svenska Statoil AB, it is natural, that it was no necessity to held public meeting. However it was announced in local newspapers about both applications, described the place where it could be found (Länsstyrelsen) and the time period when comments could be sent.

Lithuania has big problem concerning low public participation rates. This analysis has showed that public participation in EIA procedure in Lithuania and Sweden requires having knowledge about planned activity, environmental things, legislative basis and public rights. There were just few cases during 2001-2004 years, when public was participating in EIA procedures concerning Klaipeda harbour activities. Just methanol terminal project was an exception. Big public interest, protests, meetings and participation were leading all stages of EIA process. The process itself took long time, and one of the reasons why company decided not to build this terminal was big dissatisfaction of public.

Variety of institutions, evaluating EIA reports in Lithuania and Sweden depends much on the complexity and specificity of the project. EIA procedure for AB "KLASCO" methanol terminal took much more time and efforts, comparing to the same company liquid fertilizer terminal EIA procedure, because it was totally new project in Lithuania, required adaptation of new rules by Ministry of Environment.

The important thing was difference in significance of harbours I have chosen. Klaipeda harbour belongs to the Lithuanian government, while Loudden to Stockholm municipality and Bergs harbour to Nacka municipality. Swedish harbours I have analysed are local significance, while Klaipeda harbour is state port and significant for whole Lithuania. During my analysis I have found bigger and more significant projects were done in Klaipeda harbour, then in Loudden or Bergs.

In general, the same institutions were evaluating EIA projects in both countries. Swedish County Administrative Board forwarded the EIA application to the environmental board in the municipality, then, depending on project complexity, it is evaluated by the Swedish Environmental Agency, the Swedish Rescue Services Agency, the local authority and its fire department, municipal water treatment plants, non-profit and voluntary organisations with the interest in the case. Lithuanian EIA reports I have analysed were evaluated by Regional Environmental Protection Department, Human Healthcare Centre, County Head Administration, its department of civil safety and department of protection of cultural values, local municipality, its department of nature protection and department of architecture and urbanistics, city fire protection and rescue post.

The interesting thing I have found during this analysis is that Länsstyrelsen forwards EIA application to the non-profit and voluntary organizations, while in Lithuania developer do not send anything to the NGO's. Usually these people are informed about EIA procedure from the announcements in the newspapers.

The structure of Environmental Impact Assessment reports was the same in both countries. The reports started with general data, technological processes and waste description. Possible impact of proposed economic activity to different environmental components was the main and the biggest part in all EIA reports. Description of alternatives and monitoring programme was the last reports parts. All of them ended with references, summary and appendices.

As I have mentioned before, the EIA reports I was analysing wasn't equal in their significance. So, to find some general weaknesses or strengths were impossible. The other problem was, Swedish EIA reports were read by my colleague Erika Peipke, so she have made overview of these EIA reports. In general we both agreed, understanding EIA reports require specific knowledge. All reports have specific paragraphs, such as technical description, where report language is very technical and difficult to understand.

Mainly all reports have the same weakness - few impacts to different environmental aspect weren't described clearly. In Lithuanian EIA report of methanol terminal, were explained existing environment, but not possible impacts to it. The same report was really confusing, since some parts disagree in whole report and EIA programme. Mainly everywhere there are no explanations of measurement units, references to data. All this made report even more complex and tricky. EIA report of liquid fertilizer terminal main weakness was appendices, which weren't mentioned or described in the report. EIA Svenska Statoil AB report didn't had introduction and summary. This report was made by company BEWIC, but it was impossible to find contacts of it.

Almost all reports were well structured and written in easy understandable way (do not taking into account technical part). The same structure in all reports made my analysis easier and simpler.

Comparing methanol terminal report with liquid fertilizer, the second one is much improved and easier to understand even the developer of both reports was the same. Statoil report was less extensive, much simpler and less detailed compared with Preems.

I had some ideas and proposals for future work after I made my analysis. My suggestion would be to use this analysis as a pilot analysis and improve it according to the criticisms of source information. Big attention and efforts should be put on getting EIA reports and all material connected with this procedures. It could be interviews with report developers, evaluators, activity organizers, community, articles concerning planned activity in newspapers and etc. Just in such way different opinions will be got and analysis will be much informative. It is very important to get significantly relative EIA reports. In such a case analysis and comparison would be more equal. Knowing report language, it means, reading it by your own, would improve analysis a lot. Making comparison more effective, EIA report developers and organizers should be different.

## **5.7. Conclusions**

Based on the four EIA reports analysis, I could draw the following conclusion:

- Even both countries follow the same EU Directive 85/337/EEC, the implementation process and responsibility for EIA procedure differs.
- A public participation procedure is identical in both countries. Participation degree is very low in Lithuania and much higher in Sweden.
- In both countries, public participation in EIA procedure requires having knowledge about proposed economic activity, environmental things, legislative basis and public rights.
- EIA reports in Lithuania can be got in accordance with specific legislation, providing information receiving or having contacts with the key person at the companies, governmental institutions. While in Sweden - contacting key persons from private companies or governmental institutions and having motivated request.
- In general, the same institutions are evaluating EIA projects in Lithuania and Sweden.
- The main weakness of reports I have analysed is that impacts of proposed economic activity to the different environmental aspects are described not clear and not detail.
- General strength of EIA reports - well structured and written in easy understandable way.

- Understanding of EIA reports require specific knowledge. All reports have specific paragraphs, such as technical description, where report language is very technical and difficult to understand.
- The structure of EIA reports in Lithuania and Sweden is the same.
- In my opinion, Swedish EIA reports is much easier to understand and to analyse, comparing with Lithuanian.
- This analysis could be used as a pilot analysis for further works.

## **6. Evaluation of EIA and SEA**

### **6.1. Designing a questionnaire**

The questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straightforward to analyse (Wilson and McLean, 1994).

Questionnaires are an inexpensive way to gather data from a potentially large number of respondents. Often they are the only feasible way to reach a number of reviewers large enough to allow statistically analysis of the results. A well-designed questionnaire that is used effectively can gather information on both the overall performance of the test system and well as information on specific components of the system (Questionnaire Design, 2005).

Questionnaire design is a long process that demands careful attention. A questionnaire is a powerful evaluation tool and should not be taken lightly. Design begins with an understanding of the capabilities of a questionnaire and how they can help your research. If it is determined that a questionnaire is to be used, the greatest care goes into the planning of the objectives. Questionnaires are like any scientific experiment. One does not collect data and then see if they found something interesting. One forms a hypothesis and an experiment that will help prove or disprove the hypothesis (Studen researcher, 2005).

### **6.2. Analysis of questionnaire for Lithuanian stakeholders**

#### **6.2.1. Objective**

The aim of this questionnaire was to confirm information, I found during my literature research and to find out different stakeholders opinions. Every question has its own objective just to clear up what information I wanted to get from each question (appendix 2.).

The general objectives of my questionnaire were:

- to compare stakeholders' familiarity with EIA and SEA;
- to evaluate efficiency of EIA for evaluation of new projects;
- to evaluate efficiency of SEA for evaluation of new plans, programmes and policies;
- to evaluate EIA and SEA influence to the decision making process;
- to find weaknesses and strengths of EIA and SEA;
- to find out reasons of low participation of public in EIA procedure.

#### **6.2.2. Research Strategy**

This questionnaire was a part of my thesis project and since I had read and know about the subject of this study, the main aim was to implement my knowledge and to confirm or reject some of my assumptions. I consulted doc. Ester Galli from Brazil, who has experience in making different kind of questionnaires. During our discussions we came to the idea of making a questionnaire based on a mixture of open-ended and closed questions, in order to get more informative answers (appendix 1.).

In this questionnaire mostly of all questions are open, because the most important thing for me was to get ideas, reflections and opinions of different stakeholders and to take some conclusions of how different groups are thinking. I didn't expect to make any statistical analysis. It was like an interview kind questionnaire. I contacted respondents, who are informed about Environmental Impact Assessment procedures, have participated in the EIA procedures, elaborating it, or working with its implementation. So, the questionnaire was direct to persons on key positions. Other important point was the reliability of my research. According to Cohen and others (2005), for research to be reliable "it must demonstrate that if it were to be carried out on a similar group of respondents in a similar context, then (however defined) similar results would be found". Due to this, it was very important to get similar ideas from similar respondents. It requires have large number of respondents of similar groups.

### **6.2.3. Methodology**

Questionnaire design is a long process and demands careful attention. However, a questionnaire is only as good as the questions it contains. There are many guidelines that must be met before questionnaire can be considered a sound research tool. Book written by Cohen, L., Manion, L., Morrison, K. (2005) *Research Methods in Education*, 5<sup>th</sup> edition (2005) and article from the internet page "Questionnaire Design" were the main guidance's of making and analysis my questionnaire.

According to Cohen and others (2005), questionnaire is making through three phases. *Firstly* a questionnaire's general purposes must be clarified and then translated into a specific, concrete aims or set of aims. *The second phase* of the planning involves the identification and itemizing of subsidiary topics that are related to central purpose. *The third phase* follows the identification and itemization of subsidiary topics and involves formulating specific information requirements relating to each of these issues.

The steps required to design and administer a questionnaire include:

1. Defining the Objectives of the survey
2. Determining the Sampling Group
3. Writing the Questionnaire
4. Administering the Questionnaire
5. Interpretation of the Results (Questionnaire Design, 2005).

#### **6.2.3.1. The selection of the case study**

My thesis is focused on comparison of Environmental Impact Assessment procedure in Klaipeda State Seaport in Lithuania and Loudden harbour in Sweden. Since the European Union established new tool for evaluation of impacts to plans, policies and programmes – Strategic Environmental Assessment - which is very connected with EIA, I will make the overview of this tool in Lithuania and Sweden too. As SEA is very new tool, it was important

to find out how different stakeholder groups are familiar with this tool so far and to compare these results with the results of familiarity with EIA tool. During my research, interviews I got different opinions about effectiveness, strengths and weaknesses of EIA and SEA. That's why I have used my questionnaire to prove or disprove these ideas.

Concerning the Law on Environmental Impact Assessment (1996 August 15, No. I-1495) responsible institution for EIA in Lithuania is Ministry of Environment or other government empowered institution. Planned activity subjects are: governmental institutions, which are responsible for healthcare, protection of fire, protection of cultural values, economical and agricultural development, and local autonomous institutions; planned activity organizer; EIA document maker, obligated by planned activity organizer; society. Groups listed before can and should participate in EIA procedure. Taking this into account, I made classification of these stakeholders to 6 positions (industry company, municipality, NGO's, community, scientists/researches, other) and focused my questionnaire on them.

At the beginning this questionnaire was done with the intention of being distributed among Lithuanian stakeholders participating in "Coastman" meeting in Klaipeda. But, during this meeting there was small number of participants, for this reason I sent the questionnaire for persons who I had contacts during my literature research. I described it in more detail in EIA reports analysis (Chapter "5. Comparison of EIA procedures in Lithuania and Sweden" paragraph "5.3. Methodology")

At Klaipeda meeting, I first introduced myself to every respondent it was present in the conference, explained my thesis project and the importance of having the questionnaires filled in. I did the same when I sent the questionnaires by e-mail to other stakeholders. In my mind this is the main reason why I got a good response rate, even considering that the sample was small.

### **6.2.3.2 Procedures for data collection**

There are several kinds of question and response modes in questionnaires, including for example: dichotomous questions; multiple choice questions; rating scales; and open-ended questions (Cohen et al, 2005).

"Thought there is a large range of types of questionnaire, there is a simple rule of thumb: the larger the size of the sample, the more structured, closed and numerical the questionnaire may have to be, and the smaller the size of the sample, the less structured, more open and word-based the questionnaire may be" (Cohen et al, 2005).

Taking into account that the questionnaire is a multi-stage process beginning with definition of the aspects to be examined and ending with interpretation of the results, doc. Ester Galli guide me during all these processes. In my questionnaire I had a set of rating scales and open-ended questions. According to Cohen and others (2005), where measurement is sought then a quantitative approach is required; where rich and personal data are sought, then a word-based qualitative approach might be more suitable. A questionnaire might be tailored even more to respondents by including open-ended questions to which respondents can reply in their own terms and own opinions. Taking this into account, I added mostly to all rating scales open-ended question (why? Please, explain Your opinion and etc.), to get more informative answers. I choose such a set, because it will be the most suitable and informative for my study. I made literature research to find out advantages of these types of questions.

### Open-ended questions

#### Advantages:

☺ “May be more appropriate as they can capture the specificity of a particular situation. Very attractive device for smaller scale research or for those sections of a questionnaire that invite an honest, personal comment from the respondents in addition to ticking numbers or boxes. Can catch the authenticity, richness, depth of response, honesty and candour. The space provided for an open-ended response in a window of opportunity for the respondent to shed light on an issue or course” (Cohen et al, 2005).

#### Disadvantages:

☹ “Enable respondents to write a free response in their own terms, to explain and qualify their responses and avoid the limitation of pre-set categories of response. The response are difficult to code and to classify. It puts the responsibility for and ownership of the data much more firmly into the respondent’s hands. Make it difficult for the researcher to make comparison between respondents, as there may be little in common to compare. To complete such type of questionnaire takes much longer than placing a tick in a rating scale response box; not only will time be constrained here, but there is an assumption that respondents will be sufficiently or equally capable of articulating their thoughts and committing them to paper” (Cohen et al, 2005).

### Rating scales

#### Advantages:

☺ Quick to complete and straightforward to code (if data will be analysed with computer program).

☺ “Do not discriminate unduly on the basis of how articulate the respondents are” (Wilson and McLean, 1994).

☺ “Very useful devices for the researcher, as they build in a degree of sensitivity and differentiation of response whilst still generating numbers. Powerful and useful in research, the researcher, nevertheless, needs to be aware of their limitation. Provide more opportunity than dichotomous (yes/no) questions for rendering data more sensitive and responsive to respondents. This makes rating scales useful for tapping attitudes, perceptions and opinions of respondents” (Cohen et al, 2005).

#### Disadvantages:

☹ “Do not enable respondents to add any remarks, qualifications and explanations to the categories might not be exhaustive and that there might be bias in them” (Oppenheim, 1992).

☹ Limited in their usefulness to researchers by their fixity of response caused by the need to select from a given choice.

☹ “We have no check on whether the respondents are telling the truth. Some respondents may be deliberately falsifying their replies. We have no way of knowing if the respondents might have wished to add any other comments about the issue under investigation” (Cohen et al, 2005).

The questionnaire was responded by two groups of stakeholders: a) the one attending the “Coastman” meeting in Klaipeda and b) the one contacted through official letters to Klaipeda Harbour, in which EIA report and the name of persons to be contacted were requested. In the

first group were included representatives from Klaipeda City Municipality, Klaipeda County, Klaipeda Public Health Centre, Klaipeda Seaport Authority, Curonian Spit National Park, Coastal Zone Regional Park, Klaipeda University scientists and NGO. In the second - representatives from Klaipeda harbour companies, Ministry of Environment, Coastal Research and Planning Institute in Klaipeda University, Pakruojis City municipality.

The literature review was enriched by a contact with the head Environmental Impact Assessment Department in Ministry of Environment. This contact guided me through a basic literature on the subject of my research and statistical data on EIA in Lithuania. This contact turns out being one of the key persons answering the questionnaire. Another key contact came from Coastal Research and Planning Institute in Klaipeda University whom introduce me to the JICA report "Port development project in the Republic of Lithuania" and was also one of the key respondents to the questionnaire. Due to the complexity of the subject, I discussed it with my former colleagues at my native town from Pakruojis municipality. It finalized by being very interesting due to their knowledge in the area, which requires doing EIA. They also were among the respondents.

There were 3 representatives from ecological club "Zvejone" in "Coastman" meeting in Klaipeda (Lithuania). Two girls gave back empty questionnaire arguing that they have never been in touch with EIA and SEA tools. Other respondent from this club was a volunteer from France, working in this club at the moment. He showed interest in my questionnaire, so I handle him the English version of it, he answered in English.

There were two respondents, who had very strong and different opinions. One person was from scientist, researches position I questioned him during the conference and during some previous meetings and another one from a NGO. It seems they were both familiar with this process, but in different ways. Scientist makes EIA reports and knows well what obstacles can be found during the procedure. The person from NGO has participated in many EIA procedures, concerning Klaipeda harbour activities. I got his e-mail address from other NGO representative, who participate the "Coastman" conference.

### **6.2.3.3. Procedures to data analysis**

After planning the questionnaire and securing some response rate to the survey, the task was to reduce the mass of data, which have been obtained to form suitable to analysis. I choose to analyse the questionnaires from "Coastman" conference and the ones sent by e-mail separately, in order to make the analysis clearer and simpler for the reader. I also made some "data reduction" – I will analyse two questions together (No. 2 and No.3), because these questions are well connected to each other. I did find some errors made by respondents. There were few cases, when respondents didn't understand my question and answered in totally different way.

In the discussion part I sum up these analyses and draw some general ideas from different stakeholders' opinions. In the end I will draw some conclusions, which will answer to the objectives I had to the questionnaire.

As I have mentioned before, doc. Ester Galli guide me through all questionnaire making and data analysis. Since I had developed a complex questionnaire, it was difficult to find method of answer analysis. According to doc. Galli, taking into account the complexity of the

questionnaire and the fact that the sample was small to make statistical analysis, the following should be considered.

Open questions provide a wide range of responses that very often are not linked to each other. The answers may vary from respondent to respondent. In this case one can either dismiss all the answers from open questions or try to explain them.

1. One way of explaining the answers, of making sense of what is said, is to arrange all the answers with similar focus in a group. For example: answers that focus on similar aspects should be grouped together, like the ones that prioritize economics aspects should be grouped together, or the urbanities aspects or the ecosystem, or tourism, or the beauty of the local, or any other aspect, they should be grouped together. In this way it may be possible to see the trend in the answers to a specific question.
2. In the case that the sample is too small, it may be difficult to group the answers and analyse the trend. In this case the questionnaire may be used as a pilot questionnaire. Based on the answers from this pilot questionnaire one can develop a new questionnaire with more quantitative questions, to be applied to a bigger sample of respondents that will allow for a statistical analysis.

#### **6.2.4. Data Collection**

##### **6.2.4.1. Source of information**

As I have mentioned in paragraph “3.3 Procedures for data collection”, main and most reliable information I got from the Ministry of Environment and Coastal Research and Planning Institute in Klaipeda University. I had few interviews with my supervisors from Lithuania Olga Belous and Saulius Gulbinskas, who helped me to support or reject ideas I have got from different literature sources. I made literature research concerning making and analysing questionnaire. Book written by Louis Cohen, Lawrence Manion and Keith Morrison “*Research Methods in Education*. 5<sup>th</sup> Edition (2005) was the main literature source for developing my case study. Doc. Ester Galli from Brazil, helped and guided me in all my work stages.

##### **6.2.4.2 Criticism of the source of information**

It should be considered it was the first time I was designing questionnaire. Since I’m not an expert in this field, some improvements in my questions and analysis could be made in the future. In my opinion, the most important thing was to find some key persons. It took much time to find out them and then to motivate them to answer the questionnaire. Since everything I was doing in Stockholm, it was very complicated to do the same in Klaipeda. Due to shortage of time, I found just one or two respondents from different positions. I realized the consequences of such a small sample during the analysis phase when I had just one person’s opinion from similar position. In such case it was impossible to draw general conclusions about stakeholder opinions. It is impossible to generalize from such a small sample. I did find some differences even between representatives from the same position (municipality, community). I think it happens because they are working in different branches and are touched with EIA and SEA procedures in different ways. I did have small sample for making statistical analysis mainly because there were less participants in the “Coastman” conference in Klaipeda then was planned. Questionnaire was designed directly to key persons in accordance they will take an active part in this conference. There were just 10 stakeholders

participating in the conference, and not all of them gave back the questionnaire. I got high rate of response, just because I was personally talked with every stakeholder and asked to fill my questionnaire. Still sample was too small to make some statistical analysis. Since I had few positions, where just one or two persons answered, it was even difficult to see the main trend of stakeholders' opinion. Nevertheless, in a few questions I could determine a main trend in the respondent' answers.

### 6.2.5. The Data Analysis

In this part I will analyse questionnaire answers from different stakeholder groups in more detail. General ideas will be drawn in the discussion part.

#### 6.2.5.1 Analysis of questionnaire

There was "Coastman" meeting in Klaipeda, Lithuania on 10-11 of November. 2005. The participants were Lithuanian stakeholders from Klaipeda City Municipality, Klaipeda County, Klaipeda Public Health Centre, Klaipeda Seaport Authority, Curonian Spit National Park, Coastal Zone Regional Park, Klaipeda University scientists, representative from NGO.

As I had some contacts with other persons (representatives from Klaipeda harbour companies, the head of Environmental Impact Assessment in Ministry of Environment, scientists from Coastal Research and Planning Institute in Klaipeda University, architect and the head of Agriculture Department in Pakruojis city municipality) working with EIA procedures directly, I also distributed the questionnaire to them. I had an interview and consultation with 3 of these persons during which they filled my questionnaire. As I was communicating with 4 of them by e-mail regularly, I sent the questionnaire to them by e-mail. During "Coastman" meeting I got one contact from Klaipeda ecological club "Zvejone", I also sent the questionnaire to him by email.

During "Coastman" meeting in Klaipeda I distributed 17 questionnaires, from which I got back 13 answers. In this case answered 76,47% respondents (*Table 6.1.*).

In total I have distributed 8 questionnaires by e-mail, from which I got 6 answers back. 75% respondents answered in this case. Results of this group I summed with the result of "Coastman" meeting. In total I have distributed 25 questionnaires, to different persons, from which, 19 were answered. Total response – 76%. (*Table 6.1.*) More detailed information about response of questionnaire of different position persons are given in *table 6.2.* and *table 6.3.*

**Table 6.1.** Total of questionnaire response

Questionnaires	Response source		Total
	"Coastman" conference	E-mail	
Distributed	17	8	25
Responded	13	6	19
Not responded	4	2	6
Response in %	76,47	75	76

**Table 6.2.** Questionnaire response by e-mail.

Respondent position	Response		
	Distributed	Responded	Not responded

Industry company	1	0	1
Municipality	0	0	0
NGO's	2	1	1
Community	4	4	0
Scientists, researches	1	1	0
Other	0	0	0

**Table 6.3.** Questionnaire response in “Coastman” conference.

Respondent position	Response		
	Distributed	Responded	Not responded
Industry company	3	1	2
Municipality	4	4	0
NGO's	3	3	0
Community	1	1	0
Scientists, researches	2	1	1
Other	4	3	1

### 6.2.5.2 Analysis of questionnaire responded by e-mail

#### **Are you familiar with the procedure of Environmental Impact Assessment - EIA?**

Respondents from governmental institution and scientists, researches position are familiar with Environmental Impact Assessment procedure very much.

Respondent from governmental institution classified himself from 6 possible positions as *others* and gave his directly position (Ministry of Environment, Environmental Impact Assessment department) goals and responsibilities. Nongovernmental organizations (NGO's) are the main not directly connected participants in EIA process, that's why they are familiar with this tool much. Respondents from community answered very different. One of them are familiar with this process much, another two little and the last one not at all.

#### **In Your opinion which are the groups involved in the EIA procedure? Please, list them. Please, evaluate the degree of participation of the groups listed in your answer to question 2 in the EIA procedure?**

These 2 questions are connected to each other, so I analysed them together.

Question about which different groups are involved in EIA procedure was really tricky to respondents.

One representative from community didn't understand my question. Governmental institution gave me reference to the Law on Environmental Impact Assessment, article 5, 1<sup>st</sup> part. According them, all Environmental Impact Assessment process participants are participating compulsory, except society.

Respondent from NGO listed these EIA procedure participants: EIA clients (those, who order to do EIA); EIA making scientists; local society (community); institutions adjusting EIA; NGO's. According to him, EIA client, EIA making scientists and Institutions adjusting EIA participates in this procedure to a very large extent. Local society and NGO's do not participate in this process at all. One person form community thinks, EIA client, municipality,

Environmental Protection Department; society and others are involved in EIA procedure. According to him, EIA clients and Environmental Protection Department participates to a very large extent; municipality to a large extent and society to some extent. Other representative from community thinks EIA client, EIA report making company/organization, society, municipality, Ministry of Environment are involved in this procedure. By his opinion, EIA client, EIA report making company/organization, and Ministry of Environment participates in it to a very large extent; municipality – to large extent. Society sometimes participates to a very large extent, sometimes to some extent.

Other respondent from community thinks that EIA report can be made by corresponding governmental institutions, stock company, limited liability stock company, educational institutions, individual companies etc. When the plan is finished, society all interested juridical and physical persons can become acquainted with it. According to him, plan making groups participates in EIA process to a very large extent, but groups, which become acquainted with plan – to some extent. According to person from scientists and researches position, Ministry of Environment, a governmental institution (which makes decision, gives permissions and etc.), activity organizations, EIA document makers and society are groups involved in EIA procedure. Ministry of Environment, activity organizations and EIA document makers participates in this procedure to a very large extent; governmental institutions – to a large extent and society to some extent.

**In Your opinion, are there other groups that should participate in EIA procedure? If yes, list them and explain why. If no, explain why.**

Mostly all respondents agree that it is enough groups, participating in Environmental Impact Assessment procedure. Scientists, researches and Governmental institution follow law requirements, where it is described which groups can participate in EIA (the Law on Environmental Impact Assessment, article 5, 2<sup>nd</sup> part).

Respondent from community points out, that it is very important that participating groups should participate in right and responsible way.

Representative from NGO thinks the most important thing is that there were no violate society rights to live in clean environment. According to him, the problem is that no one cares about society's opinion. "The biggest problem is that people can't influence anything. There is written that motivated suggestions can be given, but what is motivated suggestion? One man from Klaipeda Regional Environmental Protection Department explained me if would found mistakes in calculations, it would be an argument. According to him it seems that society should become scientists and check EIA reports" says respondent from NGO position.

**Is EIA an effective tool to evaluate environmental impacts of new projects?**

Most of the respondents agree that Environmental Impact Assessment is an effective tool to evaluate impacts of new projects. A representative of the governmental institution thinks that EIA is very effective tool. He gives guidance to the Law on Environmental Impact Assessment (article 10, 6<sup>th</sup> part) related to its effectiveness. One representative from the community had the same opinion. According to him, EIA is an effective tool, because it shows possible impacts to environment. This leads to the decision makers to require changes in engineering project before the project is implanted, not after it has been approved and has started to work, which helps to reduce expenses.

Two respondents from community say that EIA is an effective tool, because of minimization of possible impact to environment. Respondent from scientists, researches position has the same opinion. According him it is done for proposed economic activity and during this procedure there can be made decisions concerning technological alternatives, or optimal compensations; chosen impact minimisation tools. One respondent from community thinks this tool is not so effective, because in most cases society sees changes just the project has been implanted, then it is too late to make complaint. It is also difficult to forecast what will happen. Experts can develop “nice” pictures of what the project is proposing, because they are getting big money for this. That’s why the result can differ in reality from what was planned. Representative from NGO had very strong opinion about effectiveness of this tool. In his opinion EIA is not effective at all, because EIA report is ordered by client, who plans new activity. “There is one main scientist in Klaipeda, who is doing EIA for different harbour companies. Everyone hires him, because in no case his results will be unfavourable for the company. If in a few times his results would be unfavourable no one would hire him anymore. Scientists understand this very well. Environmental Impact Assessment report should be done by independent experts. For evaluation of impact to environment company should pay not directly to scientists, but to put money to some funds or to do it in some other way. Scientists do not take any responsibility and escape punishment for erroneous results. There could be some licenses that could be taken away from scientists because of erroneous results. Even you can make a report. There is no formal description of who should develop EIA. When calculating sanitation zones one formula doesn’t fit, they are using another one. The same situation can be calculating wood cubic capacity. It is the same as with wood cubic capacity. Calculating by different formulas, different result will be get” (NGO).

### **In Your opinion what are the strengths of EIA?**

Few strengths of Environmental Impact Assessment were pointed out. The representative of the Governmental institution offered to read Manual for Environmental Impact Assessment, which can be downloaded from Ministry of Environment home page. According to NGO the strength of EIA is that theoretically there is given possibility to participate in EIA. Representatives from community find out strengths, that it obligates activity client to think about which impacts the planning activity may cause and develop strategy to avoid them. Interested persons can give their opinion too. After evaluation of impact to the environment concrete preventable means for pollution minimisation, financial expenses reduction and friendless to the environment can be taken. According to representative from scientists, researches position the strength of EIA is - comprehensive and integrated evaluation of possible impact to environment.

### **In Your opinion what are the weaknesses of EIA?**

Different respondents wrote down different weaknesses of Environmental Impact Assessment tool. According to the representative of the Governmental institution, in the earliest stage of the project is not always possible to develop technical analysis very exhaustively. One respondent from community thinks the main weakness is that society doesn’t know they have the right to participate in EIA, or they start to participate too late. Information about planned activity is given in the last pages of the newspapers. Many people do not pay attention to it do not understand what it means until the new buildings “risen” near to them. Another community person thinks there can be some aspects, which were not evaluated. One

community respondent and respondent from scientists, researches position point out that evaluation process takes long time.

**In Your opinion can EIA influence the decision making process?**

Two respondents from community and one from NGO agree that EIA can have a great influence in the decision making process, because if in the conclusion of the EIA report is written that there will be negative impact to the environment, then the project won't be confirmed. A representative of Governmental institution agrees with them and motivates opinion giving the reference to the Law on Environmental Impact Assessment (article 10, 5<sup>th</sup> and 6<sup>th</sup> parts). Respondent from scientists, researches position thinks this tool can influence decision making process, because it gives information, needed for the decision making. Representative from community thinks in the same way and arguments that if a planned activity will lead to negative impact to environment, the client should change it into position appropriate to requirements. One representative from community thinks that EIA has little influence on the decision making process, because Environmental Impact Assessment often is doing for big objects, where great amount of investments are putting in. That's why usually these projects are confirmed.

**Do You have any proposals for improving EIA process? Please, explain.**

Few proposals were gotten from respondents. From representative of governmental institution I got suggestion to become more acquainted with Lithuanian legislative basis of EIA and SEA.

According to NGO, it should be thinking more about payment for EIA makers. Company shouldn't be EIA client. If society requires, experts should be hired and EIA report checked once more. Respondent from community thinks, there should be written big and clear articles in local newspapers when a big activity is being planned. It would help discussions to start in good time.

**Are you familiar with the procedure of Strategic Environmental Assessment - SEA?**

The representative of the Governmental institution is very familiar with Strategic Environmental Assessment. Scientists, researches know a little about it, because in Lithuania it came into force just in 18 of August, 2004. Representatives from NGO's and community are not familiar with this tool at all, that's why these five respondents didn't answer the following questions concerning this tool.

**In Your opinion which are the groups involved in the SEA procedure? Please, list them.**

Two respondents answered to this question. According to person from scientists, researches position, Ministry of Environment, governmental institutions (which makes decision, gives permissions and etc.), activity organisations, EIA document makers and society are the groups, involved in SEA procedure.

Governmental Institution gives reference to the Plans and Programmes Strategic Environmental Assessment procedure description 4<sup>th</sup> chapter.

**In Your opinion what are the strengths of SEA?**

Representative from scientists, researches position thinks the strength of SEA is comprehensive and integrated evaluation of possible impact to environment. According to Governmental institution the strengths can be found in Plans and Programmes Strategic Environmental Assessment procedure description 2<sup>nd</sup> chapter.

**In Your opinion what are the weaknesses of SEA?**

Governmental institution points out, that there is too small experience to say weaknesses of SEA. Scientist, researcher thinks it is long agreement procedures.

**In Your opinion can SEA influence the decision making process?**

Representative from governmental institution works with adoption of SEA into Lithuanian legislation, so in his mind this tool can influence decision making process much. It depends on planning organizer, because he makes the decision. One person from community and respondent from scientists/researches position think this tool can affect the decision making process also much.

**Do You have any proposals for improving SEA process? Please, explain.**

I didn't get any proposals for improvements of SEA process. As governmental institution argues there are just one or two cases where SEA was done, but of course, there are no limits for perfection.

**6.2.5.3 Analysis of questionnaire responded during "Coastman" conference**

**Are you familiar with the procedure of Environmental Impact Assessment - EIA?**

Respondents from Human Healthcare Centre and scientists, researches position are familiar with Environmental Impact Assessment procedure very much. Municipality, industry company, NGO and evaluation subject are familiar with this procedure much. Two respondents from municipality and one from county are familiar with this procedure little.

There were two representatives from Ecological club "Žvejone" in this meeting, but they give back empty questionnaire, because they never were in touch with EIA and SEA procedures.

**In Your opinion which are the groups involved in the EIA procedure? Please, list them. Please, evaluate the degree of participation of the groups listed in your answer to question 2 in the EIA procedure?**

These 2 questions are connected to each other very much, so I analysed them together.

Person from scientists-researchers position, representative from evaluation subject and one respondent from municipality listed the same groups, involved in Environmental Impact Assessment procedure. Concerning them these groups are: responsible institution – Ministry of Environment or other government empowered institution; planned activity subjects - governmental institutions, which are responsible for healthcare, protection of fire, protection of cultural values, economical and agricultural development, local autonomous institutions; planned activity organizer; EIA document maker, obligated by planned activity organizer and society. According scientist/researcher these groups participate very unequal and it depends

on complexity of project, interests and competition. Representative from municipality and person from evaluation subject think responsible institution, planned activity subjects and EIA document maker participates in this procedure to a large extent. According person from municipality, society, planned activity organizer participates to some extent. Respondent from evaluation subject thinks society participates in Environmental Impact Assessment procedure to some extent or not at all.

Other group, had the similar opinion was person from municipality and respondent from Human Healthcare Centre. According to them groups, involved in Environmental Impact Assessment procedure are: responsible institution (Ministry of Environment, Regional Environmental Protection Department), subjects (Human Healthcare Centre, protection of fire agency, county, municipality), society, planned activity client and EIA document makers. According them, responsible institutions and organizer participate to a very large extent and subjects to a large extent. Their opinions differed concerning society and municipality participation degree. Representative from municipality thinks society participates to a large extent and municipality to a very large extent. Person from Human Healthcare Centre thinks all subjects, including municipality, participates to a large extent and society to some extent. Respondent from industry company listed such participating groups: society, governmental organisations, NGO's, harbour companies and EIA makers. In his opinion, society and NGO's participates to some extent, harbour companies to a large extent and EIA makers and governmental institutions to a very large extent. Representative from NGO thinks ecologists (scientists, students, coastal natural parks and organisations of Nature's protection), Klaipeda Seaport and Klaipeda municipality are groups, involved in EIA procedure. Klaipeda municipality and Klaipeda Seaport participate to a very large extent, but ecologist to some extent. One respondent from municipality thinks planning organizer, Ministry of Environment, municipality and society are groups, involved in this procedure. According him, planning organizer participates to a very large extent, Ministry of Environment and municipality to a large extent and society to some extent. Representative from county argue Klaipeda Regional Environmental Protection Department, municipality and county are groups involved in EIA process. According him, Klaipeda Regional Environmental Protection Department participates to a very large extent, municipality and county – to a large extent. One respondent from municipality couldn't answer to this and all following questions, because his work isn't connected so detail with this procedure.

**In Your opinion, are there other groups that should participate in EIA procedure? If yes, list them and explain why. If no, explain why.**

According to representatives from industry company, municipality, groups participating in EIA procedure now fully investigates and evaluates all environmental changes and it is enough their participation. Respondent from Human Healthcare Centre emphasized, it is enough participating groups, but participation could be more active. NGO representative from France thinks the inhabitants of Klaipeda and Lithuanian people should participate in this procedure more, because proposed economical activity will influence their environment. "Concerning EIA Law all groups can participate, but sometimes representatives of different activities do not use this participation possibility, which could affect the project" (scientist/researcher). Few respondents didn't have any opinion about this.

**Is EIA an effective tool to evaluate environmental impacts of new projects?**

Respondents from industry company and municipality agree EIA is an effective tool to evaluate environmental impacts of new projects. Since it is possible to evaluate and calculate impact to environment while making EIA report and to foresee means which can minimise, avoid or mitigate negative impacts to environment. Mostly all respondents agree this tool is much effective in evaluation of impacts of new projects. For municipality respondent it seems very important because of foreseen EIA program and report. Human Healthcare Centre and NGO representatives argue it is effective as it foresees impact to environment and minimisation means.

According to person, from scientist, researches position, it is effective in such a case, when its purpose all participants understand in the same way. "If EIA seems not as bureaucratically needed procedure, or as a process with which help it is possible to avoid economical, natural, social conflicts in the future" (scientist opinion). Respondent from evaluation subject thinks EIA is theoretical evaluation which has very little connection with practice. There is no any mechanism and practice of checking EIA connection with planned activity for which EIA was made, so that's why it is effective just little. Three respondents didn't answer to this question at all.

### **In Your opinion what are the strengths of EIA?**

Five different respondents (industry company, 3 - municipality, Human Healthcare Centre) had the same opinion. According them it is very important that EIA defines, evaluates and minimises planned activity impact to human health, water, air, flora, fauna, immovable property and material values. Defines is it possible to make planned activity in chosen area and forecasts necessary minimisation means. NGO emphasise it could be powerful if the European Union will use this too, but this depends on the stakeholders' future work. Concerning opinion of person from scientists, researches position, EIA can help to avoid or to solve conflicts. Also it works as prevention means. It helps for activity organizer to implement environmental politics and for safe environment technologies.

### **In Your opinion what are the weaknesses of EIA?**

One respondent from industry company and another one from municipality couldn't say any weaknesses of EIA. Few respondents didn't answer to this question at all. Two representatives from municipality agree Environmental Impact Assessment is more theoretical tool and not always corresponds to reality. According person from NGO position, there are unequal possibilities to speed of works between new European Union countries and older ones. Scientist/researcher thinks usually this procedure is much politicized. According him it becomes business interests' explanation tool. Representative from Human Healthcare Centre finds out EIA reports are too weak, document makers are lacking of competence. Respondent from evaluation process thinks EIA making process should be licensed. He argues, the weakness of EIA is that there is talking very little about alternatives of proposed activity.

### **In Your opinion can EIA influence the decision making process?**

Mostly all respondents agree EIA can influence the decision making process much. According to the person from Human Healthcare Centre and other one from municipality it can be decided that activity is impossible in chosen place or impossible at all. Three representatives (evaluation subject, industry company, municipality) emphasize that this tool gives information about proposed economic activity before planning and project has started and

forecasts necessary means for alternatives. According to NGO, EIA can influence the decision making process if the European Union will use it. Two representatives think, this tool can influence the decision making process very much. According to a person from municipality it can prohibit for client to make planned activity in chosen area and can foresee means which could minimise or avoid possible impacts. Concerning scientist/researcher opinion the decision can be negative, which prohibits planned activity. "In Lithuania EIA decision is compulsory. Other case, the decision is made by politicians, so EIA process doesn't have any influence on it" (scientist/researcher). Three respondents didn't answer to this question.

**Do You have any proposals for improving EIA process? Please, explain.**

Just few suggestions, concerning improvements of Environmental Impact Assessment were emphasized from all respondents. Representative from NGO points out it is very important to think of economic alternatives for extreme "locked situation" between stakeholders (for example, plan of railway development). Person from evaluation subject proposes EIA should be done by licensed companies. According to respondent from scientists, researcher's position the main question is that the decision concerning making EIA should be done (to let or to prohibit). Other alternative - it should be made in some conditions with which activity could be possible and organizer could judge can he accept it or not.

**Are you familiar with the procedure of Strategic Environmental Assessment - SEA?**

Representatives from NGO, evaluation subject, county, Human Healthcare Centre and scientist researchers are familiar with Strategic Environmental Assessment procedure little, because in Lithuania it came into force in summer, 2004. Respondent from industry company, two respondents from NGO's and three from municipality are not familiar with this procedure at all. These respondents didn't answer to all following questions, concerning SEA. One respondent from municipality didn't answer to this and all following questions.

**In Your opinion which are the groups involved in the SEA procedure? Please, list them.**

Concerning NGO representative, ecologists (scientists, students, coastal natural parks and organisations of Nature's protection), Klaipeda Seaport and Klaipeda municipality are the groups, participating in SEA procedure. According person from municipality these groups are: governmental and municipal institutions, responsible for protection of environment, cultural values, protected territories protection and regulation, healthcare and society. Representative from scientists, researcher's position thinks the groups are the same as in EIA. Respondent from evaluation subject argues that organizer, maker, evaluation subject and society are these groups. Representative from Human Healthcare Centre thinks maker (planer), subjects and society are involved in SEA procedure. According to representative from county, municipalities, county and plan maker are involved in this procedure.

**In Your opinion what are the strengths of SEA?**

Representative from county doesn't have opinion about the strengths and weaknesses of Strategic Environmental Assessment. According to NGO respondent, it could be powerful if the European Union will use it and this depends on the stakeholders' future work. Representative from municipality thinks the main strength of SEA is to evaluate consequences to the environment of plans and programmes. "When you know consequences,

the decision to approve or not programs, plans is made and the most suitable decision alternative can be chosen for plan or program” (municipality representative).

Concerning person from scientists, researches position if SEA decisions are not compulsory, or are more like recommendations it could be used for clarifying of possible conflicts. Respondents from evaluation subject and Human Healthcare Centre agree that SEA strength is evaluation in advance and to predicting for further perspectives.

### **In Your opinion what are the weaknesses of SEA?**

Most respondents were never met with Strategic Environmental Assessment in their work and since it is new tool in Lithuania, it was difficult for them to find out some weaknesses. Person from evaluation subject thinks it is weakness that the final decision makes organizer. Respondent from Human Healthcare Centre finds that in this stage usually we have very little information. According NGO, the weakness is that there are unequal possibilities of speed of work between new European countries and the older. Person from scientist-researches position SEA understands as other one bureaucratic toll which duplicates EIA.

### **In Your opinion can SEA influence the decision making process?**

Representative from municipality thinks SEA can influence decision making process very much, because if plans or programmes are not approved, then planned activity would be forbidden and territorial plan documents didn't made. NGO thinks it can influence process much if the European Union will use it. Respondent from scientist, researches position agrees it can influence decision process much, because the purpose of SEA is to clarify what can be changed, corrected during making projects, strategies, plans and so on. It is consultative toll for organizer. According to person from Human Healthcare Centre organizer can become familiar with very strict requirements in very early stage, that's why this tool can influence the decision making process much. Evaluation subject agrees SEA can influence the decision making process much, because this tool gives information.

### **Do You have any proposals for improving SEA process? Please, explain.**

Few proposals for improvements of Strategic Environmental Assessment were got from respondents from “Coastman” conference in Klaipeda, Lithuania. Respondent from municipality proposed to take EIA and SEA together and to make one document. “It means, those, who are making legislation could from these two legislations (EIA and SEA) make one. It takes very much time to make these procedures, and the aims of EIA and SEA are similar” (municipality representative). Person from scientists, researches position, agrees with following opinion, argue that SEA procedures in Lithuania are very new and not effective yet. There shouldn't be any duplication with EIA.

### **6.2.6. Discussion**

The questionnaire had several open questions and the sample was relatively small. Open questions provide a wide range of responses that very often are not linked to each other. The answers may vary from respondent to respondent. In this case one can either dismiss all the answers from open questions or try to explain them. In my case the sample was too small and it was difficult to group the answers and analyse the trend. I couldn't make any statistical analysis of it either.

Answers from “Coastman” conference and responded by email differ very much in their quality. Respondents which answered questionnaires by e-mail were not so much interested in its fulfilment. The answers were short not exhaustive, mostly without explaining and expressing their opinion. These made difficult to compare questionnaires got from e-mail with the ones got during the conference, where mostly answers were quite exhaustive and motivated.

In my opinion, there were two groups of respondents during my case study research. One group – persons, from municipality, industry company, governmental institutions, scientists, researchers, who are working directly with this procedures and another one – community and NGO, who participates and shows interest in this process very seldom. Since I had some ideas before this research had started, the answers from the respondents could just confirm my ideas or not. There were few cases, where I got just one or two answers from one position (NGO’s; scientists/researchers, industry company). These answers couldn’t be evaluated as general opinion of the whole position group, because it was very small random sample. So it was impossible to draw some general conclusions of some position groups.

There were no equal data of each group, because interest in conference and in EIA differs from group to group. Mostly these people, who are working with this and are connected directly, are interested on it. Participation of community is very low in Lithuania. One girl working and studying in Klaipeda University was participating in “Coastman” meeting and she signed on “*community*” group. I have send few my questionnaires to Klaipeda University students, who are writing thesis about EIA, they signed as community too. One person from Coastal Research and Planning Institute in Klaipeda University signed as “*community*” too.

During questionnaire preparation, by *community* I meant simple people, who are living in Klaipeda city, not working directly with this but having their own opinion about things that are going on in harbour. Very often media, some organizations, politicians and competitive companies, who are interested in discussions and arguments, uses community as cover for the aims of themselves. It was very interesting for me to know community opinions and knowledge about EIA. I had some problems, to convince people to fill in the questionnaire. When I explained the main idea of the questionnaire they answered, they have never been in touch with this EIA and SEA and in consequence could say nothing about them. I didn’t take into consideration these data, because they refused to answer the questionnaire.

There were two representatives from Ecological club “Žvejoni” in “Coastman” meeting in Klaipeda, who gave back empty questionnaire, because they have never been in touch with EIA and SEA procedures.

Stakeholders’ knowledge about EIA and SEA differs very much. Four stakeholders are familiar with Environmental Impact Assessment very much, seven much, five little and three not at all. Respondents from governmental institution, Human Healthcare Centre and scientists, researches position know about Environmental Impact Assessment process very much, because they are directly working with it (making reports, giving permissions and etc). Municipality, industry company, NGO’s and evaluation subject are familiar with this procedure much. Usually these groups are evaluating, reading EIA report, or are EIA client. The fact, that two respondents from municipality and one from county are just little familiar with this procedure shows, that familiarity depends a lot on their personal experience and work type. One reason of such a response could be they are working in department not

directly connected with EIA procedure. Another one – they are working just few years and feel themselves just little familiar with this procedure. Klaipeda County usually makes decision concerning cases connected with territorial planning procedures. Most of the decisions concerning EIA are done before this stage, so they are not familiar with this tool directly and very often. Nongovernmental institutions and community usually marked answers “*little*” or “*not at all*”. In general it could be emphasized that governmental institutions knows about EIA and SEA much more, then community and NGO. In my opinion respondents familiarity with EIA procedure shows theirs participation degree in this process.

The data differs very much in familiarity with Strategic Environmental Assessment. Just one respondent from governmental institution, who is responsible for making SEA law, is very much familiar with it. Six respondents working with this tool (scientists, researches, evaluation subject, Human Healthcare centre, county and few respondents from NGO’s) are little familiar with it, because in Lithuania it came into force in 18 of August, 2004. In my opinion it is the main reason why other eleven representatives from NGO’s, community, industry company and municipality are not familiar with this tool at all.

Questions about which different groups are involved in EIA procedure and in what participation degree are very much connected to each other, so I analysed them together. It was really tricky to respondents. Such a situation is because they are working in different branches and are involved in EIA procedure in different stages. Respondent from governmental institutions are working with creation of rules, legislation concerning the Law on EIA, so he answered everything following by this legislation. Scientists, researchers are making EIA report, evaluation subject – evaluating. Usually Human Healthcare Centre gives some needed permissions for proposed economic activity, so they are touched with this procedure just in this stage. They are evaluating aspects, which require getting permission from this institution. Municipality is one of the EIA report evaluating institutions. EIA developer should get its permission to start proposed activity in chosen area. As decision concerning evaluation if EIA from municipality is compulsory, they are participating in this process to a very large extent. There have been some cases, when during this stage, community and NGO’s started to participate and express their opinion while they didn’t do this during the public consideration meeting. One respondent from municipality couldn’t answer to this and all following questions, because his work isn’t connected so detail with this procedure.

The majority of the respondents listed Ministry of Environment, EIA client, EIA maker and society as the groups the participated in Environmental Impact Assessment procedures. Some of the participants think Regional Environmental Protection Department, municipality are involved in this procedure. Just respondent from the industry and two respondents from NGO’s argue NGO’s are also involved in this procedure. In my opinion it is because of their personal experience in participation in this procedure.

It was impossible to find out some general ideas of similar stakeholder groups. They answered in totally different way. I found some similarities between opinions of different stakeholders I questioned in “Coastman” conference. Person from scientists-researchers position, representative from evaluation subject and one respondent from municipality listed the same groups, involved in Environmental Impact Assessment procedure. Another group who had the similar opinion about groups involved in EIA procedure was persons from municipality and respondent from Human Healthcare Centre.

Opinions of respondents of these two groups differ a little concerning participation degree of groups involved in EIA procedure. To my mind, it happens because of their personal experience in this situation. I fully agree with scientist/researcher opinion that groups participate in EIA procedure very unequally and it depends on complexity of project, interests and competition.

All respondents agree that there are enough groups that are participating in Environmental Impact Assessment procedure, but some reflects that they should be more active.

Mostly all respondents agree that Environmental Impact Assessment is a very effective tool to evaluate impacts of new projects. Interesting thing, I found during my analysis, answers from community respondents concerning effectiveness of EIA for evaluation of environmental impacts of new projects differs from “*very much*” to “*little*”. In my opinion it happens because of their personal participation experience in these processes and their position to environmental things.

The majority of the stakeholders agree that the strength of EIA is that it defines, evaluates and minimizes impacts of planned activity to the human health, water, air, flora, fauna, immovable property and material values. Respondent from scientist/researcher position pointed out very interesting strength. According to him, EIA can help to avoid or to solve conflicts. This person was only one, who mentioned suitability of this tool for such situation and was talking about conflicts in general.

Different respondents wrote down different weaknesses of Environmental Impact Assessment. Few persons agree, EIA is more theoretical tool and not always corresponds to the reality. Representatives from scientist/researcher position and person from community points out the evaluation process takes long time. In my opinion, answers differ because of respondents personal experience related with EIA procedures. Since they were touched with this in different stages, they did find different weaknesses.

Mostly all stakeholders agree that EIA can influence the decision making process. According to them, if in EIA report conclusions will be written that there will be negative impact to the environment, then the project won't be confirmed. This tool gives information about proposed economic activity before planning and projecting processes are started and forecasts necessary means for alternatives. One man from scientist/researcher position, who has big experience in this procedures and making EIA reports, thinks, EIA could influence very much the decision making process, because then the decision can be negative, which prohibits planned activity. According to him, from other side, the decision is made by politicians, so EIA process doesn't have any influence on it. He has mentioned few times in his answers, that EIA process is much politicized in Lithuania. Since this person is developing EIA reports and has big experience in it. As I have mentioned before, all stakeholders motivated their own answers by their own experience. This stakeholder was the only one, who has been touched with whole EIA process. So, this opinion is very significant for my analysis.

His words, that the final decision is made by politicians and any stakeholders don't have any significant influence in it, sound realistic. In my opinion, the EIA procedure in Lithuania, especially concerning big projects and requiring large investments, is much politicised.

According to the improvements of EIA law, the municipal council can make the decision to let or to prohibit development of planned activity. This can be done in the earliest stage, when

activity organizer has been made the case study of the planned project and asks permission to do EIA. Of course, they need motivation for negative decision. Few cases have showed it is very easy to find them. Usually public becomes informed and involved in the earliest process stage very much. Big and informative articles about proposed economic activity and its harmfulness are written in the local newspapers. Often NGO's joins media and starts to express their own opinion about coming damage from the project. Lithuanian people usually get involved in environmental issues as soon as their personal living standards are negatively affected by the environmental impact of human activity. People dissatisfaction usually is connected with their financial condition losses and attempting to improve their position. Touching the most sensitive society spots, it became active and starts to participate. Of course society became against proposed economic activity, NGO's joins them and municipal council can enact the decision to prohibit planned activity.

Just few proposals, concerning improvements of Environmental Impact Assessment were drawn by all respondents. Each respondent proposed to improve things, which were and still are not clear, tricky and confused for them. For example, concerning representative from community, there should be written big and clear articles in a local newspaper about planned activity project. Just in such case discussions will start in a good time. He is suggesting way of community involvement into the process. According to him, members of community don't participate because they are not informed or engaged.

Economic subjects who had informed public about proposed economic activity in the early stage and got its approval can easily impel activity. However public participation is negatively evaluated by economic subjects, because it makes whole process longer and more expensive. In my opinion there are some weaknesses, in the law, regulating public informing and participation during EIA process, which activity organizers is effectively using. All Lithuanian companies are doing just what is required by legislations, rules and standards and nothing more. From the legislative basis, public is informing in all stages about proposed economic activity, public considerations are held and motivated suggestions can be given. But there is no strict regulations when the public consideration should be held, where and when public can give motivated suggestions during preset period of time. Just some recommendations have been showed in Ministry of the Environment internet home page, that public hearings should be held at no working hours. Since it is just recommendations, activity organizers can interpret this situation as they want and make it suitable for them. Very often situation is so, that public can give their opinion, motivated suggestions to the developer, but he is in another city. This situation makes participation procedure more complicated, since not every person can go to the other city, even it is just 20 km far away. A bigger distance is even bigger problem. Very often it is announced, that public can become acquainted with report during working hours (e.g. from 8 a.m. till 4 p.m). Other situation is that usually public consideration of EIA report is always held during workdays and work hours (e.g. Monday, 10 a.m.). In such case, working persons can't participate at the meeting. Activity organizer makes such conditions, which are not suitable for participation, but still they are doing everything right according to the legislation. These reasons makes public to become more not active. Lithuanian public, comparing with other EU countries is not active. Although much more attention is putting on environmental protection questions, preference is dedicated to social and economical objectives more often.

Person from evaluation subject thinks EIA should be done by the licensed companies. According to NGO respondent, it should be thinking more about payment for EIA making. Company shouldn't be the client. I totally agree with his opinion, since the developer is hired

by activity organizer, it will be always so, he will write report as nice as possible. There were never such cases in Lithuania, that developer would write EIA report where planned activity would cause negative impacts to the environment. Developers do not take any responsibility and escape punishment for erroneous results. One of these problems reductions could be changes in payment system. Company shouldn't pay directly to the developer. Also, EIA report should be checked once more by independent experts by the request of public.

Representative from scientist/researcher position argue, the main question is that the decision "to let or to prohibit" concerning making EIA should be done. Other alternative – it should be making in some conditions which activity could be possible and organizer could judge by himself can he accept this or not.

Since just few respondents are familiar with SEA tool, all other answers connected to it wasn't informative and exhaustive. Person from governmental institution was only one, who are familiar with this tool very much and gave me references to SEA legislation according all relative questions.

Due to the very small sample response of stakeholders to the questions, relative to SEA, it was impossible to find some general ideas and conclusions.

Mainly all respondent persons listed the same groups participating in SEA as in EIA.

Just a few strengths were mentioned in a perspective of response. Scientist/researcher and respondent from municipality argue the main strength is to evaluate consequences of plans, programmes and policies to the environment. Concerning the person from scientists, researches position if SEA decisions are not compulsory or are just like recommendations, it could be used for clearing of possible conflicts.

Most respondents were never met with Strategic Environmental Assessment in their practice and since it is very new toll in Lithuania, it was difficult for them to find out some weaknesses. Person from scientist/researcher position SEA understands as other bureocratical tool, duplicating EIA. The same respondent and one person from municipality expressed similar idea in proposal for improvement of SEA. According them, EIA and SEA should be taken together and made one document. It takes very much time to make these two procedures and the aims of EIA and SEA are similar. In theirs opinion, there shouldn't be any Strategic Environmental Assessment duplications with Environmental Impact Assessment. During my literature research, I did found many similar opinions. There are many articles, discussion about SEA and EIA overlapping. In my opinion it will have big influence for improvements of SEA and EIA in the nearest future.

During my analysis I did found very big difference between answers of respondents, working with these tools practically and theoretically. One person from governmental institution answered all questions according EIA and SEA legislation. Since I was asking theirs personal opinion, it became very complicated to analyse answers and to get some idea how people, working in such institutions are thinking. In my opinion, the main problem is, that people, working here, making legislative basis, are familiar with these processes just theoretically, that's why they can't express theirs personal opinion.

I had some ideas and proposals for future work after I made my analysis. My suggestion would be to use this questionnaire as a pilot questionnaire. Based on the answers from this

pilot questionnaire new questions should be developed or the old ones should be improved. The new questionnaire will focus on quantitative answers to be applied to a bigger sample of respondents that will allow to a statistical analysis. I wrote down an objective to every question, to help to understand what information I was expected from respondents. If it is important to know how many respondents are familiar with EIA or SEA, then given answers should be “yes/no”. Since I wanted to know how much respondents are familiar with this tool, I gave some rating for them. For making statistical analysis questions should be “yes-no”, “multiple choice” or “rating scales”. Other alternative for making statistical analysis could be to leave my rating scale, but just to make some quantitative data for each rate. For example:

*Very much* = 4

*Much* = 3

*Little* = 2

*Not at all* = 1

It should be given big attention to find right stakeholders to question. It is very important they are key persons.

### **6.2.7. Conclusions**

Based on the small sample of respondents, I could draw the following conclusions:

- Stakeholders’ familiarity with EIA and SEA differs very much. Four are familiar with EIA *very much*, seven - *much*, five - *little* and three - *not at all*. Just one person is familiar with SEA *very much*, no one – *much*, six – *little* and 11 - *not at all*.
- Majority of respondents agree Environmental Impact Assessment is much effective tool to evaluate impacts of new projects.
- Due to very small response of stakeholders to the questions relative to SEA, it was impossible to find some general ideas and conclusions.
- Mostly all stakeholders agree EIA can influence the decision making process much.
- Due to the opinion of majority of stakeholders, the strength of EIA is that it defines, evaluates and minimizes impacts of planned activity to the human health, water, air, flora, fauna, immovable property and material values.
- Different respondents wrote down different weaknesses of Environmental Impact Assessment, as for example: EIA is more theoretical tool and not always corresponds to the reality; evaluation process takes long time.
- This questionnaire could be used as a pilot questionnaire for further works.

## **7. Discussion**

The idea of this thesis project was to compare EIA procedure from legal and practical points of view in Lithuania and Sweden.

Concerning the questionnaire for Lithuanian stakeholders and analysis of Lithuanian and Swedish EIA reports, I could describe, analyse and compare EIA process in both countries.

The first thing I have faced to was that both countries had implemented their EIA legislation according to the same Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment. Since Lithuania and

Sweden are EU Members, all improvements, done for EIA directive through the past years, were adopted in their national legislation.

Law on Environmental Impact Assessment of the Proposed Economic Activity (No. I-1495, 1996; No. VIII-1636, 2000; No. X-258, 2005) is the main law regulating EIA procedure in Lithuania. While in Sweden the EIA Directive is mainly implemented by the Chapter 6 of the Swedish Environmental Code, adopted in 1998. Even both countries follow the same EU Directive 85/337/EEC, the implementation process and responsibility for EIA procedure differs.

In Lithuania EIA report is evaluated by the Ministry of Environment (MoE) or its empowered institution – Regional Environmental Protection Department (REPD). The MoE evaluates complex and significant projects, while REPD – local significance and simpler projects. In Sweden all applications regarding “environmentally hazardous activities” is handled by the County Administrative Board (CAB) - Länsstyrelsen. Lithuanian MoE, REPD and Swedish Länsstyrelsen are governmental bodies, responsible for overseeing that the national goals, laid down by the parliament and government, are realized.

In Lithuania the proposed activity organizer (company) or the EIA report developer, empowered by him is pursuing all EIA procedure. Mainly in all projects, company empowers EIA report developer to pursue all procedure. In the cases I have analysed, the developer itself was sending report to the institutions which permits and evaluates proposed economic activity. Announcement about application of proposed economic activity, date, time and place of public consideration with it, developer publicises in local newspapers. After this announcement all interest parties, stakeholders can give motivated suggestions to the developer within a preset period of time (usually 7-10 days). It is free for everyone to participate, give suggestions, questions and have discussions during public consideration process. This stage is the last one and if any motivated suggestions weren't got, the next stage is final decision, made by MoE or REPA. Final decision about proposed economic activity is always announced in local newspapers.

Concerning Swedish Environmental Code the applications regarding “environmentally hazardous activities” is handed to the County Administrative Board of the region where application is done. Firstly Länsstyrelsen forwards the application to the environmental board in the municipality and then to various institutions (it depends on the complexity of the project), to achieve their opinion about if the application needs any complementary additions. Länsstyrelsen announces the application about proposed economic activity in the local newspapers. After this announcement all stakeholders have the opportunity to give comments to the application. These have to be sent to Länsstyrelsen within a preset period of time (usually 3-6 weeks). The comments are then sent to the company who made the application. In this way the company will have the opportunity to respond to the comments given. If considered necessary, a public meeting is held, where everyone who wants can participate. The date and place of the meeting is announced in local newspapers and an invitation letter is also sent personally to the ones affected by the application/decision. At the meeting everyone gets the opportunity to give orally their comments on the case. After this, a decision is made by Länsstyrelsens Miljöprövningsdeligation. The decision is announced in local newspapers and anyone affected by the decision and who disagrees with the decision has the right to appeal within three weeks of the announcement. The appeal is made to the environmental court (Miljödomstolen).

The Lithuanian and Swedish EIA reports analysis has showed the main difference in EIA implementation process between two countries. In Lithuania EIA report development, implementation and public participation process is done by report developer, while in Sweden developer makes the report and the County Administrative Board is responsible for its implementation, public participation processes and makes the final decision concerning it. In my mind both countries systems has advantages and disadvantages. Swedish system takes longer time, because Länsstyrelsen handles EIA report from developer, then sends it to various institutions for evaluation and if some suggestions are got, resends them to the developer again. While in Lithuania developer communicates with the evaluating institutions directly and can make improvements faster. Other thing is public trust in these projects. I think it is bigger trust when public can give motivated suggestions and comments directly to the governmental institution, than to the developer. Since developer is engaged by the activity organizer it is always so, that he is trying to describe activity as nice as possible. From this point of view Swedish system is assuring more democratic public participation process.

Also there are no notes in Lithuanian EIA law about the right to appeal the final decision concerning EIA of proposed economic activity. It is possible to go to the court with the company concerning some changes, non-observance of rules, regulations, which were stated in EIA report of some activity. However it takes much time, expenses and is difficult to prove. Swedish society has the right to appeal the final decision made by Länsstyrelsen. In my mind, this note makes bigger pressure for the developer to make EIA report correct, realistic and as good as possible.

Practical EIA reports analysis have showed differences between the EIA report developer in Lithuania and Sweden. In Lithuania the planned activity organizer can engage any physical, juridical person, or person which doesn't have juridical person rights, for the development of EIA report. This person should be able to evaluate impact to the environment of proposed economic activity and make EIA program and report. There is no need to have any licenses or diplomas. The main criterion for the developer is competence in environmental consulting field. The latest improvements in the Lithuanian Law on EIA describe more detail and strict who should be the EIA report developer. It is required the developer would have higher education or specification in the project field. However there are many consulting companies, universities and educational institutions which are doing EIA reports. Company itself also can make EIA reports, but it never happens so in Lithuania. Both Lithuanian EIA reports I have analysed were done by the educational institution - Klaipeda University Coastal Research and Planning Institute.

Sweden has more strict requirements for EIA report developer. It can be company itself, or other company, certificated for the development of EIA reports. Universities and other educational institutions can't develop these reports. In my mind it is better when EIA reports are done by the certificated company working directly with this kind of projects. Lithuanian developers are more flexible and "experts in all spheres". The same person can do EIA reports, implement environmental management standards, cleaner production and so on. For this reason they can't focus just on the one sphere and to go step by step with all improvements and requirements in the legislative basis. From other side, there are too many EIA developers in Lithuania, so focusing just on this sphere could be unprofitable for the company or developer itself.

Public participation procedure seems identical in both countries. Stakeholders can participate in the process and give questions, comments and motivated suggestions. Lithuanian activity

organizers, developers who had informed public about proposed economic activity in the early stage and got its approval can easily impel activity. However public participation is negatively evaluated by them, because it makes the whole process longer and more expensive. The difference is that in Lithuania if EIA is done then a public meeting will be held, while in Sweden it is done just then if it is necessary. In my opinion it is good to have public meetings and considerations with the aim to get more public involved in the process. Now in Lithuania it is more of a theoretical thing, done because it is required by legislation.

Lithuania has a big problem concerning low public participation rates. The practical EIA report analysis has shown that public participation in EIA procedure in Lithuania and Sweden requires having knowledge about planned activity, environmental things, legislative basis and public rights. Participation much depends on people's priorities and thinking framework. Since Lithuania is a new EU member and has a lower economy than Sweden, no wonder why Lithuanian people prioritize economical and social aspects first. While Swedish society takes care more about environmental and sustainable development aspects.

Lithuanian public, comparing with other EU countries is not active. Although much more attention is put on environmental protection questions, preference is dedicated to social and economical objectives more often. Low public participation in Lithuania depends on few reasons. One of them are weaknesses in the law regulating public informing and participation during EIA process, which are not used by the activity organizers effectively. All Lithuanian companies are doing just what is required by legislations, rules and standards but nothing more. From the legislative basis, public is informed in all stages about proposed economic activity, public considerations are held and motivated suggestions can be given. But there are no strict regulations when the public consideration should be held, where and when public can give motivated suggestions during a preset period of time. Just some recommendations have been shown in the Ministry of the Environment internet home page. According to it public hearings should be held at non-working hours, in a suitable place for stakeholders and the activity should be described as simple as possible. Since it is just recommendations, activity organizers can interpret this situation as they want and make it suitable for them. Very often the situation is so, that public can give their opinion, motivated suggestions to the developer, but he is in another city. This situation makes participation procedure more complicated, since not every person can go to the other city, even if it is just 20 km far away. A bigger distance is even a bigger problem. Very often it is announced, that public can become acquainted with the report during working hours e.g. from 8 a.m. till 4 p.m. Other situation is that usually public consideration of EIA report is always held during workdays and work hours e.g. Monday, 10 a.m. This situation makes participation impossible for the working people. Activity organizer makes such conditions, which are not suitable for participation, but still they are doing everything right according to the legislation. These reasons make public to become not active more. Another reason of low public participation in Lithuania is that its people usually get involved in environmental issues as soon as their personal living standards are negatively affected by the environmental impact of human activity. People's dissatisfaction usually is connected with their financial condition losses and attempting to improve their position.

Variety of institutions, evaluating EIA reports in Lithuania and Sweden depends much on the complexity and specificity of the project. Lithuanian EIA procedure for AB "KLASCO" methanol terminal took much more time and efforts, comparing to the same company liquid fertilizer terminal EIA procedure, because it was a totally new project in Lithuania, required adaptation of new rules by Ministry of Environment.

In general, the same institutions are evaluating EIA projects in both countries. Swedish County Administrative Board forwards the EIA application to the environmental board in the municipality, then, depending on project complexity, it is evaluated by the Swedish Environmental Agency, the Swedish Rescue Services Agency, the local authority and its fire department, municipal water treatment plants, non-profit and voluntary organisations with the interest in the case. In Lithuania EIA report is evaluated by Regional Environmental Protection Department, Human Healthcare Centre, County Head Administration, its department of civil safety and department of protection of cultural values, local municipality, its department of nature protection and department of architecture and urbanistics, city fire protection and rescue post. Since Klaipeda is situated in very sensitive area, where few national and regional parks are situated, it very often so, that administrators of these parks are involved in EIA evaluation too.

The structure of Environmental Impact Assessment reports is the same in both countries. The report starts with general data, technological processes and waste description. In some cases waste can be described in separate paragraph or just described in the end of technological processes description. It depends on complexity of project and planned activity. Possible impact of proposed economic activity to different environmental components is the main and the biggest EIA report part. After this description alternative analysis and monitoring is described. The report ends with references, summary and appendices.

The main information about EIA influence to the decision making process, EIA evaluation of new projects and improvements for this toll I have got from the analysis of questionnaire for Lithuanian stakeholders (see chapter 7.1.) and literature research.

Mostly all respondents agree that Environmental Impact Assessment is a very effective tool to evaluate impacts of new projects. Similar opinions were found during the literature research. Interesting thing, I found during the questionnaire, answers from community respondents concerning effectiveness of EIA for evaluation of environmental impacts of new projects differs from “*very much*” to “*little*”. In my opinion it happens because of their personal participation experience in these processes and their position to environmental things.

Majority of requested stakeholders agreed that EIA can influence the decision making process. According to them, if in EIA report conclusions will be written that there will be negative impact to the environment, then the project won't be confirmed. This tool gives information about proposed economic activity before planning and projecting processes are started and forecasts necessary means for alternatives.

One man from scientist/researcher position, who has big experience in this procedures and making EIA reports, thinks, EIA could influence very much the decision making process, because then the decision can be negative, which prohibits planned activity. According to him, from other side, the decision is made by politicians, so EIA process doesn't have any influence on it. He has mentioned few times in his answers, that EIA process is much politicized in Lithuania. Since this person is developing EIA reports and has big experience in it. As I have mentioned before, all stakeholders motivated their own answers by their own experience. This stakeholder was the only one, who has been touched with whole EIA process. So, this opinion is very significant for my analysis.

His words, that the final decision is made by politicians and any stakeholders don't have any significant influence in it, sound realistic. In my opinion, the EIA procedure in Lithuania, especially concerning big projects and requiring large investments, is much politicised.

Just few proposals, concerning improvements of Environmental Impact Assessment were drawn by all respondents. Each respondent proposed to improve things, which were and still are not clear, tricky and confused for them. For example, concerning representative from community, there should be written big and clear articles in a local newspaper about planned activity project. Just in such case discussions will start in a good time. It sounds like suggestion for public involvement into the process. According to him, members of community don't participate because they are not informed or engaged.

Suggestion that EIA should be done by the licensed companies was got from representative from evaluation subject and NGO's. According to them, company shouldn't be the EIA client. I totally agree with his opinion, since the developer is hired by activity organizer, it will be always so, he will write report as nice as possible. There were never such cases in Lithuania, that developer would write EIA report where planned activity would cause negative impacts to the environment. Developers do not take any responsibility and escape punishment for erroneous results. One of these problems reductions could be changes in payment system. Company shouldn't pay directly to the developer. Also, EIA report should be checked once more by independent experts by the request of public.

Few stakeholders find out duplicating between EIA and SEA, and proposed to take these two tools together and to make one effective tool. During my literature research, I did find many similar opinions. There are many articles, discussion about SEA and EIA overlapping. In my opinion it will have big influence for improvements of SEA and EIA in the nearest future.

Questionnaire analysis has showed big difference between answers of respondents, working with these tools practically and theoretically. One person from governmental institution answered all questions according EIA and SEA legislation. Since I was asking their personal opinion, it became very complicated to analyse answers and to get some idea how people, working in such institutions are thinking. In my opinion, the main problem is, that people, working here, making legislative basis, are familiar with these processes just theoretically, that's why they can't express their personal opinion.

## 8. Conclusions

- Law on Environmental Impact Assessment of the Proposed Economic Activity (No. I-1495, 1996; No. VIII-1636, 2000; No. X-258, 2005) is the main law regulating EIA procedure in Lithuania. In Sweden the EIA Directive is mainly implemented by the Chapter 6 in the Swedish Environmental Code adopted in 1998.
- Even both countries follow the same EU Directive 85/337/EEC, the implementation process and responsibility for EIA procedure differs.
- Taking into account the differences of environmental management systems in Lithuania and Sweden, in general, the same institutions are evaluating EIA projects in both countries.
- Variety of institutions, evaluating EIA reports in Lithuania and Sweden depends much on the complexity and specificity of the project.
- The structure of EIA reports is identical in both countries. The reports start with general data, technological processes and waste description. Possible impact of

proposed economic activity to different environmental components is the main and the biggest part in all EIA reports. Description of alternatives and monitoring programme is the last reports parts. All of them end with references, summary and appendices.

- In Lithuania EIA implementation process is held by the activity organizer or its empowered developer, while in Sweden this procedure is pursued by the County Administrative Board.
- EIA report developer in Lithuania can be physical, juridical person having higher education or specification in the project field. While in Sweden it can be done by the company itself, or other company, certificated for the development of EIA reports.
- Public can participate in EIA process identically in Lithuania and Sweden.
- Swedish society has the right to appeal the final decision made by the County Administrative Board, while it would be difficult to do in Lithuania. In such a way, Swedish public participation process is much democratic comparing with Lithuanian.
- Public participation is more theoretical in Lithuania, since the participating conditions are not suitable for this, as for example: public considerations are held during working days and hours; comments can be given to the developer who is in another city and etc.
- Lithuanian people usually get involved in environmental issues as soon as their personal living standards are negatively affected by the environmental impact of human activity. People dissatisfaction usually is connected with their financial condition losses and attempting to improve their position.
- Public participation in EIA procedure in Lithuania and Sweden requires having knowledge about planned activity, environmental things, legislative basis and public rights. Participation much depends on people priorities and way of thinking.
- Since Lithuania is new EU member and has lower economy then Sweden, no wonder why Lithuanian people prioritize economical and social aspects first. While Swedish society takes care more about environmental and sustainable development aspects.
- The results from the questionnaire analysis and literature review have showed Environmental Impact Assessment is much effective tool to evaluate impacts of new projects.
- The results from the questionnaire analysis, Swedish and Lithuanian EIA report analysis and literature review have showed EIA can influence the decision making process much.
- Each Lithuanian respondent proposed to improve thing in EIA, which were and still are not clear, tricky and confused for them, as for example: society should be informed and involved in the procedure much more, activity organizer shouldn't be an EIA client, EIA report should be done by the licensed companies.
- Results from questionnaire analysis and literature review have showed there is overlapping between EIA and SEA.
- The analysis of questionnaire for Lithuanian stakeholders revealed difference between answers of respondents, working with EIA tool practically and theoretically.

## **Recommendations for further studies**

This Thesis Work makes a wide and, as much as was possible, deep overview of EIA process implementation in Lithuania and Sweden. Due to the difficulties, which were in gathering of the information, it was not quite possible to get all necessary information in English in order

to analyse Swedish EIA procedure deeper. Still the Lithuanian EIA analysis structure could be used for deepening and exploring Swedish part.

In order to make more concrete suggestions for EIA improvements, questionnaire analysis for Swedish stakeholders should be distributed, analysed and compared with Lithuanian stakeholder's opinion.

Both – EIA reports analysis and questionnaire for Lithuanian stakeholders could be used as a pilot studies for further works. Based on the answers from questionnaire new questions should be developed or the old ones should be improved, while Swedish EIA reports could be analysed more detail according to the Lithuanian reports analysis structure.

The analysis results much depends on the collected material. Due to this, it should be putted big efforts to get significantly equal EIA reports and making questionnaire for Swedish stakeholders. Interviews with key persons, communities, affected people, article from media would increase quality of analysis a lot. It should be given big attention to find right stakeholders to question or to interview. It is very important they are key persons.

More detailed recommendations concerning EIA reports analysis and questionnaire analysis are described in paragraphs “5.4.2. Criticism of the source information”, “5.6. Discussion”, “6.2.4.2. Criticism of the source information” and “6.2.6. Discussion”.

## References

Aarhus. (1998) *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*.

Adeström, K., Suneson, U. (1997) *Hamnar och transporter i östra Mellansverige*. Naturskyddsföreningen Stockholms län.

Alverstad, K.Å., Hansson, B., Rode, H., Vieweg, L. (2004) *Riksintresset Stockholms hamn – remisshandling*. Banverket – östra regionen, Länsstyrelsen i Stockholms län, Sjöfartsverket and Vägverket.

Boverket (1997) *Boken om MBK*. Del 1. Att arbeta med MBK för projekt. Karlskrona.

Cohen, L., Manion, L., Morrison, K. (2005) *Research Methods in Education*, 5<sup>th</sup> edition. p. 73-90; 105-132; 172-190; 245-298.

Dusik, J., Sadler, B., Mikulic, N. (2001) *Developments in Strategic Environmental Assessment in Central and Eastern Europe*. Proceedings of International Workshop on Public Participation and Health Aspects in Strategic Environmental Assessment Convened to support the development of the UN/ECE Protocol on Strategic Environmental Assessment to the Espoo Convention. November 23-24, 2000. Szentendre, Hungary

EC (1999) *Environmental Impact Assessments and Geological Repositories for Radioactive wastes*. EC Contract B4-3070/97/000821/MAR/C3. European Commission, Directorate-General Environment EUR 19152/1 EN.

EUCC- The Coastal Union. (2002) *Integrated Coastal Zone Management in the Baltic States*. State of the Art Report. Background for Coastal Planning and Management in the Baltic Sea Region. Edited by Dr. Alan Pickaver. P. 55-60; 81-88.

European Commission. (2001) *Guidance on EIA*. P.- 32.

EIA report on the petroleum depot of Preem Petroleum AB. (Swedish title!!!)

EIA report on Bergs oil harbour of Svenska Statoil AB. (Swedish title!!!)

Forrester, J. (1999) *The logistics of public participation in environmental assessment*. Int J. Environment and Pollution, Vol.11. No.3. p. 316-330.

Glasson, J. (1999) *Environmental impact assessment: Impact on decisions*, chapter 7 in *Handbook of Environmental Impact Assessment*, Vol. 1: *Environmental impact assessment – process, methods and potential*, Petts, J., ed. (Oxford, Blackwell Science).

Glasson, J., Therivel, R., Chadwick, A. (1999) *Introduction to Environmental Impact Assessment*. 2<sup>nd</sup> edition. UCL Press.

Glasson, J., Therivel, R., Chadwick, A. (2002) *Introduction to Environmental Impact Assessment* 2<sup>nd</sup> edition. London, Spoon Press

Hildén, M. (1999) *Myths and Reality in EIA and SEA*. Proceedings from the 3<sup>rd</sup> Nordic EIA/SEA conference 22-23 November 1999.

IMPEL Network – European Union Network for the Implementation and Enforcement of Environmental Law. (1998) *Interrelationship between IPPC, EIA, SEVESO Directives and EMAS Regulation*. P.–77.

JICA – Japan International Cooperation Agency, MOTC – Ministry of Transport and Communications, KSSA – Klaipeda State Seaport Authority. (2004) *The study on The Port Development Project in The Republic of Lithuania*. Final report. Summary. Nippon Koei Co., Ltd. No. 31 (15-3).

King, G. (1999) *Participation in the ICZM process: Mechanism and Procedures needed*. EC demonstration programme for ICZM.

Klaipėdos Universitetas. Baltijos pajūrio aplinkos tyrimų ir planavimo institutas. (2001) *AB “KLASCO” Metanolio terminalo poveikio aplinkai vertinimo ataskaita*. EIA report of methanol terminal of AB “KLASCO”.

Klaipėdos Universitetas. Baltijos pajūrio aplinkos tyrimų ir planavimo institutas. (2000) *AB “KLASCO” Skystų trąšų terminalo poveikio aplinkai vertinimo ataskaita*. EIA report of liquid fertilizer terminal of AB “KLASCO”.

Länsstyrelsen i Stockholms län. (2001) *Olycksrisker i Stockholms län – en inventering i riskbilden*. Rapport 2001:17. Länsstyrelsen i Stockholms län.

Ljung, M. (2000) *Allmänhetens deltagande i MKB- processen- sammanfattning*. Institutionen för landskapsplanering Ultuna, SLU. Unpublished.

Markus, E., and Emmelin, L. (2003) *Applying good EIA practice criteria to SEA – the Öresund Bridge as a case*. Planning for Sustainable Development – the practice and potential of Environmental Assessment. Proceedings from the 5th Nordic Environmental Assessment Conference. Reykjavik, Iceland, 25 – 26 August 2003. p. 103-119

MoE - Ministry of the Environment of the Republic of Lithuania, FEI - Finish Environment Institute. (2001) *Manual for Environmental Impact Assessment in Lithuania*. P. – 74.

Moberg, Å. (1999) *Environmental Systems Analysis Tools – differences and similarities, including a brief case study on heat production using Ecological footprint, MIPS, LCA and exergy analysis*. Institutionen för Systemekologi, Stockholms universitet. Examensarbete 1999:8.

Petts, J. (1999) *Introduction to environmental impact assessment in practice: Fulfilled potential or wasted opportunity?* Chapter 1 in: Handbook of Environmental Impact Assessment, Vol. 2: Environmental impact assessment in practice – impact and limitations, Petts, J., ed. (Oxford, Blackwell Science).

Petts, J. (1999) *Environmental impact assessment versus other environmental management decision tools*. Chapter 3 in: Handbook of Environmental Impact Assessment, Vol. 1:

Environmental impacts assessment: process, methods and potential, Petts, J., ed. (Oxford, Blackwell Science) 40-41.

Semėnienė, D., Stanikūnienė M. (2003) *Impact of EU Membership to Lithuanian Local Authorities in the Field of Environmental Protection*. P. – 49.

Severinsson, A. (2004) *The EIA system in Vietnam – subject to irrationality*. Minor Field Study. Göteborgs Universitet. p. 25-28.

Sheate, W., Byron, H., Dagg, S., Cooper, L. (2005) *The Relationship between the EIA and SEA Directives*. Final Report to the European Commission. Contract Number: ENV.G.4/ETU/2004/0020r. p. 1-39; 60-65; 82-127.

The Baltic University. (2005) *Sustainable Water Management in the Baltic Region*, course book III.

CAB - The County Administrative Board. (2006) *Its work and its role*. P. – 32.

Theodórsdóttir, A., H. (1999) *EIA – more than a label?* Proceedings from the 3<sup>rd</sup> Nordic EIA/SEA Conference, 22-23 November 1999. p. 211-214.

Thérivel, R. and Partdário, M.R. eds. (1996) *The Practice of Strategic Environmental Assessment* (London, Earthscan). [Chapters 1-3, 14: Introduction; SEA regulations and guidelines worldwide; SEA methodology in practice; Learning from SEA practice].

The World Bank. (1999) *Public Consultation in the EA Process: A Strategic Approach*. Environmental Assessment Sourcebook Update, No. 26, May 1999. Environmental Department, The World Bank.

Wilson, N. and McLean, S. (1994) *Questionnaire Design: a Practical introduction*. Newtown Abbey, Co. Antrim: University of Ulster Press.

Oppenheim, A. N. (1992) *Questionnaire Design, Interweaving and Attitude Measurement*. London: Pinter Publishers Ltd.

Ostendorf, I. (2003) *Conflict Analysis of Loudden Oil Port*. Master thesis. P. – 108.

### **Laws and regulations**

85/337/EEC - Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

97/11/EC – Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment.

2001/42/EC – Directive 2001/42/EC of the European Parliament and of the Council of 27<sup>th</sup> June 2001 on the assessment of the effects of certain plans and programmes on the environment (the SEA Directive).

Law on Environmental Impact Assessment of the Proposed Economic Activity 15 August 1996 (No. I-1495).

Miljöbalken – The Swedish Environmental Code (1999).

In the Law on Environmental Impact Assessment of the Proposed Economic Activity 18 April 2000 (No. VIII-1636).

Regulations on preparation of the Environmental Impact Assessment program and report, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No.262, June 30, 2000.

Methodological guidelines on the screening of Proposed Economic Activity, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 263, June 30, 2000.

The Order of informing the public and public participation in the process of Environmental Impact Assessment, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 277, July 10, 2000.

Guidelines on the quality control of the Environmental Impact Assessment of the Proposed Economic Activity, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 305, July 17, 2000.

The Order of investigating the Environmental Impact Assessment documents at the Ministry of the Environment and subordinate institutions, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. 333, August 7, 2000.

Law on Society Information 2000, 29 of August, No. VIII-1905.

Declaration forms and institutions responsible for monitoring declaration confirmation and subscription of ecological network of nature areas NATURA 2000 environmental impact assessment evaluation of investment projects, financed but the European Union, Approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. D1-44, January 27, 2004. In May 10, 2004 it was improved, No. D1-269.

In Order of Assessment of the Effects of Certain Plans and programs on the environment, approved by the decision of August 18 2004, No. 967 of the Government of the Republic of Lithuania.

In the Law on Environmental Impact Assessment of the Proposed Economic Activity 21 June 2005 (No. X-258).

The Order of Informing the Public and Public Participation in the Process of Environmental Impact Assessment, approved by the Order of the Minister of the Environment of the Republic of Lithuania, No. D1-370, July 15, 2005.

## **Internet references**

CNN. Map of Europe. Last visted 2006-06-28.

<http://www.cnn.com/WORLD/europe/9808/24/russia.anxious.europe/europe.lg.map.jpg>

Coastal guide. Chapter XV – Sustainable Management of Coastal Zones. Last visited 2006-01-28.

<http://www.coastalguide.org/code/manageme.html>

CoastLearn. Why public participation? Aims of public participation. Last visited 2006-05-30.

<http://www.biodiversity.ru/coastlearn/pp-eng/aims.html>

Grishin, N. Environmental Impact Assessment of a Transboundary pipeline in the Black Sea Region. Last visited 2006-02-10.

<http://www.umweltbundesamt.de/anlagen/pipeline/download/grishin.pdf>

EIA centre. EIA in Central and Easter Europe. Last visited 2006-02-09.

<http://www.art.man.ac.uk/EIA/publications/newsletters/newsletter11/eiaincountries/russia.htm>

Europa On-Line. EIA Directive. Last visited 2005-10-29.

<http://europa.eu.int/comm/environment/eia/home.htm>

ICM Progress. Lithuania. Coastal Management in Lithuania. Last visited 2006-02-17 (last updated 11 September 2002).

<http://www.coastalguide.org/icm/baltic/lithuania.html>

ICM Progress. Sweden. Coastal Management in Sweden. Last visited 2006-02-17 (last updated 11 September 2002).

<http://www.coastalguide.org/icm/baltic/sweden.html>

InvestINestonia.com. Environmental legislation. Last visited 2006-02-09.

<http://www.investinestonia.com/index.php?option=displaypage&Itemid=62&op=page&SubMenu=>

International conference on environmental Impact Assessment in the Baltic States and the Baltic coast of Russia. 28-29 April 1999, Pärnu, Estonia. Last visited 2006-02-08.

<http://www.sei.se/sei/projects/BalticEIA.html>

KSSA - Klaipeda State Seaport Authority. The Glimpse on the History of Klaipeda port. Last visited 2005-09-25.

[www.portofklaipeda.lt](http://www.portofklaipeda.lt)

Lighthouse Foundation. Foundation for the Seas and Oceans. The coastal zone under pressure. Last visited 2005-09-14.

<http://www.lighthouse-foundation.org/index.php?id=166&L=1>

Nordic Centre for Spatial development. EIA in Sweden. Last visited 2006-02-01.

<http://www.nordregio.se/EA/Sweden.htm>

SEI - Stockholm Environmental Institute. EIA in the Baltic Region. Last visited 2006-05-10.  
<http://www.sei.se/>

Student Researcher. Online Survey Solutions, Educational Web Search. Last visited 2005-11-25.  
<http://www.studentresearcher.com/conclusions.asp>

Stockholms Hamnar. Last visited 2004-09-30  
[www.stockholmshamn.se](http://www.stockholmshamn.se)

SWECO VIAK, (2003) *Underlag för tidigt samråd angående hamnverksamhet för Stockholms Hamn*. Last visited 2004-09-30.  
[http://www.stockholmshamn.se/bifogat/pdf/underlag\\_ts\\_sthlms\\_hamn.pdf](http://www.stockholmshamn.se/bifogat/pdf/underlag_ts_sthlms_hamn.pdf)

Sweden's County Administrations. Last visited 2006-01-18.  
<http://www.lst.se/english/index.htm>.

UNECE – United Nations Economic commission for Europe. Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - the “Espoo (EIA) Convention”. Last visited 2006-05-14.  
<http://www.unece.org/env/eia/welcome.html>

Tammemäe Olavi. Environmental Management in the Baltic States. Last visited 2006-02-08.  
<http://www.inem.org/htdocs/eco-baltic/workshop-texts/tammamae.html>

The Government of the Hong Kong. Environmental Protection Department Environmental Impact Assessment Ordinance. Last visited 2004-11-15.  
<http://www.epd.gov.hk/eia/>

The Global Development Research Center. Environmental Impact Assessment. Last visited 2004-11-13.  
<http://www.gdrc.org>

Randburg. Klaipeda port. Last visited 2006-05-12.  
<http://www.randburg.com/li/klaiseaport.html>

Regeringskansliet. Government Offices of Sweden. Ministry of Sustainable Development. Last visited 2006-04-10.  
[www.sweden.gov.se](http://www.sweden.gov.se)

Questionnaire Design. Last visited 2005-10-30.  
[http://www.cc.gatech.edu/classes/cs6751\\_97\\_winter/Topics/quest-design/](http://www.cc.gatech.edu/classes/cs6751_97_winter/Topics/quest-design/)

WCD - The World Commission on Dams. (2000) *Dams and development: A New Framework for Decision-Making*. The Report of the World commission on Dams. An Overview. November 16 2000. <http://www.dams.org>

Wikipedia. Klaipeda port. Last visited 2006-05-14.  
<http://en.wikipedia.org/wiki/Klaip%C4%97da>.



# Appendices

## Appendix 1. Sample of questionnaire

Ausra Juneviciute 2005-11-10

### Questionnaire

This questionnaire is a part of thesis project connected to European Union project “Coastal Zone Management in the Baltic Sea region” – “Coastman“. It investigates interactions between environment conservation, conflict management and sustainable development in coastal zones of the Baltic Sea. The partners of it will analyse environmental problems and assess the risks of the Baltic Sea coast with reference to exploitation of coastal zones. “Coastman” is very important for better coastal zone management in the Baltic Sea region.

I would be very thankful if you answer to the questionnaire below. Your opinion is very important for the further work.

#### **Environmental Impact Assessment (EIA)**

1. Are you familiar with the procedure of Environmental Impact Assessment - EIA?

- Very much
- Much
- Little
- Not at all

2. In Your opinion which are the groups involved in the EIA procedure? Please, list them.

.....  
.....  
.....  
.....

3. Please, evaluate the degree of participation of the groups listed in your answer to question 2 in the EIA procedure?

Participation	To a very large extent	To a large extent	To some extent	Not At all
Listed groups				

4. In Your opinion, are there other groups that should participate in EIA procedure? If yes, list them and explain why. If no, explain why.

.....  
.....  
.....

5. Is EIA an effective tool to evaluate environmental impacts of new projects?

- Very much
- Much
- Little
- Not at all

Please explain why?

.....  
.....  
.....  
.....

6. In Your opinion what are the strengths of EIA?

.....  
.....  
.....  
.....

7. In Your opinion what are the weaknesses of EIA?

.....  
.....  
.....  
.....

8. In Your opinion can EIA influence the decision making process?

- Very much
- Much
- Little
- Not at all

How?

.....  
.....  
.....

9. Do You have any proposals for improving EIA process? Please, explain.

.....  
.....  
.....  
.....

**Strategic Environmental Assessment (SEA)**

10. Are you familiar with the procedure of Strategic Environmental Assessment - SEA?

- Very much
- Much
- Little
- Not at all

11. In Your opinion which are the groups involved in the SEA procedure? Please, list them.

.....  
.....  
.....  
.....

12. In Your opinion what are the strengths of SEA?

.....  
.....

13. In Your opinion what are the weaknesses of SEA?

.....  
.....

14. In Your opinion can SEA influence the decision making process?

- Very much
- Much
- Little
- Not at all

How?

.....  
.....

15. Do You have any proposals for improving SEA process? Please, explain.

.....  
.....  
.....

Now, to help me classify Your answers and to make comparisons, would you mind telling me which is your position?

**Yor Position**

Industry company	Community
<input type="checkbox"/> Municipality	Scientists, researches.....
NGO's.....	Other (please write down).....

## Appendix 2. Questionnaire questions and objectives

### Questionnaire

Below there is listed questionnaire questions and objectives in brackets to each question.

#### **Environmental Impact Assessment (EIA)**

1. Are you familiar with the procedure of Environmental Impact Assessment - EIA?

[*To know how much a person is familiar with EIA procedure*]

- Very much
- Much
- Little
- Not at all

2. In Your opinion which are the groups involved in the EIA procedure? Please, list them.

[*To find out which are the stakeholders involved in EIA procedure*]

.....

3. Please, evaluate the degree of participation of the groups listed in your answer to question 2 in the EIA procedure?

[*To find out the degree of participation of the stakeholders*]

Participation	To a very large extent	To a large extent	To some extent	Not At all
Listed groups				

4. In Your opinion, are there other groups that should participate in EIA procedure? If yes, list them and explain why. If no, explain why.

[*To find out which should be the groups participating in the EIA procedure*]

.....

5. Is EIA an effective tool to evaluate environmental impacts of new projects?

[*To find out the degree of effectiveness of EIA for evaluation of environmental impacts of new projects*]

- Very much
- Much
- Little
- Not at all

Please explain why?

.....

6. In Your opinion what are the strengths of EIA?

[*To find out the strengths of EIA*]

.....

7. In Your opinion what are the weaknesses of EIA?

[*To find out the weaknesses of EIA*]

.....

8. In Your opinion can EIA influence the decision making process?  
[To find out the degree of influence of EIA in the decision making process]

- Very much
- Much
- Little
- Not at all

How?

.....

9. Do You have any proposals for improving EIA process? Please, explain.  
[To find out ideas for improvements of EIA]

.....

**Strategic Environmental Assessment (SEA)**

10. Are you familiar with the procedure of Strategic Environmental Assessment - SEA?  
[To know how much a person is familiar with SEA procedure]

- Very much
- Much
- Little
- Not at all

11. In Your opinion which are the groups involved in the SEA procedure? Please, list them.  
[To find which are the stakeholders involved in the SEA procedure]

.....

12. In Your opinion what are the strengths of SEA?  
[To find out the strengths of SEA]

.....

13. In Your opinion what are the weaknesses of SEA?  
[To find out the weaknesses of SEA]

.....

14. In Your opinion can SEA influence the decision making process?  
[To find the degree of influence of SEA in the decision making process]

- Very much
- Much
- Little
- Not at all

How?

.....

15. Do You have any proposals for improving SEA process? Please, explain.  
[To find out ideas for improvements of SEA]

.....





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