

## **ANNEX IV**

### **Climate change thematic materials**

#### **IV-1. Implementation of convention on overall Climate change in Latvia**

This chapter deals with brief description of the existing Convention documents and summary about parties involved in the implementation of Convention. The existing problems will be analysed in the chapter V-2.

UNO General Convention on Climate change is an agreement which has been signed by countries in order to reach in year 2000 the decrease of greenhouse effect gases (GEG) emissions to the level it was in 1990. The Convention has two annexes: "I. Countries which have liabilities towards stabilising of the mentioned emissions" and "II. Countries which undertake to provide funding for measures taken to decrease the level of emissions. Latvia has signed UNO General Convention on Climate change (hereinafter- Convention) in 1992 in Rio de Janeiro at UNO conference "On Environment and Development". The Parliament of the Republic of Latvia ratified the General convention on Climate change (Convention) in 1995 thus becoming a convention member state and taking up the responsibility to fulfil international obligations. The aim of the convention is to achieve the stabilisation of concentration of greenhouse effect gases (GEG) in atmosphere in level that could prevent the interventions of dangerous anthropogenic gases into climate system. The Convention foresees that till year 2000 all member states have to stabilise GEG emissions to the level it was on 1990. In 1997 the Convention was supplemented with Kyoto protocol (Protocol). Latvia ratified it on 30 May 2002. The Protocol prescribes that during the period of time from 2008 to 2012 GEG worldwide emissions should be reduced by 5% if compared with year 1990. Latvia must reduce its total emissions by 8% if compared with year 1990.

The Protocol foresees three flexible mechanisms with the help of which member states can implement their obligations on mitigation of emissions – collectively implementing projects (JI), international emission trade (IET) and mechanism for free development (MFD). It is forecasted that during the next 20 years Latvia will not reach the level of GEG emissions and conjunctions to the level of year 1990, therefore Latvia within the JI and IET framework will have the possibility to sell its unused sink and reservoir permits to other states mentioned in Appendix 1 of the Convention. The protocol also foresees to commence sale of international emissions starting from 2008. There is an external risk that the Protocol will not take effect till the year 2012. However, European Commission (EC) has set up a directive project on trade of GEG emissions (Proposal to EU Parliament and Council Directive 2001/0245 (COD)) that foresees to start trade with GEG emissions within EU already from January 1, 2005.

For the EU member states introduction of the Protocol is collaterally binding as to the decision of the Council of Europe No. 2002/358/EC of 25 April, 2002 on ratification of the Protocol. EU has developed "European Programme on Climate change" (2002), "Action Plan for improvement of energy efficiency" (2000), in March 2000 EC adopted

the “Green Document” on trade of GEG emissions in EU. For Latvia as for a candidate country it is important to follow the actualities of EU policy on Climate change decrease, and after joining EU Latvia will have to adopt the mentioned directives. Latvia has political document for implementation of the Convention called “Policy plan on Climate change decrease for Latvia” which was prepared under supervision of Ministry of Environment. In 2002 the Cabinet of Ministers of the Republic of Latvia adopted the strategy of commonly implementing projects provided in Kyoto protocol (for the year 2002-2012).

There are several political documents for implementation of the Convention, as well as several political documents dealing with the issues concerning the implementation of convention on Climate change. In 1995 plan for the Environmental protection policy for Latvia was introduced – the basic document for all activities in the environmental sector. It must be said, that problems of climate change in the Environment protection policy plan are not included in the environmental priority list.

In 2002 the Cabinet of Ministers adopted the guidelines for sustainable development of Latvia in which one of the aims is to provide the input of Latvia in global climate change prevention in amount that does not impede the economic growth of the country. In 1998-2000 Environment Communication and Education Strategy as well as Programme of Action was worked out that aim at securing social awareness and creating understanding about environmental regularity, processes, problems and their methods of solution, also about activities causing global climate change as well as about facilitating co-operation of various social groups in issues concerning environmental decision making and development of environmentally friendly social awareness. Some issues that deal with climate change mitigation are integrated in political documents of respective industries (Energy, transportation, waste management, industry, forestry, agriculture).

Policy of environmental protection in Latvia is implemented by the Ministry of Environment of the Republic of Latvia and institutions under its supervision and subordination in co-operation with Ministries and institutions of respective sectors. There are no strong non-governmental organisations that could actively take part in influencing the climate change policy and ensuring social information process on issues concerning Climate change. Especially significant support for implementation of the Climate convention is the project “Implementation of international conventional obligations in air protection” that was initiated in year 2000, and which ensures creation of political documentation and co-ordinates the development of the research.

Different sectors implement various projects that influence Climate change (see Annex XIV). So far 27 JI pilots have been implemented in Latvia, that have given contribution not only to the mitigation of GEG emissions, but also have ensured acquisition of experience for further successful participation in JI implementation

The mentioned political documents, institutions and projects are analysed in separate sections. Identified capacity problems are given separately.

## **IV-2. Identified capacity problems**

The chapter describes capacity problems identified during the project implementation and are grouped by subjects. The subjects have been chosen basing on the GEF UNITAR (2002) and GEF, UNDP (2003) methodology, results of workshop in Igates castle on April 11, 2003 and recommendations of several experts.

### *IV-2.1 Institutions involved in implementation of climate change policy and their resources*

This subchapter analyses institutions involved in implementation of the Convention, their capacity and mutual co-ordination. This subchapter has underlined necessity for increase of institutional capacity after joining EU.

Environmental department of the Ministry of Environment of the Republic of Latvia is responsible for Latvian participation in implementation of the Convention. Latvian Environment Agency (LEA) is responsible about the methodology of environmental quality analysis and unified environmental data information system as well as it prepares annual reports on emissions and conjunctions of anthropogenic greenhouse effect gases (GEG). Latvian Hydro-meteorological Agency (LHA) is involved in meteorological observations, integrated monitoring and creates data basis. Ministries of Environment, Agriculture, Economy, Finances, Transportation ensure implementation of the Convention into the following sectors: forestry, agriculture, industry, energy, transportation and waste management. So far the project "Implementation of international conventional obligations in air protection" has given substantial support in implementation of the Convention attracting various specialists for the preparation of documentation and researches, but long-term progress of the project is threatened with short-term funding.

In the process of implementation of the Convention and the Protocol in Latvia work two employees of the Ministry of Environment, which are responsible for Climate change issues including project approval, sending of official report and national reports to UNFCCC secretariat, representation of Latvia in negotiations on climate. Two other employees ensure preparation of GEG emissions and conjunctions reports for LEA. According to evaluation given by experts and involved parties both employees from the Ministry and LEA possess working abilities, knowledge and experience to implement requirements of the Convention. However, separate works specialists from branch ministries are being attracted and the documents are prepared with the help of projects, all the specialists are overloaded. All respondents also admitted that in this particular case separate specialists in Latvia carry out functions that in other countries do departments with many specialists. Respondents from LHA admitted that resources available for LHA and the total number of staff are considered to be sufficient for the implementation of existing tasks. The interviewed persons from institutions under supervision and subordinate to Ministry of Environment noted that implementation of decisions within the Ministry is effective and is based on subordination traditions which are established throughout long work experience. As a possible threat to successful further decision implementation was noted incomplete presentation of functions or doubling of functions in

normative documents or remaining of financial resources in previous amounts when the amount of work increases. Five respondents including the two employees of Ministry of Environment agreed to the statements given in research prepared by G.Aistara “in general, institutional infrastructure of Latvian climate policy can be considered as based on random principle. The division of responsibilities is not strictly prescribed, but is performed according to needs” (Aistara 2000, 11).

Since the ratification of the Convention the Ministry of Environment of the Republic of Latvia has tried to co-operate with ministries and institutions of the sectors involved, mostly on the level of individuals. However, the representatives from the sectors admitted that there are no documents that could clearly define the role and responsibility of separate sectors or institutions in the implementation of the Convention. After negotiations with all persons from the sectors the author concluded that sectors have limited number of specialists that have understanding about and work with the issues of Convention and Protocol. It shall be underlined that not always, but in most cases co-operation with the Ministry of Environment involves environment specialists, but not heads of sectors. Respondents from the sectors admitted that the current information circulation system and their positions (senior referent, environment specialist) not always ensure full and mutual information circulation and information transfer to those making the decisive decisions. As one the reasons for such result was mentioned a statement that the Convention in Latvia is not important and that climate issues shall not be a national priority. Other respondents stated that implementation of the Convention is essential, but stressed that mitigation of Climate change within each sector and the government usually is not accepted as insufficient ground for action. Respondents from the Ministry of Environment admitted that the co-operation among the Ministry and sectors is impeded by staff turnover and a problem is in the lack of institutional fact storage and staff irreplaceability. Representatives from the Universities indicated that also the always changing political situation in Latvia when in short period of time the responsibilities of ministries and institutions are re-divided, do not foster successful implementation of the convention and maintenance of institutional memory.

It was marked that promotion of co-operation between the Ministry and sectors was initiated by creating inter-ministerial work groups on the level of ministers. According to information provided by the respondents, unfortunately this group was practically not functioning. Some of the respondents admitted that such group could ensure information circulation and would foster the possibility to influence sector decisions. However, other respondents stressed that this group would not possess the status of decision-maker and hence it would not have important role and influence upon implementation of the Convention. Respondents noted that existing procedure for co-ordination of decisions ensures co-ordination of any document of national importance with all interested parties. Representatives of the sectors indicated that that co-operation with sectors is one-sided: sector representatives are mainly invited to participate in Convention work group or supervision commission. Respondents also from NGOs and universities admitted that there is no permanent co-operation among state institutions, scientific institutes and other organisations. They noted that the co-operation usually is expressed as specific order from

the Ministry of Environment, but there is shortage of programme for long-term co-operation as well as insufficient bilateral and regular information exchange.

Basing on the opinion of representatives of various institutions as one of the most essential issues to be dealt with in near future the author states is necessity to evaluate the increase of work amount of the environmental institutions when Latvia becomes a member state of EU. Assumptions are made that this will require sufficient increase of financial resources and number of qualified specialists. Such evaluation and planning of further actions is impeded by the fact that EU directives which will promote implementation of the Protocol and will be binding to all EU member states is still in the preparation stage. The research "Latvia and emission trade" (Lodzina, 2003) analyses the necessity for increase of institutional capacity by analysing directive project developed by the European Commission on trade of licences for GEG emissions in EU. However, the study notes that at the moment there are no clear provisions for adopting of the Directive in EU candidate countries. It is stated in the study that in order to ensure participation of Latvia in the trade of emissions it require changes in the system of the Ministry of Environment by establishing centralised institution for supervision of emission trade and GEG register. Involvement in emission trade and also the preparation stage will show significant increase of loads for current environment protection system and also of other state institutions and due to this it will be necessary to increase the administrative capacity of regional environment boards (Lodzina, 2003). Other studies on increase of Latvian responsibility in dealing with issues of the Convention and the Protocol after joining EU have not been carried out or were not available to the author.

Capacity of educational and research institutions is analysed in sixth subchapter, but capacity of NGOs in eleventh subchapter.

Capacity problems:

- Current capacity of environment protection institutions (human resources, funding) for dealing with mitigation of Climate change is insufficient;
- Insufficient co-operation and information circulation among representatives of environment institutions, NGOs, universities and other organisations;
- Normative documents insufficiently define responsibility of sectors and sectoral institutions for implementation of the Convention.

#### *IV-2.2. Decision making, including participation in international decision making*

In this subchapter we dwell on problems concerning decision making in the sphere of climate change and approval of documentation regarding the Convention in Government of Latvia. Also power of Latvia to influence international decisions is inspected in this subchapter.

So far Latvia has been successful in implementation of the Convention. Latvia signed the Convention in 1992 in Rio de Janeiro, but the Parliament of the Republic of Latvia ratified it in 1995. Kyoto Protocol which supplemented the Convention in 1997 Latvia ratified in May 30, 2002. In 1997-1998 under supervision of the Ministry of Environment the

“Climate change mitigation policy plan for Latvia” was prepared, but now it is being revised. However, respondents noted that Latvia has not worked out common strategy of climate change as required by Kyoto protocol and principles of sustainable development and there is no action programme for mitigation of Climate change.

As respondents from Ministry of Environment , NGOs and academic staff from universities admitted that one of the factors that slows down the implementation process of the Convention and process of decision making referring to the Convention is the procedure of political decision making currently active in Latvia. It was underlined that the Ministry of Environment is responsible for Convention implementation, but the Minister cannot make a decision that addresses the whole society. Respondents also noted that the work could be significantly facilitated by establishing of a commission that would possess the authority to make decisions, including JI council would have such authority. Respondents indicated that another factor that impedes on ensuring of succession of political decisions is the regular change of the governments. The interviewed also admitted that the process of decision making is geared down also by the fact that importance of issues related to Convention and Protocol in Latvia is low and also by government’s insufficient understanding of Convention and Protocol issues. Respondents consider that reason for such government position is lack of information on these issues and forecasts, which say that amount of emissions compared to 1990 has decreased and Latvia can easily implement protocol requirements. Respondents from environment institutions expressed worries that after adoption of Climate change mitigation implementation plan the necessary budget could not be allocated.

Respondents from sectoral institutions indicated that issues related to Climate change mitigation policy are being incorporated into political documents, because it is ensured by already existing co-ordination procedure of pre-political documents. However, the interviewed admitted that they feel lack of action programme for “The climate change mitigation policy plan for Latvia” as a result of which it is not possible to co-ordinate the climate policy implementation with policy implementation mechanisms of corresponding sectors. Respondents from sectoral institutions indicated that as Latvia, being EU candidate country, works at co-ordination of national legislation with the EU directives, and the EU policy prescribes to ensure purposeful integration of climate policy into the political documentation, legislation and resolutions of respective sectors with directives binding to corresponding sectors, in the future current overlapping problems in sector documentation could be solved. Respondents from universities and NGOs noted that the statement given in G.Aistara’s study is still actual saying that “Latvian climate change mitigation policy plan is summary of current and planned legislation of various sectors (Energy, agriculture, transportation, waste management, forestry). It takes a look over influence of those sectors upon forecasted Latvian GEG, but does not provides new climate policy. So far due to lack of funding Latvia has followed international climate policy in stead of creating national policy” (Aistara, 2000, 7).

Latvia’s representatives take part in various group meetings of UN and its organisations - OECD, EU, structures of the European Commission, World and European finance

organisations, Baltic environmental forum, the EU informal organisations as well as in international environmental convention meetings (Ministry of Environment 2002). Respondents noted that big role in influencing international decisions is played by personal characteristics and skills of nominated representatives. Representatives of The Ministry and NGOs indicated that Latvia could preferably influence international decisions, however, due to too much loads of the representatives such influence is limited. Respondents from various sectors indicated that it would be easier for sectoral representatives to implement decisions related to their sectors if these representatives could be involved in decision preparing process on international level. Essential shortcoming in protection of Latvia's interests in international policy is caused by lack of Latvia's financial resources and specialists.

**Capacity problems:**

- Limited human and financial resources for representation of Latvia in international decision making process on issues related to Convention implementation.

*IV-2.3. Registering of GEG emissions and annual reports*

This subchapter identifies institutions involved in record keeping and annual reports of GEG emissions and evaluates institutional and individual capacity to follow up IPCC guidelines, characterises various issues.

In conformity with the Convention its member states, including Latvia, annually at the conference of contractor parties must deliver a report on greenhouse gas emissions and conjunctions and their conjunction in the home country. Information on GEG emissions and conjunctions and their conjunction shall be included in national report. The annual report on GEG emissions and conjunctions is prepared by Latvian Environmental Agency. To calculate GEG sink data from State Statistical Bureau are used. Essential support to LEA for the improvement of GEG calculation methodology gives the project "Implementation of international conventional obligations in air protection", which has helped Latvian Environmental Agency to carry out GEG re-calculation according to the newest IPCC common report format that will ensure thorough analysis and comparison of data. The project in collaboration with the Ministry of Agriculture has started evaluation of calculation methodology for CO<sub>2</sub>.

It shall be stressed that respondents admitted the fact that Latvia has done great work in improvement of GEG calculation and that LEA specialists have gained experience in calculation of GEG emissions. However, the number of specialists involved in preparation of reports was announced as insufficient (calculation at LEA are performed by two employees). Respondents admitted that IPCC guidelines and methodology is being improved and therefore report preparation require regular revision of guidelines and methodology improvement, which is time consuming process. Additionally, from Latvia as to a transition country implementation of IPCC "Good practice guidelines" is expected starting from 2005 (UNFCCC 2003 b).

During the study the following imperfections in GEG reports<sup>1</sup> were identified:

- there are no national system in Latvia for preparation of annual calculations and regular reports, but the problem is identified and Project “Implementation of international conventional obligations in air protection” has commenced work at development of the system;
- Although separate activities, like data comparison with data from previous years, and emission evaluation is carried out by LEA employees, quality assessment and quality control is missing (QA/QC);
- Insufficient transparency and precision;
- Small errors in calculations, rows of data are comparable, but they do not reflect the actual rates fully; validity of separate basic data is doubted: due to existing shadow economy there is particular difference between the actual situation and given data;
- Incomplete evaluation of emission original sources; so far there have been insufficient co-operation with experts from other countries having experience in this field;
- Insufficient identification of disperse sources; there is no registering of emission from grass burning, and registering of burned down wood areas; emission of SF<sub>6</sub>, HFC, PFC is registered incompletely; incomplete registering of emission from soils (UNFCCC 203 b, UN 2000).

Both LEA and CSB underlined good mutual co-operation between the two institutions. According to Cabinet of Ministers Regulations No 586 (MK 27.12.2002.) “Regulations on Statistic information National Programme for 2003” Central Statistics Bureau co-ordinates the data order with institutions – data providers and receivers, and signs co-operation agreements with these institutions, including Ministry of Environment and LEA. In Statistic information National Programme for 2003 we can find which data in Latvia is collected and which institutions are responsible for data rendering, including data, which is necessary for calculation of GEG. However, using of CSB data for GEG calculations is partly impeded by confidentiality set by National Statistics Law (MK 1997). The solution of this problem on institutional level is commenced.

Representatives from CSB indicated that responsibility for data collection methodology and precision is taken up by institutions, which are the data provider. However the sector respondents noted that not all collected data necessary for GEG reports is defined by sectoral documents, therefore acquirement of separate data is difficult. Representatives from LEA, CSB and separate sectoral ministries indicated that in order to improve correspondence of data included in GEG reports with IPCC “Guidelines for good practice”, firstly, shall ensure good co-operation with all sectors and shall agree on the responsible institution for data collection, on method and terms used.

### **Capacity problems:**

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<sup>1</sup> All imperfections, which were presented in UNFCCC report (UNFCCC 203) and UNO report (UN 2000) and which were noted as being important at the moment

- There is no national system for preparation of annual calculations and regular reports on GEG emissions and conjunction;
- quality assessment and quality control systems are missing (QA/QC);
- There are no normative documents which would define sectoral responsibility for data collection and calculation of GEG emissions and conjunction within preparation of annual reports;
- Insufficient number of specialists involved in registration and preparation of reports on GEG emissions.

#### *IV-2.4. National reports*

This subchapter analyses capacity of involved institutions in preparation of National reports and identifies problems that are necessary to solve for further effective operation.

The first National report was developed and submitted to UNFCCC in 1995. So far there have been three National reports. The first and the second report was co-ordinated by staff of the Ministry of Environment of the Republic of Latvia, the last one was developed by the project "Implementation of international conventional obligations in air protection". Respondents unanimously admitted that there has been great work done in preparation of national reports and that the best possible result was achieved. It was stated also in UNO report after evaluation of the second report (UN 2000). Respondents said that after comparing the reports it was easy to state that each next report contained more complete information. National report combines information on GEG emissions and conjunctions, state political structure, climate fluctuations as well as on peculiarities of economic development and progress directions in various sectors of national economy.

So far development of reports has been carried out as separate activities with participation of specialists and experts of various sectors. Preliminary process has fostered co-operation on the level of sectors, institutions and individuals. Nevertheless the interviewees admitted that there is lack of permanent co-operation among state institutions, scientific institutes and other organisations in order to ensure qualitative data and regular reports. As an essential problem in report preparation the involved respondents mentioned lack of succession in collection and gathering of necessary data and information. As one of the causes mentioned was frequent changes of political situation in the country and regular re-division of functions of institutions. After evaluation of the second report UNFCCC report included admonitions related mainly to calculation of GEG (these can be viewed in Chapter V-2.3. of this report).

Representatives from universities and some respondents from Ministry of Environment admitted that because of the limited financial means so far restricted number of specialists has been involved. Some experts have belief that opinions of specialists have not been based on scientific researches (because of absence of such ones), more on the personal experience and assumptions of particular expert. Several interviewed persons admitted that initial database is limited and there is no technical database, as well as the financial means are limited which incommodes preparation of qualitative reports. Representative from one

sector indicated one problem which can be expressed as imprecision of forecasts included in the report: forecasts are used repeatedly without paying attention to already identified mistakes. Representatives from universities noted that in national reports sectors are analysed separately and practically there is no analysis of overall effect caused by mutual interaction of data from separate sectors, for example, influence of GEG emissions on economy, agriculture, climate, etc. However, representatives from Ministry of Environment noted that the content of the report was made by using given content of IPCC “Guidelines for good practice”, which does not require interaction analysis.

**Capacity problems:**

- succession in collection and gathering of necessary data and information for report preparation is not ensured;
- insufficient scientific research base, which can be used as a ground for necessary information for national reports.

*IV-2.5. Activities in climate change mitigation*

This subchapter analyses activities which positively influence climate change, including so far implemented JI pilot projects: project eligibility criteria, evaluation. Experience obtained during performing of activities is being gathered and shall be taken into account in further activities.

Although in 1997-1998 under supervision of Ministry of Environment “Policy plan on Climate change decrease for Latvia” was prepared, action programme has not been developed until now. Strategy for Protocol implementation has not been prepared.

As one of the problems five respondents (from universities, NGOs and one respondent from the Ministry) mentioned the fact that activities analysed and evaluated in National reports and various researches in result of which GEG emissions have reduced has been chosen purposefully and have been the most appropriate for the Convention. Respondents stated that activities and projects implemented until now and in result of which GEG emissions have decreased have not been their primary aim, but only side effect. Separate activities favourable for mitigation of Climate change have also been doubted to be economically profitable and topical for the development of the particular sector. It is shown that there is no evaluation of long living aspect (economic substantiation, environmental effect, social influence). Two interviewed representatives from universities mentioned that the development of activity programme in the sector of climate change burdens lack of scientific research and thus lack of substantiation.

Among activities and projects, which have been implemented with the aim to decrease or attract GEG emissions, we can select as a separate group JI pilot projects. Till now Latvia has successfully implemented 27 JI pilot projects: energy projects were implemented and also the fuel was replaced, projects promoting energy efficiency were implemented or alternative energy technologies were set up. Respondents who have been involved in

implementation indicated that although it is not possible to obtain emission decrease units (EDU) for projects implemented during the pilot stage, they have given contribution not only in decrease of GEG emissions, but with their help parties involved in project implementation have learned the experience in project implementation. Latvia has also proven that it can be a host country for JI (Janova and Kleinberga 2002).

Respondents stated that the many JI pilot projects reflect the initiatives and interests of partner countries as those of Latvia. Some respondents noted that due to the fact that Latvia plans to participate in emission trade, it would be important to evaluate experience obtained during JI pilot phase and state what shall be obeyed in further implementation of JI. But the respondents who have been involved in JI implementation mainly had the opinion that JI projects which were implemented at that time did correspond to the particular economic situation, offers and necessities and due to the fact that economic and political situation has changed only a small share of the experience can be used today. Identification of experience is difficult due to the fact that in Latvia monitoring of mutually implemented projects was carried out by donor countries. The following knowledge obtained during the pilot phase was selected:

- it is necessary to have evaluation on efficiency of JI given by commission of national level which would consist of representatives from various sectors, in order not to avoid co-ordination with all involved institutions;
- it is necessary to have monitoring or supervision of each project; two respondents stated that so far Ministry of Environment not always was able to follow what is being done on project level and ensure project quality, however it performs project selection approval and checks reports;
- income from these projects shall be spent for implementation of activities on national scale related to climate change mitigation. An opinion was expressed that issues concerning Climate change are very specific and the regular population should not look deeper in the problems;
- few respondents indicated to the lack of guidelines for JI projects and underlined that UNFCCC invites every country to develop its own criteria under which the country agrees to take part in JI and that the aim of guidelines is to protect interests of national and local projects as well as ensure positive project results; presence of guidelines would accelerate and facilitate the process of project selection. However, the opinion among respondents was that until now such availability of guidelines was not necessary, because free access promoted attraction of investors. Guidelines shall be developed in cases when there are many projects.

It shall be underlined that with Cabinet of Ministers Regulations No 653, from October 29, 2002 "Implementation strategy for mutually implemented projects (2002-2012)" provided in Kyoto Protocol supplementing UNO General Convention on Climate Change was adopted. In Regulations it is said that the Ministry of Environment establishes commission for mutually implemented projects (Vides projekti 2002). The strategy also state that during the next three years the potential JI could be in relation to increase of CO<sub>2</sub> conjunction in forestry, bio gas collection and its further utilisation at waste plants,

replacement of fossil fuel with regenerative fuel, including water, solar and geothermal energy as well as bio fuel, improvement of energy efficiency in industry sector, and use of new, effective and environmentally friendly technologies in energy sector (Vides projekti, 2002). In spite of the fact that Latvia has commenced work at JI, two respondents expressed worries that there is only limited number of projects left in Latvia, which could be implemented within the framework of JI. The project left are those, which are less interesting to investors and are more expensive. They also mentioned that there are strict environment requirements in Latvia. If compared to other countries. An opinion was expressed that Latvia should rather build its own economically viable new plant distributing GEG emissions then to participate in emission trade.

The respondents believed that the implementation strategy (2002 – 2012) of the projects to be jointly implemented and foreseen in the Kyoto Protocol of the UN General Convention On Climate change is a significant step towards the resolution of the identified capacity problems. For this reason they have not been marked out in the research.

#### *IV-2.6. Research and observations*

In this section problems in connection with the research of Climate change, as well as the used resources in the research are analysed. Researches and programmes that deal with subjects concerning climate and Climate change, mitigation possibilities of those changes, as well as impact of Climate change on ecological and socially economical systems, in Latvia are carried out by Higher educational institutions: University of Latvia (LU), Riga Technical University (RTU), Latvia University of Agriculture (LLU); Scientific research institutes, e.g. Latvia State Institute of Forestry Science “Silava”, State Forestry Inventory Institute, Physically Power Institute, Microbiology and Biotechnology institute, etc.; Agencies: Latvian Development Agency, Latvian Environmental Agency; State environmental institutions: “Vides projekti”; Scientific research and consulting firms; Non-governmental organisations (Ministry of Environment, 2002).

Respondents from the higher educational establishments emphasised that researches going on in Latvia and linked with the problems of Climate change are not actually researches on Climate change. Two respondents commented that in Latvia as well as in other European countries there is the lack of human resources, input data, methodology and financial resources to carry out the research on Climate change.

Four respondents noted that for the needs of national reports the existing research having any connection with climate issues is being summarised. As one of the most substantial shortcomings by three respondents is considered the lack of a research programme. That is why researches do not supplement each other, and can be valued as accidental. Besides, they noted that there is a weak scientific research basis in Latvia and only separate cases of research have been carried out. For the most part they lack a scientific substantiation, and their quality is doubtful.

As a significant problem by two respondents from universities was mentioned the fact that the climate change research is a long-term undertaking, but in Latvia the political and

economic driving forces alter rather often, and there is no demand for long-term research. They specified that there is no elaborated concept of Latvia's economic development, including the vague role of industry and agriculture in Latvia's economy within a longer period of time. Because of these reasons there is no grounds to expect any demand in the area of climate change research. Experts commented that in most cases research is ordered to report on the latest developments in the implementation of the Convention. This research due to the insufficient resources (human, time, financial) tends to be superficial.

It was stressed that one of the reasons for the poor quality research is the limited financing, as well as the lack of the technical equipment. The financing of research mostly comes from the state budget resources, State Investment Programme, Latvian Environment Protection Fund, as well as from the resources of various Latvian enterprises. For example, from the budget of the state stock company VAS "LATVENERGO" scientific research giving substantiation for the implementation of climate change reduction measures in practise is financed (Ministry of Environment 2002). As respondents have admitted, for the funds the financing of the measures for climate change reduction is not a top priority. Two respondents had noticed that quite a conservative system has been established within the funds, which is hard to get changed. That is why new up-to-date projects are not being supported. Respondents from universities also stressed that Latvian scientists do not have any chance to get foreign financing for their research. It was mentioned that the main reason for that was the lack of starting resources, not the disability to get financing. It was also asserted that in order to get the financing from foreign funds, a co-financing has to be ensured which itself composes a significant amount, and because of that is not accessible for Latvian scientists; apart from this, scientists are able to take part in international projects alongside with other partners if there is a modern and high-powered equipment. The idea was expressed that there is no appropriate equipment for carrying out the research of Climate change, as there are no long-term data of a high quality in Latvia, which could be used for climate change research in this country. Though, for some researchers there is an option of participation in foreign projects individually and gain a foreign expertise. Respondents from the data capturing organisation believe that it would be possible to solve the problems of methodology and data capturing, as well as technical problems if Latvia entered international climate research organisations. Still, other respondents opposed that the large membership fees might not pay off.

Respondents from state institutions pointed out that Latvia lacks experts who would be able to think in a complex manner and evaluate the influence of separate factors on Climate change, and at the same time able to perform a complex analysis of climate indicators, as well as the economic and others. One of the respondents expressed an opinion that most of the existing research can be considered as input data for the future scientific research.

Representatives from universities admitted that in addition to the existing research that for the most part is the comparison of the meteorological and hydrological medium term data, indirect exposures of evidence, as well as environment factors leaving the trace in environment could possibly indicate of Climate change. Alongside with the traditional

direct meteorological research, a research should be carried out which until now has been done rather incompletely: historical evidence, annual rings of trees, dendrochronology; lake silt; corals; pollen; speleoterms (carbonate silt in caves); relief forms and geomorphologic phenomena; sea silt.

**Capacity problems:**

- There is no unified research programme in Latvia in the area of Climate change;
- Insufficient initial data base for climate change research;
- Insufficient financing for research.

*IV-2.7. Data bases, development and storing*

In this chapter institutions carrying out the development and maintenance of up-to-date data basis for climate change research are identified, the capacity and technical provision, as well as problems connected with the accessibility of data basis of these institutions are analysed.

Data on meteorological and hydrological indicators, and data on GEG emission are available at the Central Statistical Bureau (CSB), nevertheless, only such data are available that are admitted by state institutions to be necessary and that are provided for by the annual “Statistical Information Programme” (see the next paragraph). „The basic task of the CSB is to create in Latvia a unified statistic information system which is based on international standards and methodology, and which would provide inland and foreign users with a timely, correct, complete, easy to understand and internationally comparable statistic information on the economic, demographic and social processes and environment of the society.” (CSB, 2003) The CSB publishes various data on a regular basis, and everybody has a free access to the data in the CSB’s information centre. Though, the respondents admitted that not all collected data are available in the CSB, because they collect and publish data in accordance with the Statistic Information State Programme. Institutions collecting data are responsible for the applied methodology, data quality and reliability.

The Latvian Environment Agency (LEA) checks the quality of environment, supervises the methodological work in Latvia, develops the compilation of environment quality analysis methodologies and a unified informative system of environment data. On the environment portal of the LEA Internet homepage, the description of the existing data bases, summarising tables and topical maps on the load created by humans in the environment (Ministry of environment, 2002). The Environment portal offers the access to various data basis (see Table 1) and informative products (for example, survey on environment condition) related to the environment in Latvia. It is possible to find out information on state institutions and organisations, which are engaged in the environment protection, a rational and lenient usage of natural resources. The Environment portal is in the state of development and is being supplemented with new information sources. The LHA gathers the direct indicators of Climate change in Latvia systematically and continuously carrying out meteorological and hydrological observations. In order to obtain

data from LEA, an application has to be submitted. The data of LHA are available for a charge, except students who are allowed to access the data published by LHA free of charge.

Hydrological data for the time being can be found at various institutions. Nowadays they create very long chains of observations, besides, the offered results distinguish with a high level of reliability. Data on the biggest rivers are stored at LHA, data about their tributaries and small rivers – in the archives of the research institutions laboratories of the State Melioration Engineering Institute and the University of Agriculture. Besides, a significant data supply is available at other institutions and private persons.

The author admits that for the needs of this research, it was very difficult to find where and what data were stored. It has to be mentioned that the problem is caused by a fact that databases are kept with different data holders which encumbers the data accessibility. Mostly students are those who have to face this problem.

Respondents admitted that the accrued data rows are insufficient to make a serious climate change prognosis, which is based on research. Besides, there are interruptions in these data rows, which have occurred due to the large-scale economic and political processes in the country. The data comprise a period of time, which is too short, or the methodologies used for data capturing are different, and that is why it is impossible to carry out climate change research based on such data. They can be used for medium term prognoses. Respondents also admitted that this kind of problem exists in majority of countries. It was pointed out that in most cases databases are designed so that they can be easily used from the administrative point of view, but they are not so comfortable from the user viewpoint. The representatives of universities, NGO and state institutions mentioned the fact that LEA sells the data for a charge as one of the substantial factors hindering the work. They stressed that this does not facilitate the research work.

**Main capacity problems:**

- Data bases are not freely accessible to users;
- Lack of information on data basis holders;

Table 1. Description of data bases

<p>Full description of data bases</p> <p><a href="#">State statistic report 2-air</a></p> <p>State statistic report 2-water</p> <p>State statistic report on dangerous waste 3-BA</p> <p>State statistic report on household waste 3-SA</p> <p>State statistic report on the usage of chemicals and their products 4-KP</p> <p><a href="#">Water use permit</a></p> <p><a href="#">Monitoring surface water quality</a></p> <p><a href="#">Lake passports</a></p> <p><a href="#">Accidents and sanctions</a></p> <p>Register of fuel filling stations and oil stations</p> <p>Greenhouse effect gases</p> <p><a href="#">Objects</a> of former USSR army</p> <p><a href="#">Nature territories under special protection</a></p> <p><a href="#">Trees</a> under special protection</p> <p><a href="#">Protected kinds of plants</a></p> <p>Micro-conservancy areas</p> <p><a href="#">Latvian kinds and biotope status (STATUSS) data base</a></p> <p><a href="#">Latvian cadastre of minerals mines</a></p> <p><a href="#">Topical maps on water pollution in 2000</a></p> <p><a href="#">Topical maps on air pollution in 2000</a></p> <p><a href="#">Topical maps on the statistic data summary of 2001</a></p>
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#### *IV-2.8. Climate change impact, sensitivity assessment and a doption*

In this section the significance of climate change, and sensitivity evaluation and adaptation measures are analysed, as well as the experts' capacity to carry out research connected with the influence of Climate change and sensitivity evaluation, and elaboration of adaptation measures.

Although the geographical situation defines the sensitiveness of Latvia against the weather conditions and sea level changes in World's oceans, and Latvia has identified the influence of Climate change on the environment and national economy, the issue is not fully investigated. Latvia lacks scientific research about climate change influence on the environment and Latvia's economy, as well as economic and social adaptation measures (Ministry of Environment 2002). A serious analysis of climate change influence and sensitivity evaluation is provided by the research of V. Seglinš in 2002 - „The possible influence of Climate change on Latvia's coastal area and development of proposals for territory planning” (Seglinš 2002).

Respondents from universities emphasised that there is the possibility of Climate change affecting Latvia, and that Latvia would need an institution financed by state which using the data of environment monitoring would evaluate if and how the antropogenic impact accelerate some dangerous changes that are harmful to humans and nature, and would determine the volume of the possible changes and monitor them. Based on such research, it would be possible to alter the politics of branch development, as well as economic and legal instruments in the country, so that the Latvian economy and people could adapt to Climate change in due time. Still, respondents from universities also pointed out that as in the case with the climate change research, there is no demand for sensitivity and influence research, because the policy realised by the country turns out to be short-term, and the defining factors are the economic. Respondents agreed with the statement from V.Seglinš' research that even the basic principles of a sustainable development of Latvia do not emphasise the presumable climate change influence on the state's social and economic development, and do not state the presumable Climate change as one of the problems in the area of policy making for the sake of sustainable development. In Latvia there is also no legislation that would directly apply to the evaluation of climate change influence, and the elaboration and implementation of adaptation measures (Seglinš 2002). Respondents stressed that research was encumbered because in Latvia, as well as in many other countries, the data chains required for carrying out research of meteorological, climate and other changes are not enough long.

Respondents admitted that it is necessary to develop a research programme and perform systematically research in the branches of economy which are the most sensitive against Climate change: agriculture, forestry, as well as specific research should be carried out in the endangered areas of the littoral.

**Capacity problems:**

- The lack of systematic scientific research about the influence of Climate change on the environment and economy, and sensitivity evaluation, as well as the lack of economic and social adaptation measures;
- Limited financial resources for performing the research.

*IV-2.9. Introduction of new (clean) technologies.*

This subchapter deals with analysis of interest and capacity problems of industrial companies in applying the newest technologies as well as efficiency of means that would foster introduction of newest technologies.

In accordance with the Convention's indications about the preparation of National Reports, the instruments used in the politics of GEG emission reduction conditionally can be subdivided into five categories:

- Legislation and other normative facilitation;
- Economic incentives;
- Voluntary agreements and programmes;
- Scientific research and pilot projects;

- Communication and education (Ministry of Environment, 1998).

Respondents admitted that taking into consideration optimistic prospects about Latvia implementing the requirements of the Protocol easily, the tendency can be observed to promote the economic development, but the work of tools development and implementation for enterprise motivation to use new technologies is not going on. The existing tools (legislation and economic incentives) both from business people and state institutions are unanimously considered to be insufficiently effective. Nevertheless, respondents agreed with the opinion of G.Aistara expressed in the research: „ Prognoses show that the aggregate volume of emissions in Latvia has diminished if compared to 1990, and most probably Latvia will be able to fulfil the liabilities of the Kyoto Protocol. Though, the energo-capacity and emissions per one resident significantly surpasses the West European standards. Even if Latvia does not surpass the acceptable amount in the year 2012 , it could be surmounted soon afterwards. The experience in the world shows that the measures for emission reduction are more cost-effective after the economic growth has taken place, that is why it is more useful to reduce the emission increase pace timely by implementing, for example, cleaner technologies.”(Aistara, 2000).

Several respondents assured that Latvian residents have a comparatively high environmental consciousness, and directors of enterprises voluntarily agree to introduce new technologies or implement measures for energo-efficiency. Still, it was admitted unanimously that within business people the economic tools work the most effectively, and that the situation, like it is nowadays, provides for the necessity for businesses to choose the cheapest and that means – not the friendliest technologies for environment in order to ensure the necessary level of production. Respondents expressed the opinion that it is necessary to improve other tools, too, specifically – the positive motivation mechanisms are very rarely used in the country. That would encourage businesses to introduce technologies that are friendly to environment. For instance, respondents suggested part of the natural resource tax to be left for the enterprise itself if the enterprise carries out a friendly politics towards environment; it was also suggested to raise the consciousness of the heads of businesses and inform them on the advantages of the clean technologies, because quite often information from environment experts is not forwarded to heads of businesses.

Respondents also admitted that an important motivating factor for an enterprise could be consumer’s demands. Representatives from plants assessed that the domestic consumer does not have high requirements in the area of environment standards, and because of that only a few enterprises are interested to introduce EMAS and ISO standards. The opinion was expressed that EMS as a motivating tool works mostly in textiles and food industry, ISO 9000 and ISO 14000 also in other branches of industry.

The impression arose from the conversations with respondents that the majority of Latvian business people does not understand the meaning of the flexible mechanisms, including JI, and how it would affect the whole business. Also the environment experts of businesses do not have such understanding.

#### **Capacity problems:**

- Not all businesses are sufficiently informed on the meaning of the flexible mechanisms and the strategy of Latvia in their implementation;
- There is still the lack of sufficiently elaborated and implemented tools in the country for the motivation of businesses to use the clean technologies.

#### *IV-2.10. Education, training*

This subchapter analyses capacity of universities in providing useful training programmes for specialists working with implementation of the Convention. Chapter includes also analysis of staff potential and financial resources.

Since 1992 Latvia offers Bachelor, Engineering, Masters and Doctoral teaching programmes in various environmental and managerial specialisations. Programmes of Latvian biggest educational institutions – Riga Technical University, Latvia University of Agriculture and University of Latvia – include subjects that reveal and analyse impacts on Climate change. In limited amount issues and problems on climate change are included also in some training and postgraduate training programmes (Ministry of Environment 2002). Specific knowledge dealing with issues of Climate change and which are necessary for LEA and LHA staff is impossible to get in Latvia and that is a reason why specialists are irreplaceable in dealing with some specific issues, besides they are in limited amount. It is it can be concluded and also the respondents admitted that the number of qualified academic staff for climate change issues is limited. Positive evaluation can be given to the fact that several individuals participate in programmes funded from abroad and hence obtaining experience of other countries.

Respondents admitted that Bachelor programmes offered by the Faculty of Physics and Mathematics of LU are appropriate to use them for specialising in Convention implementation or climate change issues. But the programme offered by the Faculty of Geography and Land Sciences of LU was described as too general to provide experts with the required knowledge for climate change research. Respondents stressed that it is not necessary to develop programmes for in-depth training on climate change issues. Such knowledge can be obtained in neighbouring countries. The opinion of respondents differed on the point whether the training programmes offered to economists, engineers, farmers and foresters cover the environment and climate issues sufficiently. The most part of respondents thought that economists and engineers have insufficient understanding of the importance of environment issues. As one of the reasons the attitude of the society was mentioned who believes that in the global, as well as Latvian market the economic situation is the determinant, and that environment issues, including climate issues, are of a secondary importance. Three respondents assured that climate and environment issues should be more touched upon in the programmes of branch experts.

As the key problems for ensuring modern programmes in the higher educational establishments were mentioned: insufficient financial and technical support; the poor co-operation of universities and environment institutions.

Respondents' opinion on school study projects differed. Some expressed opinion that the existing school programmes are better than those used for decades and provide pupils with basic knowledge on processes of Climate change. In addition to that already for several years pupils and youngsters can involve in various environmental projects. During the analysis of those projects, causes for global Climate change are also discussed. As examples to such projects can serve the Baltic Sea project, project "Air researcher net", international GLOBE project, as well as the project "Nature observer". It was admitted that the increase in understanding about these issues can be predicted in next generations.

Nevertheless, the training force of universities pointed out that entry tests at universities prove the poor preparedness level of the young people particularly in the exact subjects and that their knowledge of environmental issues decreases significantly. Though, there are a lot of those who are willing to study within the Environment Science Programme of LU. The author believes that the existing educational system offers opportunities for the young people to acquire knowledge and understanding of the environment and climate issues, but does not ensure a mandatory acquiring of the basic knowledge. That means that part of youngsters is poorly informed on these issues.

#### **Capacity problems:**

- Insufficient financial and technical support to develop modern training programmes for studying climate change issues;
- Insufficient cooperation between universities and environmental institutions.

#### *IV-2.11. Formation of social cognition; information*

This chapter analyses information available to broad society masses on climate issues and capacity of institutions, which ensure information of society.

Respondents noted that Latvia does not have common programme for information of society on issues concerning environmental issues including issues of climate change. Although the overall environmental sense is rated as high, almost all the interviewees pointed on the lack of social, including governmental understanding on Climate change, especially highlighting the lack in understanding the contribution of separate sectors in causing the Climate change. Respondents admitted that untypicality of climate issues is also the result for lack of researches in the sphere of Climate change; but the lack of research limits information distribution. It was pointed out by interviewees that the main reason is lack of financial and human resources and that the issues on climate change are not perceived as a real danger. Some respondents expressed an opinion that the society of Latvia is engaged in solving the issues of economic nature and the issues concerning the environment are not and most probably will not be in the nearest future the priority. At the same time other respondents underlined that economic development in our country is taking place by solving environmental problems and in future it is foreseeable that

importance of solution of environment issues will increase. Respondents indicated that in areas where GEG emissions are in larger amounts and, probably, threaten public health population is interested in performing of environment improvements and fight for the rights to live in clean environment. Similar conclusions were made in the project “Causes and consequences of pollution: what I want to know and what I know about it” carried out within the framework of project by Green Library (GL) in 2003 when 348 students were surveyed.

Conclusions were the following:

- Respondents are interested in information which affects them personally or which can be used in everyday life;
- The greatest amount of information reaches population via mass media and essential role is to co-operation of environment institutions and municipalities with mass media;
- In order to have this co-operation more effective, more resources shall be allocated to training of specialists working in environment institutions and municipalities and also to regular co-operation.

Some activities aimed at informing the society on the issues concerning climate change are implemented by the help of governmental structural units, by the help of social and non-governmental environmental organisation, as well as within the various programmes for co-operation. Majority of the respondents noted that so far such activities have been carried out within some campaigns that were mostly associated with promotion and implementation of new environmentally friendly technologies as well as popularisation of activities friendly to the environment. Respondents also indicated that there are several non-governmental representatives that cannot fully ensure the representation of social interests in formation of climate policy and social information. Statement that “majority of NGOs have not looked deeper into the climate policy aspects and none of the NGOs is informed on regular basis or invited to decision making process in government concerning climate policy” (Aistara, 2000) was supported by six respondents including representatives from NGOs, universities and state institutions. One opinion was expressed that one of the causes why NGOs do not solve climate issues is that climate change is a slow process and the impact can be noticeable only in long-term. However, according to the representatives on NGOs the topics represented by NGOs are mainly defined by priorities of investors and lately this issue has not been important.

In Latvia access to environmental information, including the information on activities causing Climate change, are ensured by means of mass communication (newspapers, magazines, TV, radio), Internet, non-governmental organisations and translation and distribution of IPCC informative materials, as well as advertisement activities within the project. Among them there are Vides filmu studija (Study of Environmental Films) and magazine “Environmental News” that publishes both explanatory and sensational information on global changes in climate, that are based mainly on studies carried out in other countries. In Internet there are homepages for the Ministry of Environmental Protection and Regional Development (<http://vidm.gov.lv>), Latvian Environmental Agency (<http://www.vdc.lv>), State Hydro-meteorological Agency (<http://www.meteo.lv>).

However the information about the changes in climate is submitted irregularly and is to be considered as insufficient (VARAM 2002). Academic staff from universities noted that there are very few scientifically grounded articles in mass media. As an essential deficiency was mentioned the fact that journalists do not possess the capacity to write on environment issues including climate issues. There is lack of intermediate between scientists and public, which would provide scientifically grounded information on Climate change to a particular group of population, including the government, in simple words. Academic staff and scientists believe that they lack motivation and sometimes also skill to write in popular and simple language. Positive example about education of population in understandable language is project "Causes and consequences of pollution: what I want to know and what I know about it" carried out within the framework of project by Green Library (GL) with the support from Danish Environment co-operation programme for Eastern Europe (DANCEE) and Regional Environment Centre for Central and Eastern Europe (REC) Latvian office. Within this project a website was created providing information on polluters in Latvia. In this website one can find information what sources of pollution can be located in different areas. The author believes that this is a good example how particular target group (Internet users) can be provided with information related to environment issues.

Five respondents indicated that one of the causes of society's poor information level on climate issues is the fact that there is no information programme of national scale on environment issues. The ministry of Environment employs only one press secretary, but employees responsible for the Convention are already too loaded to perform organised society information.

Capacity problems:

- There is no programme of national scale for society information about environmental issues;
- There are no powerful NGOs in Latvia which would actively participate in explanation of climate change issues and in formation of social cognition;
- Limited funding for NGO projects on topics related to climate change.

*IV-2.12. Capacity of Latvian experts in participation in international activities and convention work groups.*

The subchapter analyses experience and expertise of Latvian specialists. Respondents indicated the following competencies:

- Creation of structures for the implementation of Climate change convention; change of Soviet system to the corresponding structure for implementation of EU policy;
- Experience in JI implementation; project preparation and project management.
- Mathematical modelling;
- Studies of coastlines.

Respondents underlined that temporary participation of Latvian specialists in international projects may be supportable idea, because it provides opportunity to obtain experience and achieve better results afterwards working in Latvia. Meanwhile the respondents noted that the number of specialists involved in implementation of the Convention and the protocol is limited and specialists are difficult to replace. Another threat to successful implementation of the Convention is outflow of specialists abroad due to limited remuneration.

### IV-3. Interview questions in climate change thematic sector

#### Questionnaire

##### Questions for the first part of the research

1. Are laws, policies and other regulative operative mechanisms (in particular sector) effective, or whether there are overlapping, gaps etc.?
2. Is operation of Ministries, agencies and other state institutions good co-ordinated and mutually complementing?
3. What is the role and the contribution of research sector, social interest groups and industry sector?
4. What is the informative base, incl. databases, where are they, who can use them? Is the provided information appropriate? What are the main cons in this respect?
5. What projects concerning the Convention of climate change have been implemented? What are the results, what lessons learned? Have the capacity improvement projects been implemented there? What are their short term and long term influence?
6. Has inspection been done to current projects? How the State has evaluated the efficiency of current activities?
7. What are the technical specifications? Is that enough for an achievement of selected goals?
8. What is the level of understanding and awareness in government and society in this sector?
9. What human resources are available that deal with these issues, in which organisations?
10. What training and qualification improvement programmes are available, what they offer? Are individuals motivated to receive new knowledge and to their legal capability in particular sector? Do they have enough possibilities to do that?
11. Are there any contacts and exchange of experience among the individuals (on the level of specialists)? Are there any communication barriers among the institutions?
12. What financial resources are available on the governmental level for particular sector in order to implement the necessary plans?
13. Is there any capacity that is used too little or not at all? Are there any threads that the capacity could disappear?
14. Are capacity development efforts supported on current or future legislative level or on the level of institutional operations? Does the legal capability created in the past have shown sustainability?
15. Who possesses the information and expertise useful for this research?

## ANNEX V

### Measures and political instruments for implementation of Convention<sup>1</sup> on climate change

#### V-1 Summary of activities and political measures of energy (power) sector

Measures	Aim	Impact on GEG	Type of the measure	Status	Implementing body	Estimated decrease in GEG emissions, Gg equivalency of CO <sub>2</sub>		
						1995	2000	2005
<b>Energy production and management (1A1)</b>								
<i>Policy: To use the renewable energy resources in the sector of the energy production and management</i>								
Wider usage of the wood power for production of the centralized thermal energy	To increase the balance of consumption of wood for production of centralized thermal energy	CO <sub>2</sub>	Economic, Socio-economical	M	Municipalities	NE	NE	NE
Reconstruction of Small Water Power plants	To increase the proportion of use of the renewable power resources in the overall power resource balance	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic	M	Enterprises	NE	NE	NE
Use of the wind energy	To increase the proportion of use of the renewable power resources in the overall power resource balance	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Socio-economical	M	Enterprises	NE	NE	NE
Use of bio-diesel for internal combustion engines of small capacity cogeneration plants (and/or transportation)	The organization of bio-diesel production for diesel engines of 40% from the all diesel used in agriculture	CO <sub>2</sub> , CO, SO <sub>2</sub>	Socio-economical	M	Enterprises	NI	NI	+3,9*
<i>Policy: To increase the efficiency of the power production and management sectors</i>								
Wider usage of	Effective usage of the fuel	CO <sub>2</sub>	Economic	M	Municipalities	NE	NE	NE

<sup>1</sup> Issued in the third National report in framework of UNO General Convention of Climate change. State Non-profit SIA "Vides projekti" Ltd. Ministry of Environment 2002.

cogeneration	by producing heat and electricity at the same time		al, Socio-economica l		es or enterprises			
Rehabilitation project of district heating in Riga	Project No 1 – Installation of environmentally friendly power supply technologies in the local steam-shops Project No 2 – to increase the power supply efficiency of the Riga heat supply system	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic al	M	Municipalities	NI	NE	NE
Crediting Fond Projects for municipalities	To improve the work of the heat supply systems, as well as the aim of some projects is to attain efficient heat insulation of buildings and a radical decrease of power loss	CO <sub>2</sub>	Economic al, Socio-economica l	I	Municipalities	NI	-22,9	-22,9
<b>Manufacturing industry and building (1A2)</b>								
<i>Policy: To increase the efficiency of usage of the power resources in manufacturing industry</i>								
Increase of the power efficiency in Latvian dairy enterprises	To evaluate the measures for increasing the power efficiency in food-processing industry	CO <sub>2</sub> , N <sub>2</sub> O	Economic al	M	Enterprises	NI	-0,4	-2,2
Increase of the power efficiency in Latvian bread-baking plants	Increase of the competitiveness of the bread –baking plants by decreasing of the power-intensity per production unit	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic al	M	Enterprises	NI	NE	NE
<i>Policy: To increase the efficiency of the power usage in building</i>								
Program for improving the heat efficiency in buildings	To acknowledge the overall heat enduring situation of buildings in the state, to provide information on efficiency and possibilities of heat insulation of buildings, as well as on the necessary measures for optimization of the situation	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Informativ e, explorativ e, educationa l	P	Ministry of Environment of the Republic of Latvia , Building dep., Energy dep. of the Ministry of Economics	NI	NI	NE

					and others			
Decrease of the heat loss in buildings. Project No 1 Project of Development of educational system	To begin significant changes in educational sector by increasing the efficiency of costs in education institutions	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic al	M	Ministry of Education and Municipalities	NI	-186,6	NE
<u>Project No 2</u> Demonstration projects of SCORE of 1997-1998	Solving of power economy problems in the level of consumers	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic al, informative	I	Owners of houses	NI	NE	NE
<u>Project No 3</u> Demonstration of the power energy improving projects implemented by the Swedish government in framework of the STEM program	To demonstrate the possibilities for increasing the power efficiency in public buildings in Latvia	CO <sub>2</sub>	Economic al	I	Municipalities	NI	-0,36	-0,36
<u>Project No 4</u> Pilot projects “Power-efficiency in Latvia” of the PSO program	The increase of the power efficiency in buildings, as well as decrease of the environmentally harmful emissions by decreasing of power consumption	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub> , CO	Economic al	I	Municipalities	NI	NE	NE
<b>Transportation sector (1A3)</b>								
<i>Policy: To limit the use of cars in cities</i>								
Improving of the public transportation system	To provide passengers with comfortable, safe and integrated public transportation system	CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub>	Informative, socio-economic al	M	Board of Riga	NI	NE	NE
Development of bicycle transport	To include bicycle transports in the united Riga transportation system	CO, CO <sub>2</sub> , N <sub>2</sub> O, NO <sub>x</sub>	Economic al, informative	M	Board of Riga	NI	NE	NE
<i>Policy: To implement technological measures to decrease the greenhouse gas emissions</i>								

Usage of bio-fuel for road transports	To develop the production of bio-fuel in Latvia thus improving the situation in agriculture, as well as ecological situation in Latvia	CO, NMG OS, NO <sub>x</sub>	Economic, socio-economic	P	Enterprises	NI	NI	NE
<i>Policy: Tight control of technical condition of transportation means</i>								
Building of the stations for roadworthiness tests	To improve the quality of the roadworthiness test quality	CO <sub>2</sub> , CO, NO <sub>x</sub>	Economic	M	RTSD	NI	NE	NE
Introducing of demand for attestation of new car types	To improve the technical condition of cars by raising demands for new cars	NO <sub>x</sub>	Economic	M	RTSD	NI	NE	NE
<i>Policy: Forming of environmentally friendly transportation system</i>								
Forming of environmentally friendly transportation system	To form a systematic, environmentally friendly transportation system by balancing the availability of transport and with economical and social development with environmental possibilities and endurance	NO <sub>x</sub> , CO un NMG OS	Socio-economic	M	Ministry of Transport and the subordinated institutions	NI	NE	NE
<b>Leakage of fuel volatile substances (1B2b)</b>								
Decrease of leakage of fuel volatile substances from oil products storing	The aim is to set a procedure of installation of vapor collection and processing equipments for all oil depots located in Latvia	NMG OS	Economic, legislative	M	Owners of the Oil depots	NI	NE	NE
Decrease of the natural gases leakage from the pipeline system	The aim of Stock company "Latvijas Gaze" is to continue modernization and reconstruction process of the gas supply system, thus reducing the emissions of methane in the environment	CH <sub>4</sub>	Economic	M	Stock company "Latvijas Gaze"	NI	NE	NE
<b>International measures</b>								
Project "Effective usage"	To improve the power efficiency in institutions	CO <sub>2</sub> , N <sub>2</sub> O,	Economic	I	Danish and Latvian	NI	NE	NE

of power in Latvian institutions” supported by Danish Environment and power sector program	and to decrease the impact on the environment on a local, regional and global scale	CO, NO <sub>x</sub>	informativ e		specialists			
Usage of the economically profitable wood remainders for the heating systems of municipalities of the republic of Latvia	To develop the potential development of Ludza municipality and to continue initiating of similar projects in Latvia	CO <sub>2</sub>	Economic al, informativ e	M	“Essent” and “Vides projekti”	NI	NI	-12
Program of Effective lighting	To decrease the lighting impact on Climate change by modifying an up-to-date lighting technology market in Latvia	CO <sub>2</sub>	Economic al, socio-economica l	M	DPC, Ekodoma	NI	NI	-4,6

Explanations:

I – Implemented, M - mounted, P - planned

NE – The impact of the measure is not estimated

NI – The measure has no impact

\* The increase of Greenhouse gas emissions is explicable with the situation that the carbon does not accrue in the soil due to the intensive agrarian activities

V-2 Summary of activities and political measures of industrial processes

Measures	Aim	Impact on the GEG	Type of the measure	Status	Implementing body	Estimated decrease in GEG, Gg equivalency of CO <sub>2</sub>		
						1995	2000	2005
<b>Chemical industry (2B)</b>								
<i>Policy: Implementation of Environmental management system (EMS) and cleaner production (CP) according to the ISO 14001 requirements</i>								
Implementation of EMS and CP in Latvian	To integrate the EMS with other management systems (like quality,	CO <sub>2</sub> , N <sub>2</sub> O, CH <sub>4</sub>	Voluntary, economic	I	Authority of enterpris	NI	NE	NE

pharmaceutical industry	working safety and health protection systems)		cal, informative		e			
Implementation of EMS and CP in Latvian chemical industry	To integrate the EMS 4-6 in the Latvian chemical enterprises, as well as to attain that at least one of these enterprises obtains the ISO 14001 certificate or get registered in the EMAS		Voluntary, economical, informative	P	Authority of enterprise	NI	NI	NE

Explanations:

I – Implemented, M – mounted, P – planned  
 NE – The impact of the measure is not estimated  
 NI – The measure has no impact

V-3 Summary of activities and political measures of agriculture sector

Measures	Aim	Impact on the GEG	Type of the measure	Status	Implementing body	Estimated decrease in GEG, Gg equivalency of CO <sub>2</sub>		
						1995	2000	2005
<b>Agriculture (4)</b>								
Rural development program	To increase the productiveness of dairy cows and pig herds and partly to increase the revenue of cultivators of cropper and vegetables, to favor rational usage of the weather-protected areas, to compensate the rise in prices for power usage in weather-protected areas and to ensure the demand for locally grew vegetables in Latvia	CH <sub>4</sub> , N <sub>2</sub> O	Economical	M	State institutions, self-government org., producers of the agricultural products	NI	NE	NE
The SAPARD rural development program	To enforce a body of laws ( <i>acquis communautaire</i> ) on agriculture, as well as to form a competitive and	CH <sub>4</sub> , N <sub>2</sub> O, CO <sub>2</sub>	Economical	P	RSS and producers of the agriculture	NE	NE	NE

	sustainable agriculture, well developed and sustainable rural areas, sustainable rural environment of good diversity				ral products			
Good agricultural practice	To decrease the negative impact of economic activities to the environment, as well as to observe the enforced rules in the European and other developed countries	N <sub>2</sub> O	Voluntary	M	Producers of the agricultural products	NI	NE	NE
Processing of waste of animal origin	To build a high and low risk animal origin waste recovery enterprise	CO <sub>2</sub>	Regulatory, Economical	P	Not known	NE	NE	NE

Explanations:

I – Implemented, M - mounted, P - planned  
 NE – The impact of the measure is not estimated  
 NI – The measure has no impact

V-4 Summary of activities and political measures of land use and forestry sector

Measures	Aim	Impact on the GEG	Type of the measure	Status	Implementing body	Estimated decrease in GEG emissions, Gg equivalency of CO <sub>2</sub>		
						1995	2000	2005
<b>Forest stand range changes (5A)</b>								
<i>Policy: Sustainable management of forests and forestry lands</i>								
Determined afforesting of unutilized agricultural land	To foster a rational use of unutilized land for agricultural or other purposes thus increasing the areas covered with the wood	CO <sub>2</sub>	Voluntary	U	Owners and holders of land	NI	+2,7*	-7,8
Increasing of forest stands productivity	To increase the forest stands productivity	CO <sub>2</sub>	Economical, legislative	U	Owners and legal managers of land	NI	NA	NA

Explanations:

I – Implemented, M - mounted, P - planned  
 NE – The impact of the measure is not estimated  
 NI – The measure has no impact

\* Decrease of CO<sub>2</sub> conjunction in 2000 is explainable with the situation that there is no natural afforesting of the unutilized land in agriculture, but a determined afforesting has just began

*V-5 Summary of activities and political measures of waste management sector*

Measures	Aim	Impact on the GEG	Type of the measure	Status	Implementing body	Estimated decrease in GEG emissions, Gg equivalency of CO <sub>2</sub>		
						1995	2000	2005
<b>Solid waist dumps (6A)</b>								
<i>Policy: Decrease of the waist quantity at the dumps</i>								
Waist treatment	To decrease the waist quantity at the dumps	CH <sub>4</sub>	Economical	M	Enterprises	NE	NE	NE
Production of bio-gases <u>Project No 1</u> Modernization project of Riga waist deposit area "Getlini"	To obtain a bio-gas that would be used for generation of electricity	CH <sub>4</sub>	Economical	M	"Getlini-Eko" Ltd.	NI	NI	- 268,4
<u>Project No 2</u> Waist treatment project in Liepaja	To develop an up-to date waist treatment system that would correspond to contemporary requirements, as well as to use the obtained bio-gases for generation of electricity	CH <sub>4</sub>	Economical	M	"Liepajas RAS" Ltd.	NI	NI	- 35,57

Explanations:

I – Implemented, M - mounted, P - planned  
 NE – The impact of the measure is not estimated  
 NI – The measure has no impact