



Green Liberty

Background report:

**Current status and recent changes in
consumption and production patterns in
Latvia**

Riga, 2004

Introduction

This Background report has been prepared for the Baltic Sub-regional Workshop on Sustainable Consumption and Production, which took place in Vilnius, Lithuania on 17. – 18. June 2004. It gives the brief overview on the trends and situation with consumption and production patterns in Latvia and describes the policies introduced over the last years to facilitate development of sustainable consumption and production patterns.

All the data published in this report are compiled from official governmental publications on economics, sustainable development and environmental protection. This report has been jointly prepared by Janis Brizga (Green Liberty), Jānis Bruņenieks, Inga Belmane (Latvian Pollution Prevention Center), Rudīte Vesere and Ieva Bruņeniece (Ministry of Environment, Republic of Latvia).

In the first chapter of the report you can get the overall information on social – economical situation and developments in Latvia. Second chapter describes environmental situation, particularly focussing on air, water and soil quality. Third chapter gives overview on consumption and development levels and patterns in different economic sectors. In the last chapter a brief description of the policy instruments used in shaping sustainable consumption and production patterns is given.

Abbreviations

CP	Cleaner Production
CSDD	Road Traffic Safety Inspectorate
CSP	Central Statistics Bureau
EFEA	Environmentally friendly entrepreneurial activity
EMAS	Environment management and audit schemes
EMS	Environmental management systems
EU	European Union
FSC	Forest Stewardship Council
GDP	Gross domestic product
GHG	Greenhouse gases
ISO	International Standardization Organization
OHSAS	Occupational Health and Safety Management
NEFCO	Nordic Environmental Finance Corporation
NGO	Non-governmental organization
NRT	Natural resource tax
PEFC	Pan European Forest Certification
PPS	Purchasing power standards
VOC	Volatile organic compounds
UNEP	United Nations Environmental Programme

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Executive summary

This Background report has been prepared for the Baltic Sub-regional Workshop on Sustainable Consumption and Production, Vilnius, Lithuania, 17. – 18. June 2004. It gives the brief overview on the trends and situation with consumption and production patterns in Latvia and describes the policies introduced over the last years to facilitate development of sustainable consumption and production patterns. All the data published in this report are compiled from official governmental publications on economics, sustainable development and environmental protection.

First it describes the socio–economical status and changes in Latvia for the last 10 years. This shows that the population in Latvia is decreasing and aging, unemployment, especially outside Riga, and regional disparities are increasing, but in the same time GDP is experiencing annual and stable growth. Purchasing power and consumption level is increasing on average by 5% every year, but the polarisation of population according to income is also increases.

Second chapter looks at the environmental situation and trends. Here data show that pollution levels in air and water are generally decreasing. Also consumption of energy and natural resources compared to 90-ies has decreased. For example, water consumption over the last 10 years has dropt significantly – from 600 million m³ to 298 million m³, similar situation is with extraction of natural resources. But the amounts of waste and hazardous waste generated are annually increasing on average by 5%. However the resent date for the last years shows that the situation is changing and the pollution levels are staring to increase again.

Third chapter focuses on consumption and production trends in the main economic sectors: industry, transport, agriculture, forestry, tourism and fisheries sectors and household consumption. Some sectors show trends in dematerialization (ag agriculture, industry) while the others like forestry and fisheries are indicating depletion of natural resources. Transport sector shows significant shift from public to privet transport and decrease in train traffic.

Last chapter looks at the policy instruments used to encourage sustainable consumption and production patterns. Legal instruments, such as *Strategy for Sustainable Development*, *National Environmental Policy Plan*, *Law on Environmental Protection*, and voluntary (environmental management systems and cleaner production) and economic instruments (eg an excise tax on oil products, natural resource taxes, eco-design) are used in Latvia for sustainable consumption and production. Here also the activities done by NGOs in relation to consumer education and eco–labelling are described. However there is no overall framework for working with the consumption and production patterns in the country.

There are several problems identified in the report. One of the most actual is the resent increase in the levels of emissions, where increasing transport is one of the main cause for that. That is mostly because of week governmental policies and luck of municipal incentives to develop public transport system which increases the share of private transport. Also growing fright traffic leads to increasing CO₂ emissions and pollution. Then also the ecological footprint is increasing annually and now reaches for 4.4 ha. And the amounts of waste generated and very poor recycling system are part of the main trends in unsustainable consumption and production patterns in Latvia.

Social – economical status and changes

General information

Latvia is situated in north-eastern Europe on the east coast of the Baltic Sea. Its coastline is 494 km. Latvia has borders with Estonia, Russia, Byelorussia and Lithuania. Its territory is 64 589 km² of which 62 046 km² is land, 2 543 km² internal waters (agricultural land – 38.5%, forests – 45%, lakes and rivers – 3.7%, other – 12.8%). 8.7% of Latvia's territory has been classified as specially protected areas. The Population of Latvia is 2,346,000 and density - 37 people per km². 70.8% of people live in urban areas and 29.2% in rural areas.

Population

Since the regaining of independence, the dynamics of Latvia's population has a distinct downward trend. The rate of decrease of population (0.6%-1% per year) was and is one of highest in the world. Of the 43 states of the Council of Europe, in recent years a more rapid decrease in population has been observed only in Georgia and the Ukraine. The main cause is the low level of marriages and births, which with the given level of deaths ensures a generation change only to the amount of 53-59%. Moreover, the State has a somewhat high level of ageing population. Similarly, the emigration process of inhabitants continues. Another reason is the dominance of emigration in the course of migration processes

A characteristic feature of Latvia is that the population of cities during the years of independence has decreased more rapidly than in rural areas. In the period from 1989 to 2000 (between censuses), the population in cities has decreased by 270,000 people or 14.3%, but in rural areas – relatively by 19,000 people or 2.4%. This trend has been preserved also for the last three years. This can be explained by the emigration of non-Latvians from Latvia, mainly from the largest cities, as well as a much higher birth rate in populated rural areas in comparison with the capital city of Riga and other large cities. The decrease in the rural population was also retarded in first half of the 1990s by former city dwellers that had regained their property in rural areas. On the basis of the proportion of city dwellers (67.9% in 2002), Latvia is in middle range of EU candidate-states. Nearly one million or 40% of the total population (including Riga – about 750,000 people) live in Riga region. However, the proportion of the population of the City of Riga has decreased a little (from 34.2% in 1989 to 31.9% in 2002).

Since the second half of the 1990s a trend has appeared for the mortality intensity to decrease. As a result the average expected life span in 2001 was 65.2 years for males and 76.6 years for females, which is noticeably more than 5-6 years previously. However, these indicators are one of the lowest in Europe.

The economically active population in the country has decreased since 1997 and in 2001 was 1106.8 thousand or 96.2 thousand less than in 1996. In addition, the number of those employed was 79.4% of the total number of economically active population, but in 2001 it was 87%.

Education

Programmes of the three sectors of education – initial vocational education and training, higher education and continuing education, as well as provision and quality of education in regions play an equal role in human resource development and labour force training in Latvia. In 2002 there were 1,066 comprehensive schools of varying type and 126 professional education institutions, where in total 399,600 students study. There were 367 institutions dealing with adult education and offering 5,101 programmes, where 204,856 persons were enrolled. Also, almost 200 non-governmental organisations and 26 regional adult education centres in Latvia are active in the environmental education sector.

Due to both inertia and lack of investments, the higher education currently can be characterised by its inadequate response to the needs of national economy. Though there is a positive tendency that the number of people willing to study in higher education institutions is increasing¹, there is still inadequate structure of educational / study programmes (lack of modules), as well as outdated teaching and research infrastructure that impedes training and further development of highly skilled labour force in science and technology intensive sectors, which are essential for development of the national economy.

¹ The number of students has increased twice during the last 5 years, reaching 110 500 students in the academic year 2001/2002.

Division of students that acquire higher education between different thematic clusters and study programmes has not changed considerably during the recent 2-3 years. In the academic year 2001/2002 every second student studied social sciences. In the last two years the most radical decrease has occurred in engineering sciences and technology – from 20.5% in 1997/1998 to 10.2% in 2001/2002. 75% of the total number of students in social sciences are women (among those, who acquire diploma – 81%). The overall proportion of women among students is 61%. Ratio of students of engineering sciences and technology per 1000 inhabitants of the age group 20-29 in Latvia falls below the average indicator in the EU (10%) – only 7 % study in these branches; 35% of the total number of students in engineering sciences and technology are women (in the year 2000). It means that in Latvia there is a deficit of highly trained and skilled manpower in science and technology consuming branches, and it continues to increase.

Employment

Economic growth of the state has left a positive impact on employment and unemployment indicators, which are proved by statistics. The rate of employment in 2002 has gone up by 1.7 percentage points in comparison with the preceding year and for the first time in the last decade has exceeded 60%. Rate of employment continued growing also in 2003 (63% in the 3 quarter). In recent years increases in the number of employed persons have been observed primarily in the sectors of forestry, construction, transport and communications. Compared with the corresponding period of 2002, a rise in employment in the 3 quarter of 2003 could be observed in industry, energy and construction.

The rate of job seekers to the economically active population rose during the year from 10.6% (in the 3 quarter of 2002) to 11% (in the 3 quarter of 2003). In 2003, according to Central Statistics Bureau (CSP) data, the average registered unemployment rate in Latvia was 8.5 %.

The picture regarding the employment rate is markedly different in various regions of Latvia. Unemployment stays high in rural areas, especially Latgale region (Rēzekne district - 28.1%). Much better situation is in Riga (unemployment rate – 4.4%), Riga district (5.4%), Saldus district (5.7%), Tukums district (6.1%) and some other districts.

The majority of all unemployed are representatives of simple, low-skill professions; they amount to 24.8 thousand persons or 27.6% of total unemployed. Lowest employment rate is that among people with the highest education.

Table 1. Basic Indicators of Registered Unemployment

	1996	2000	2001	2002	9 months of 2003
Unemployed persons (end of period, thousand persons)	90.8	93.3	91.6	89.7	89.8
Long-term unemployed/total unemployed, %	31.2	29.0	26.6	26.4	26.7
Unemployed women/total unemployed, %	54.7	57.6	57.4	58.7	59.1
Unemployed young persons (15-24 years old)/ total unemployed, %	20.0	14.7	14.6	13.9	13.5
Pre-pension age unemployed ² /total unemployed, %	11.3	14.7	15.3	16.5	17.6

¹ Data of State Employment Service

² Women from 50, men from 55 till the pension age, according to the law “On State Pensions”.

The share of people looking for jobs for more than a year is relatively high – 45%. The main causes of long-term unemployment are education that fails to meet the requirements of the current labour market and outdated work skills or a lack of work experience.

GDP

Recent years have witnessed rapid economic growth. Average GDP growth rate over the period of 1996-2002 amounted to 5.8% at constant prices. In 2000 the GDP increased by 6.8%, in 2001 – by 7.7%, in 2002 - by 6.1% and results of the three quarters of 2003 show that the increase per year might be as high as 7.5% (GDP growth in January-September was 7.4%). In 2000, the GDP in Latvia per capita expressed in purchase power parity was USD 7045 according to which Latvia takes the 66th place among 173 states. Current GDP volume in Latvia is 33% of average level of EU states (lowest among EU new member states).

The growth of the previous three years was ensured by favourable external demand and increasing internal demand, in particular, the rapid increase of investments. The private consumption volume has a stable increase as well. Industry and services had good increase rates. However, the greatest contribution to the growth of GDP was provided by the development of service sectors. It is estimated that in 2003 economic growth in Latvia has been 7.5%².

Compared with 1995 significant changes took place in the structure of the national economy – a proportion of service sectors has increased to a great extent (from 56.5% in 1995 to 70.4% in 2001) due to rapid development of such sectors as trade, financial intermediation and different commercial services; the proportion of agriculture and industry has decreased.

During this time period GDP growth was ensured by increase of productivity, because there has been a reduction in the number of those employed. However, in total compared with other EU candidate states the productivity of national economy in Latvia is one of the lowest.

Changes in income and expenditure

Income of people, both nominal and real, and consumption levels are going up in parallel with the general economic growth. According to data from Central Statistics Bureau, average net household income during last year has increased by 9.9%. With inflation taken into account, the real income of employees in this period rose by 6.8%.

One of the reasons for the increase in the average wage is the annual raising of the minimum wage by 10 LVL³. However there are no substantial changes in the average size of monthly old-age pensions paid in the 3 quarter of 2003 to pensioners registered in the social security institutions. The increase in comparison with the 3-quarter of 2002 is 3.2%.

There are significant differences in income depending on gender. Considering differences of wage in economic sectors it is obvious that, for example, in financial intermediation sector where the general reimbursement is the highest, the difference is also the largest and it is increasing rapidly (in 1995, reimbursement of men in financial intermediation sector was LVL 179, but reimbursement of women – LVL 126, in 2001 – LVL 539 and LVL 314 respectively). A similar, but not so contrasted situation may be observed examining operations with real estate which is one of the highest paid sectors at present.

As the growth of income has exceeded the growth of inflation since 1999, on the whole it can be stated that the purchasing power standard of inhabitants has increased. Private consumption was favourably influenced also by the possibility for private persons to receive loans and credits at low interest rates for the purchase and repair of dwellings. In parallel with better terms of crediting, investment growth was also noteworthy.

Income distribution

The Gini coefficient is an internationally recognised indicator, which characterises inequality and differentiation process in society indicating the equality of material benefit distribution among members of the public. This indicator varies from 0 to 1. If the Gini coefficient is closer to 0, members of the public are more equal, and vice versa.

Continuous increase of the Gini coefficient in Latvia since 1996 indicates that the polarisation of population according to income increases. Radical differentiation of society hinders smooth development of society and steady formation of the middle class thereby causing serious threats to sustainable development of Latvia. Results of household budget surveys indicate that average growth of household income occurs on the account of the highest income quintile households, because in 2000 compared with 1999 in the first quintile households income has decreased by LVL 1.49 or 5.9%. As the result of polarisation of public income the rich become more prosperous, but the poor – even poorer. The confirmation thereto is the increase of the Gini coefficient to 0.34 in 2000.

Differences of the Gini coefficient in rural areas of Latvia indicate the different development levels of rural and urban areas, and regions of Latvia. A particularly significant increase is in rural areas, that is, differentiation of population there proceeded faster than in urban areas. The comparatively low value of the Gini coefficient in Latgale

² Dienas Bizness, 15/06/2004

³ Since January 1, 2004 the minimum wage in the country is fixed at 80 LVL.

indicates that an income level of various groups of population least differs in this region, and that may be explained by common development level and growth rate of the region.

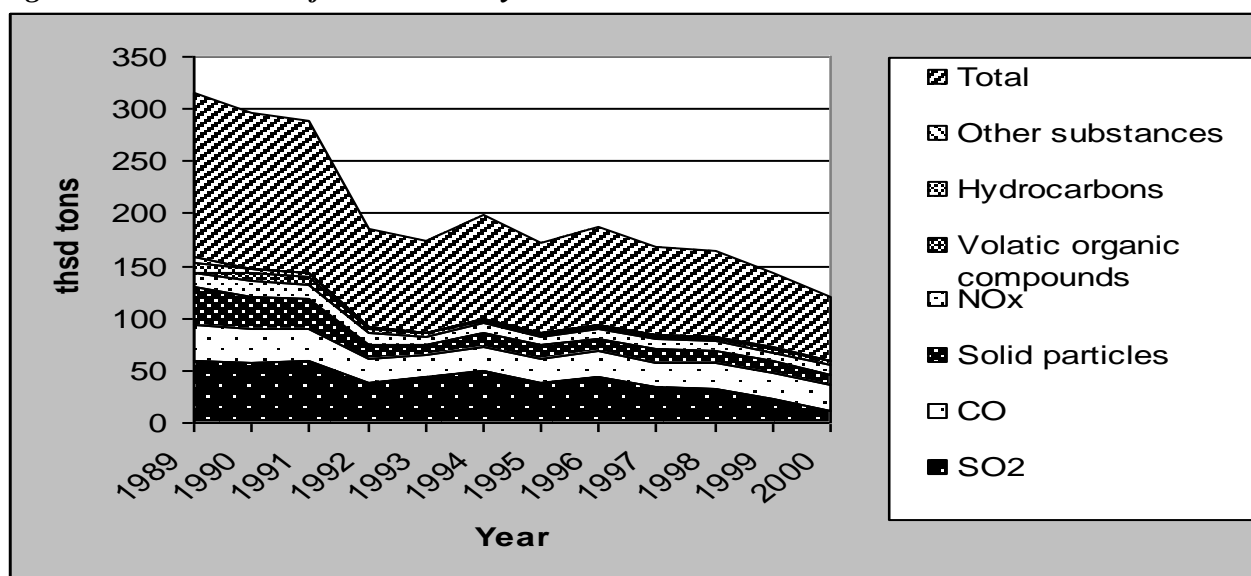
Environmental status and changes

Air

Air quality in Latvia is affected by stationary and mobile emitters of polluting substances as well as transboundary flow of air pollution which can be compared in terms of volume to pollution originating in the territory of Latvia. Reduced volumes of industrial production and measures taken to raise energy efficiency have significantly reduced air pollution from stationary sources. In the meantime, as the number of transport vehicles and traffic increases, so do the volumes of emitted substances, in particular emission volumes of nitric oxide, since cars made in the 1980s and 1990s without exhaust purification systems predominate among vehicles registered in Latvia.

Air quality measurements are carried out in eight Latvian cities: Riga, Liepāja, Daugavpils, Ventspils, Rēzekne, Jelgava, Olaine, Valmiera and a borderline district in which air quality is affected by Mazeikiai. Important information within the air quality assessment framework is also provided by air monitoring stations for continuous measurements owned by Riga and Ventspils municipalities. Additional observations are also made by positioning diffuse sample analysers in eighteen Latvian cities to measure levels of sulphur and nitric oxide in the air.

Figure 1. Air emissions from stationary sources



Source: Latvian Environment Agency

The results of observations for the period from 1998 to 2002 show that:

- no cases have been found at any observation station where levels of sulphur dioxide would exceed regulatory indices for the protection of human health and ecosystems;
- levels of nitric dioxide as found in the central area of Riga exceed the limit value for human health protection of $40 \mu\text{g}/\text{m}^3$, which will become effective in 2010 pursuant to Cabinet regulations. The highest levels of nitric dioxide in the central area of Riga are found from 10:00 am to 08:00 pm, while in the district of Ķengarags these levels peak during morning and evening hours, which serves as proof of the impact caused by intensive road traffic;
- levels of air-ground ozone have been regularly found to exceed the eight- hour limit value for human health protection;
- in the central area of Riga, levels of solid particles less than 10 microns (PM_{10}) exceed both the average annual concentration, taking into account permissible excess values, and the annual average concentration for human health protection. Cases where pollution levels are exceeded are also found in other Latvian cities (street sanding in the winter period is one of the causes for higher levels of dust in the air during spring months);
- in Riga, the average annual level of benzene exceeds the limit value for human health protection;
- levels of lead compounds and carbonic oxide which exceed air quality standards have been found rarely.
- pollution by tropospheric ozone in the territory of Latvia is largely related to transboundary flow of pollution.

The situation with air is also affected by the quality of used fuel. Quality standards for petrol and diesel should comply with EU standards, but control of fuel quality is still insufficient. The use of fuel oil (black oil) as fuel in combustion units has been reduced significantly by using other types of environmentally friendly fuel instead. Black oil with high content of sulphur (over 1%) is still used in Latvia, however.

Latvia has adopted EU requirements for control of volatile organic compounds in filling stations and oil bases and activities involving the use of organic solvents. These requirements will be implemented in Latvia in accordance with the established transition periods.

Latvia is party to the Vienna Convention and the Montreal Protocol. Nevertheless ozone-depleting substances are still used in refrigerating equipment (Freon-22), laboratories (tetrachlorcarbon), production of medicine, grain processing, cargo processing before dispatch and for quarantine purposes (methylbromide). In Latvia it is planned to phase out the use of ozone depleting substances in accordance with the timetables established by the Montreal Protocol and regulations of the European Union.

Water

3.7% of the territory of the Latvia is covered by surface waters consisting of more than 12 000 rivers and streams (including nearly eight hundred rivers with length exceeding 10 km), more than 3 000 lakes and artificial watercourses (including approximately 900 with length exceeding 10 ha). 44% of the cumulative annual flow in rivers (approximately 34.7 km²) originate in the Latvian, rest in the neighbouring Lithuania, Byelorussia and Russia carrying with it pollution caused by national economies of these countries.

Naturally available resources of underground freshwater are approximately 1.4 million m³ per day which is 4 times higher than the current overall output of underground water for water supply needs and 1.5 times higher than the maximum output of water in Latvia (868 m³ per day in 1989). Although natural freshwater renewal rates exceed the output, problems exist because of the irregular location of resources and consumers in the territory. Artesian waters are usually used for central water supply, while groundwater is used in farmsteads and small settlements. In Riga water infiltrated artificially from the Baltezers Lake and water of the Daugava River taken from the Riga hydroelectric station and processed at the Daugava purification plant is also used.

Water consumption since 1990 in Latvia has dropped significantly: from approximately 600 million m³ to 298 million m³, including a drop in the use of surface waters by 55% and of underground waters by 45%. During the period from 1991 to 2000 water consumption per year for household needs dropped from 200 million m³ to 80 million m³; in industry, water consumption per year dropped from 225 million m³ to 75 million m³ while the drop in agriculture was from 150 million m³ to 50 million m³ per year. Losses in distribution networks exceed 30 million m³ per year. According to calculations, at the current rate of economic activity the optimum water consumption could be drawing close to 400 million m³ per year.

The jurisdictional waters of Latvia include territorial waters of the Baltic Sea 12 nautical miles in width, an economical zone stretching beyond the borders of territorial waters and a continental shelf with the total Latvian marine territory measuring at approximately 28,000 km². As ship traffic increases in the Baltic Sea, leakage and discharge of hazardous substances from ships, the risk of shipwrecking, spreading of foreign species brought in by ship ballast waters and the use of hull paints against marine growth which contain toxic compounds have all become topical issues. In recent years ship waste collection sites have been opened in Latvian ports and equipment installed for the liquidation of pollution by oil and hazardous substances.

According to the 1998-2000 studies of water biological quality, 66% of rivers are rated as containing low pollution levels and 21% of rivers are clean or contain low pollution levels while approximately 90% of lakes are subject to the processes of anthropogenic eutrophication. The influence of biogenic elements nitrogen and phosphorus on waters is seen both in inland waters and in the sea.

Leakage of nitric and phosphoric compounds with urban sewage, leakage from agricultural point sources of pollution in connection with storage of fertilizers and pesticides, and the volume of diffuse pollution from agricultural land has dropped sharply in the 1990s. The volume of heavy metal compounds in industrial sewage has diminished considerably.

Hydro geological conditions in nearly all the territory of Latvia do not provide sufficient preconditions for the protection of groundwater; therefore the use of wells of little depth is only permissible in rural areas. Artesian waters are protected to a much larger extent and may be used for centralised water supply.

Underground water pollution has been found in separate places, however, e.g. near the sulphuric acid tar dump site in Inčukalns, liquid industrial dump site in Olaine, near oil bases, in the territory of military aerodromes of the former USSR in Rumbula and Lielvārde, as well as in the territory of the Riga Port and Liepāja Naval Port. Improvement works have been partially carried out in a majority of these objects to prevent the pollution from further spreading.

Transboundary pollution in the Daugava River originates in Byelorussia and Russia, while the transboundary pollution in the rivers of Venta and Lielupe originates in Lithuania. In 2000 transboundary pollution accounted for 73% of nitrogen discharge into the sea from the Daugava River basin, 56% from the Lielupe River basin and 90 per cent from the Venta River basin.

Soil and use of resources

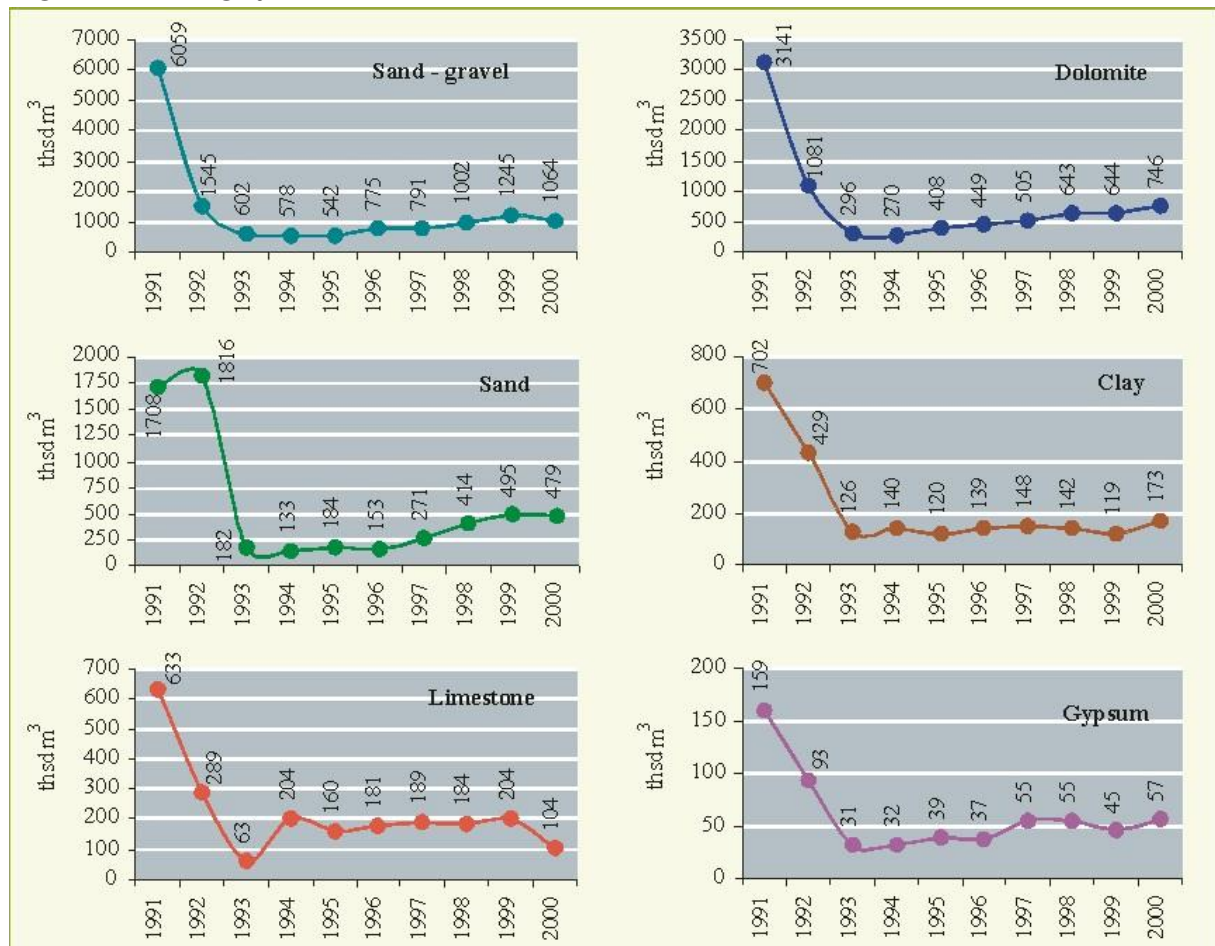
Mineral waters are present throughout Latvian territory. Depending on their chemical composition and subterranean depth, mineral waters may be conditionally divided in three major groups: 1) sulphuric mineral water fields with a higher content of hydrogen sulphide (in Ķemeri, Baldone); 2) Middle Devonian Parnu Horizon and Late Devonian Ķemeri Horizon saltish waters of the chloride-sodium type; 3) Cambrian Horizon salt water of the chloride – sodium type containing over 35 g per litre minerals, and a higher content of bromine (up to 500 mg per litre).

Table waters are mainly used (1-3 g per litre minerals). Levels of production and use of other types of mineral waters are insignificant, although they are present in large quantities. Mineral waters is one of the factors that promotes tourism and development of health resorts, and their use must be extended, with particular attention paid to the rational use of the unique mineral water resources in Ķemeri and Baldone.

Latvia is not rich in energy resources, therefore the prospects of using subterranean heat are of particular interest. Higher temperatures in Cambrian deposits have been found near Eleja and Liepāja. The total volume of geothermal resources is approximately 5.8×10 .

Most significant deposits are rock gypsum, limestone, dolomite, clay, quartz sand, gravel, sand, boulders and sapropel. Rock gypsum is one of the most valuable subterranean resources. It's been supplied by Latvia to all the Baltic Countries. Dolomite, a widespread mineral deposit, is found in the central and eastern parts of the country.

Figure 2. Mining of construction raw materials in Latvia, 1991-2000



Source: State Geological Survey

Peat has great economic significance in agriculture and production of energy. Marshes cover approximately 10% of the state territory; the largest marshes are found in lowland areas. The total quantity of peat amounts to 1.7 billion tons; for several reasons a significant portion of the peat is unusable, however. In recent years peat has also become an important export article.

Sapropel is found in the majority of lakes in Latvia. The total quantity of sapropel amounts to approximately one billion cu. m. Sapropel has many applications, starting from soil fertilisation to fodder additives and medicine. The largest quantities of sapropel are found in the Latgale Region.

Potential oil deposits are situated in the western part of the country and the Baltic Sea shelf adjoining it, except for the Irbe Strait. These deposits are mainly related to Cambrian sandstone and alerolites lying within the depth of 650 to 1,900 metres. A considerable number of local elevations have been found in the Latvian shelf, of which many have been recognised as prospective oil fields. In each of these sites the estimated quantity of oil varies from one to several tens of millions of tons of oil. A small oil field containing approximately 770 thousand tons has discovered near Kuldīga recently.

Geological conditions in Latvia are favourable for underground gas storage facilities. Several additional storage facilities may be constructed in addition to the current Inčukalns underground gas storage facility at the total volume of 40 to 50 billion m³.

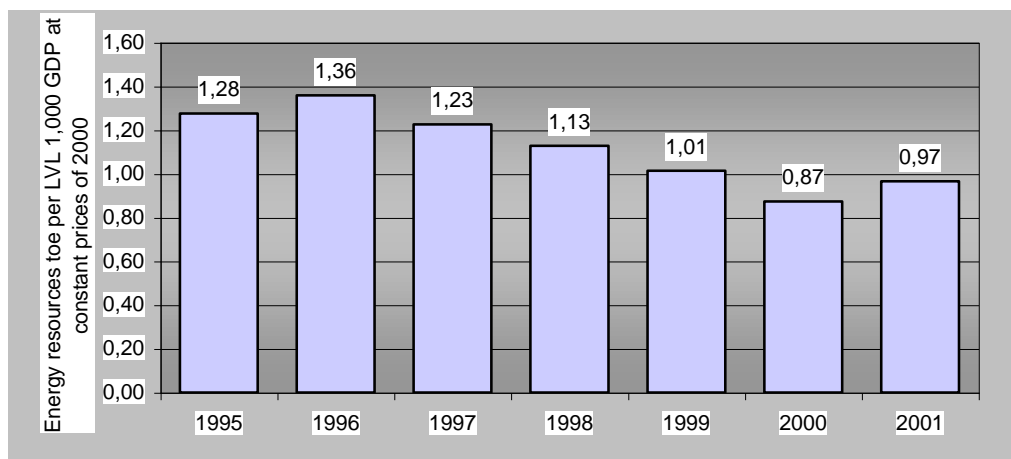
The list of Latvian geological and geomorphologic monuments contains 88 rock outcrops or rocks, 34 great stones, 32 caves, 29 geomorphologic objects, 21 spring, 8 Quaternary and Holocene formations, 7 waterfalls, one deposit containing Devonian shellfish and one man-made cave labyrinth.

Energy consumption and efficiency

Energy-intensity is an index indicating gross domestic energy consumption in relation to the gross domestic product. Constant prices of the gross domestic product are used for calculations in dynamics in order to exclude the effect of inflation on the evaluation of the indicators.

Since 1995 Latvia has made a particular progress in reduction of the energy intensity level. In 2000, the energy intensity is by the one fourth lower than in 1995 according to the Eurostat comparative data (Figure 3). The average change in energy intensity in Latvia is 4.12% per year.

Figure 3. Energy intensity in Latvia



Source: Central Statistical Bureau

Reduction of energy intensity was determined by several factors. One of the main factors is the rapid reduction in demand for heat. During these years the demand for heat has reduced almost by half. The second largest position, which determined the total reduction in demand for energy resources, was the decrease of final consumption of oil products irrespective to its final consumption in transport. Much less oil products are used as an energy resource in industry and agriculture. Demand for electricity is quite unstable during years, but it has a slight trend to grow in total.

During these years household demand for energy resources has decreased mainly due to the reduction in heat consumption. Industrial demand has fell down almost by 10%, but the largest decrease of the demand has been

observed in agriculture – almost by half. It has increased only in transport – 1.8 times. The growth of household energy consumption in the balance sheet of 2001 is mainly related to the rapid increase in utilisation of fuel wood.

Also the structure of the utilised primary energy resources has changed - the part of oil products has reduced, but the part of gas and wood/woodchip has increased to a great extent.

There are almost no energy resources in Latvia. There is wood, peat and hydropower. Fuel and natural gas is imported in the amount of almost 100%, electricity – up to 50%. However, it means that for the growth of GDP without the growth in consumption of energy resources Latvian national economy must be directed to the knowledge-based production of products (information and communications technologies, biotechnology, pharmacology, production of organic food, deep wood processing) and services with a high added value (transit, tourism, financial services, business management, distribution of goods and services).

Energy efficiency measures will have an important role in reduction of energy intensity in future, because crucial changes related to new management and trade conditions in utilisation of primary energy resources of Latvia and in the structure of demand for final consumption took place in the middle and at the end of the 90's. Also the EU directives require to pay greater attention to energy efficiency. Concurrently with other priorities (also determined in the EU directives) – establishment of oil and oil product reserves, delivery safety, market liberalisation and transparency of electricity and gas prices, it was included in the Energy Law.

Waste

600 to 700 thousand tons of municipal waste is produced in Latvia annually; around 480 thousand tonnes are collected. Approximately one half of this quantity can be regarded as biodegradable municipal waste. Management of municipal waste within administrative territories is the responsibility of municipalities. The majority of collected municipal waste and other types of waste are buried in dumpsites without pre-treatment (in 2001, there were 252 dumpsites with the permission to dispose waste). It is planned to install 10 to 12 new regional landfill sites for municipal waste with appropriate waste treatment, while the current dumpsites are to be closed and recultivated. The Latvia has a Multi-year waste management plan that in detail describes the necessary funding, time frames and tasks to be done for closing the old dumpsites and building the new landfills that are in line with EU requirements.

According to a survey conducted by the Latvian Packaging Institute, the total volume of packaging waste per year exceeds 100 thousand tons and quantity of material used for packaging is rapidly increasing – an average increase of 5% per year.

Several business companies are working in the field of management of used packaging. The capabilities of processing of used packaging materials are limited in Latvia; therefore export of used packaging materials to other countries for processing is supported. The system for the collection and processing of used metallic packaging is not developed since the activity is currently not economically advantageous.

Approximately 93 thousand tons of hazardous waste was produced in Latvia in 2000. The majority of hazardous waste (60%) is formed by metal production waste. At present hazardous waste is temporarily stored at the premises of business companies and special waste storage sites. Three sites have been installed for the storage of unusable pesticides containing approximately 2,000 tons of hazardous waste. Of these storage sites, only one site with a capacity of 1,500 tons complies fully with regulatory requirements, including the monitoring programme. Waste stored at the premises of business companies is kept packed in separate rooms.

Pursuant to regulatory requirements, producers of batteries and accumulators are responsible for labelling which indicates that batteries and accumulators are to be collected after use separately from other municipal waste. Sellers of batteries and accumulators are obliged to take these products back once they have been used up without extra charge, provide for safe storage thereof and enter into agreements with business companies providing hazardous waste management services on further management of such products. There are several business companies operating in the country that collect accumulators containing lead and export them abroad for processing. In 2001 collection of used household batteries was started, mainly in supermarkets and schools.

The components of end-of-life cars are used in spare parts, and the iron part is scrapped for export or stored in the territory of processing companies. Various liquids and oil residues are drained from end-of-life cars before storage. These residues are then either refined or transferred to business companies dealing in the collection of oil products. In Latvia it is possible to process or export for processing to neighbouring countries more than 90% of materials and raw materials so obtained. Collection, processing and utilisation works are not carried out pursuant to regulatory requirements as yet, however. Collection of abandoned end-of-life cars is an important problem, especially in rural areas. The system for collection of used tyres must also be improved.

Approximately 700 thousand tons of oil products are imported to Latvia for internal consumption needs annually. An oil product collection and processing system has been established in part. In view of the high heating value of oil products, several business companies are involved in the collection of oil product waste for further use thereof as fuel. Some business companies provide treatment and refinement services of ship waste water polluted with oil products.

Over 1,000 tons of infectious waste was produced in the country in 2000. This type of waste is disinfected in special facilities or burned. Medical waste from dental surgeries and outpatient clinics are normally buried in dumpsites.

Consumption and production patterns and levels

In this chapter we will give the description of main trends and patterns of development and impacts of main economical sectors:

- Industry;
- Transport;
- Agriculture;
- Forestry;
- Tourism;
- Households.

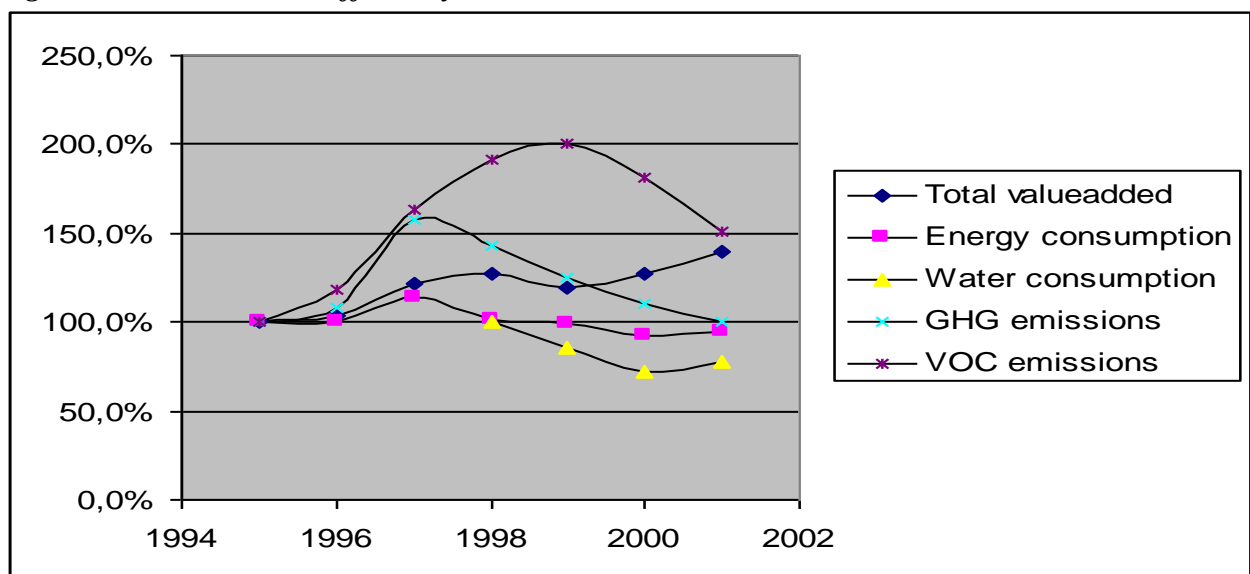
Industry

In the last three years stable growth of manufacturing output is observed and annual growth rates are above 8% – exceeding essentially the general growth rate of the national economy. Main objectives for the industry sector are development of an efficient and competitive industry structure and production based on modern technologies. Currently modern technologies account for 3 to 4% of the total industrial production while in the most advanced countries the percentage varies from 20 to 30.

Science and research is important bases for that. In Latvia total amount of investments in the development of science and technologies currently amounts to only 0.4% of GDP. Objective of European Union is to reach 3% by year 2010.

Enterprises are required to receive appropriate permits before they can start any activities resulting in environmental pollution. Before issuing of the permit, each enterprise is evaluated by its environmental impact and its production technology and requirements set for pollution emissions, noise, vibrations and waste management.

Figure 4. Industrial eco-efficiency



Source: Central Statistical Bureau (total value-added, energy consumption)
Latvian Environment Agency (water consumption, GHG and VOC emissions)

In recent years many Latvian enterprises have become aware of the role that the introduction of the International Standardisation Organization standards plays in increasing the competitiveness of production and have started introducing quality and environmental protection standard systems (ISO 9000 and ISO 14000 series) as well as environment management and audit schemes (EMAS). Funds are increasingly being invested in changing production models, including the introduction of more efficient and modern technologies. Some companies are active participants in environmental projects.

In recent years industrial water consumption has dropped by approximately one-fifth and now accounts for approximately 18% of the total water consumption in the country. The introduction of a water consumption accounting system has contributed to the introduction of water saving measures in industrial enterprises.

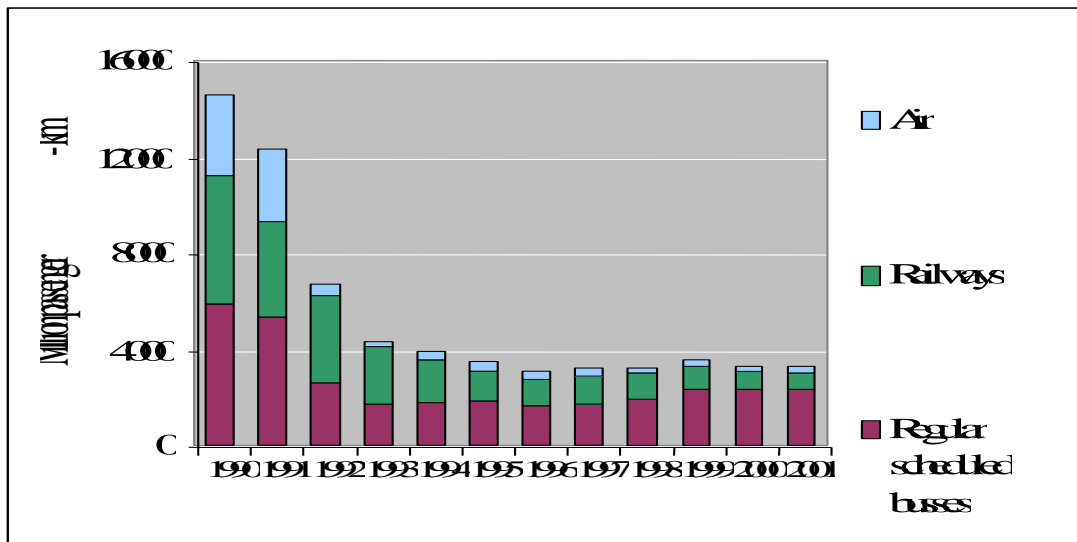
Greenhouse gas emissions produced by industrial processes are within the limits of 1 to 2%, but in view of the overall consumption of fuel in industrial and building sectors, the total volume of these emissions amounts to 12%. The emissions of nonmethane volatile organic compounds in industrial and energetic processes amount to 8% of the total volume of emissions. The largest volumes of such emissions are produced by road asphalt works and food production.

Transport

Thanks to the beneficial geographical position of Latvia which ensures transit cargo traffic between the East and the West, there has been a particularly fast development in the transport field in Latvia in recent years. Transit traffic accounts for nearly 80% of railroad cargo transit and 90% of cargo transit in ports as well as 60% of road transport to and from ports. The sector is growing at the same speed as national economy, but is very dependent on Russia.

Next to the positive development trends in transport, there are also negative tendencies: consumption of energy resources increases in the field (plus 59% compared to 1995) and passenger traffic decreases in the public transport system (8% decrease, compared to 1995). The carrying capacity of main motorways near major cities and trunk roads is approaching its maximum.

Figure 5. Passenger turnover by main types of transport



Source: Central Statistical Bureau

Transport causes significant levels of air pollution in major cities, particularly in Riga. Nitric oxides, volatile organic solutions, sulphur dioxide and substances causing the greenhouse effect account respectively for 58, 31, 16 and 23% of the total volumes of pollution caused by transport.

An ever-increasing number of cars and trucks cause an increase in the volumes of emitted gasses, which results in increased levels of overall air pollution. Transfer and distribution of oil products causes considerable levels of pollution by volatile organic compounds. In recent years there has increased the number of complaints by residents about odours caused by the transportation of oil products by railway and transfer of these products.

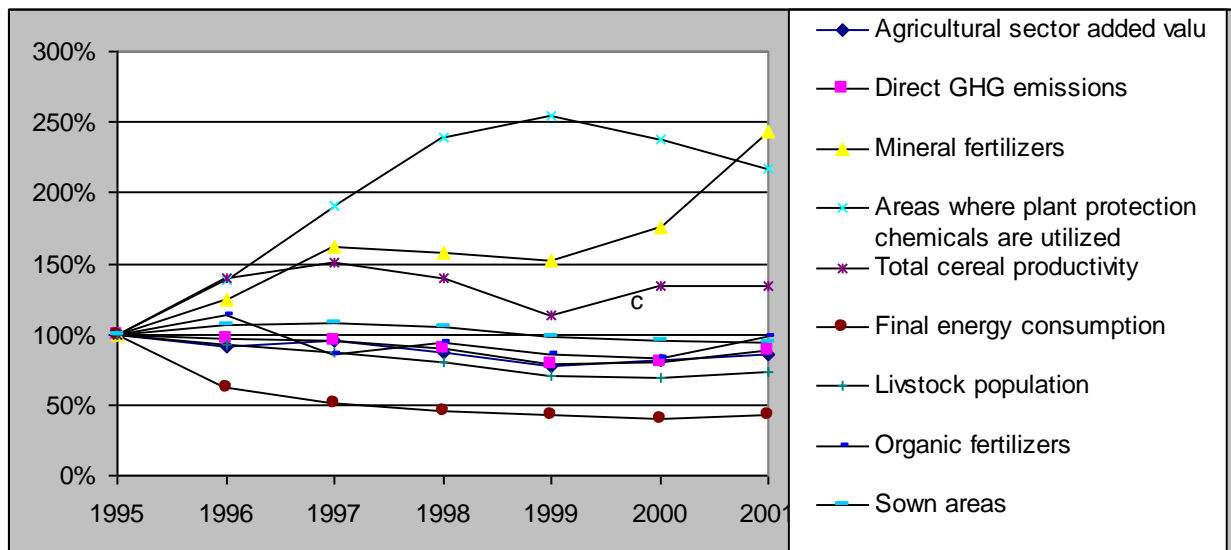
Transportation and transfer of hazardous substances may cause serious environmental damage in case of accidents. In 2002 a leak of oil products took place at the Butinge oil terminal which increased the pollution level on the Latvian sea coast. In recent years there have also been minor railway accidents and cases of illegal connection to oil product pipelines resulting in soil and ground pollution. Environmental recovery following such accidents is usually a lengthy and costly process.

There still exists the risk of tanker accidents since ship traffic in the Baltic Sea is one of the most intensive in Europe. The Baltic Sea is shallow and is included in the group of saltish water basins, therefore its ecosystem is very sensitive. Even a single tanker accident may result in an ecological disaster.

Agriculture

More than 95% of the Latvian territory is used for the traditional rural lifestyle characterised by low density of population. Farms in Latvia are generally very small. One economically active farm owned on average 13 ha of agricultural land. There are 174 thousand farms, but only 57 thousand (33%) were involved in the production of agricultural products in 2002. The specific weight of agriculture continues to diminish since 1990 and in 2001 it accounted for 2.8% of the GDP.

Figure 6. Eco-efficiency in agriculture, 1995-2001.



Sources:

- /1/ Central Statistics Bureau
- /2/ Latvian environment agency
- /3/ State Plant Protection Service

As the volumes of agricultural production diminish, the percentage of agricultural lands not used increases from 11% in 1995 to 21% in 2001, on the average by 34 thousand ha per year. The abandonment of agricultural lands has resulted in these territories overgrowing with weeds and shrubs. In 2001 the percentage of weed infected areas amounted to 7.2% while areas covered with shrubs accounted for 1.7% of the total area of agricultural lands. From the perspective of environmental protection, the overgrowing of agricultural lands is undesirable because it results in the extinction of many valuable biotopes.

In the plant-growing sector, the growing of technical crops (sugar beets, rapeseeds) and cereals as well as vegetable growing is currently developing, but no increase is observed in the production of flax. There is a development trend observable in animal breeding which is facilitated by state support. In other fields the fastest progress is seen in swine-breeding and poultry keeping. Production volumes in dairy-farming and cattle-growing for meat are expected to grow following the available direct payments after accession to the European Union.

The largest environmental threat is caused by animal and poultry breeding complexes where large quantities of manure are produced within small areas. Pig farming complexes have lost the majority of areas where manure was formerly utilised in liquid or solid form. Smaller areas therefore bear a much higher nutrient load, soil and ground, ground waters and surface waters are polluted.

Compared to early 1990s, the use of organic fertilisers has dropped significantly. In 2001, the total volume of fertilisers worked into soil amounted to only 30% of the 1990 levels. Since 1994 the amount of fertilisers used per year varies within the limits of 4 to 6 million tons. In order to maintain an optimum level of organic substances in the soil, the use of organic fertilisers should be on average 40 to 60 tons per one hectare of arable land once in 3 to 4 years, which is not currently ensured.

Following a sharp drop in the use of mineral fertilisers and plant protection substances, the quantity of mineral fertilisers used and the areas treated with plant protection substances in 2001 have again increased more than twice if compared to 1995. However, the total crop of cereals gathered in such areas has only increased 1.4 times.

The number of farms operating in non-traditional fields of agriculture is constantly increasing. In these farms, cranberries, herbs or mushrooms are grown or non-traditional animal breeding conducted (fur-bearing animals, deer, rabbits, quails, pheasants or ostriches grown). The growing of wild animals and laying out of hunting grounds is developing rapidly in the field of alternative management lately. At present there are 20 wild animal gardens in

Latvia covering approximately 5 000 ha with more than 2 000 animals (mainly roe deer and fallow deer). These numbers are expected to at least double in the near future.

Environmental problems in rural areas are caused not only by enterprises involved in food circulation (food processing and distribution) but also by the rapidly increasing wood processing volumes, enterprises providing agricultural services and factory production units situated outside cities.

In food production the difficulties related to sewage treatment are related to the marked periodicity of sewage production, changes in their volume and pollution composition. Part of solid waste do not meet the criteria for municipal waste, either, and require special treatment before they are buried, for example in the case of waste from slaughterhouses and meat processing plants.

Forestry

The total forest area in Latvia is nearly 2.9 million ha (45% of the state territory) and a tendency is observed for it to increase at the expense of lands not used in agriculture which are either afforested artificially or overgrow naturally. The spread of forests in Latvia is not uniform and varies from 25 – 60% (the districts of Ventspils, Talsi, Aizkraukle). In order to ensure compliance with environmental and nature preservation requirements, 16% of forests have been included in various protective zones and protected territories.

Wood pulp resources are currently regarded as the most important wood resources in the national economy and the production volume thereof have increased over the last decade from 4 million m³ in 1992 to 11.29 million m³ in 2002. More than 60% of wood pulp is obtained in privately owned forests. At present private forest owners often do not make any investments in forest renewal and care, therefore the quality and productivity of forest growths is already diminishing.

The total contribution of the forest industry, which includes forestry (from forest renewal and care to wood pulp production) and lumber production, to the national GDP in 2001 was 10-12 and 40% respectively of the total Latvian export volumes expressed in terms of money. The forest industry is the only industry of the Latvian national economy with a positive balance ratio of exports and imports.

Certification of the forest industry is carried out in order to promote a sustainable forest management that would be beneficial to the environment and the society. The whole forest area managed by the state-owned joint stock company "Latvijas Valsts meži" has been certified in accordance with the Forest Supervision Scheme. The European forest certification system has also been introduced. Private forest owners make their choice between either these two certification systems.

Fisheries

The waters under the jurisdiction of the Republic of Latvia constitute more than 10% of the total area of the Baltic Sea waters. Latvian inland waters cover 2,543 km² of the state territory. The varied forms of surface waters determine the variety of the Latvian fish fauna. 70 local fish species are found in the Latvian waters, of which 24 are typical marine species, 38 are freshwater species and 8 are migratory species of fish. Pike, bream, white bream, roach, rudd, tench, crucian carp, and perch are the most common species of inland waters.

Fish stocks in Latvia can be regarded as stable. In recent years a tendency has been observed for the fishing quantities of fish of prey (pike and zander) to increase, therefore the quantities of these species are likely to diminish in case of insufficient artificial propagation of these fish resources.

Fish have always been very important for Latvians, and they provide up to 15% of food proteins. The fishing industry comprises fishery and fish processing, angling, propagation of fish resources, aquaculture, science and management of the fishing industry. In 2002 the fishing industry accounted for 1.5% of the Latvian GDP.

The quantity of fish caught by Latvian fishermen in the Baltic Sea and the Gulf of Riga per year is approximately 72 to 80 thousand tons. Over the last 3 years, fishing quotas have been reduced in the Baltic Sea and The Gulf of Riga for the principal industrial fish species: codfish, sprats and Baltic sprats which account for 99% of the total Latvian haul of fish in the Baltic Sea.

Also salmon population in the Baltic Sea is on the whole regarded as biologically safe. Salmon stock and fishing possibilities in the Baltic Sea basin are mainly maintained thanks to salmon fry and smolts bred artificially in

nurseries in Latvia, Sweden and Finland and released into rivers or river mouths. In 2002, 1.28 million smolts and fry of salmon and trouts, 1.82 million fry of vimba, zander and bream, and 9.58 million fry of lampreys and pike were let out in the Latvian natural water bodies for reproduction purposes of fish resources. In recent years the natural spawning in major salmon rivers has significantly improved and the number of fry has increased which in turn allows the stabilisation of fishing quotas. The Latvian salmon fishing quota has increased slightly, too. The percentage of natural salmon in the Baltic Sea has increased and reached 19%, while the percentage in previous years was between 13 and 15%. It is simultaneously necessary to optimise the output of nursery salmon in order to reduce their effect on wild salmon.

Angling is a common type of recreation, sport and fishing in Latvia. There are approximately 100 thousand fishermen in Latvia; the annual haul of these fishermen is approximately 1,800 tons which for practical purposes exceeds the annual quantities caught by fishermen in inland waters (580 – 600 tons) three times.

The growing of fish and crayfish involving nearly 200 farms as well as fishing in local lakes (200 farms) and pay fishing is becoming more popular. However, pond management causes serious environmental problems because in autumns when water in fish ponds is lowered large quantities of fish nutrient residues and pond bed sediments get into inland waters.

Tourism

Latvia and the Baltic States in general are developing quickly as an economically active region. In future the region will more often become the destination of business trips, a place for holding international conferences and meetings. At the world and European level, Latvia is a new tourism destination: it is a comparatively cheap country, of sufficient quality, comfortable, not congested and as yet unfamiliar.

In 2002 exports of tourism services accounted for 1.9% of the Latvian GDP. In 2002 the number of foreign visitors to Latvia was 2.2 million. The total expenses of foreign visitors in Latvia amounted to 96 million lats. The average time for which foreign tourists stayed in Latvia and the average time for which Latvian travellers stayed outside Latvia were 2.1 and 3.2 days, respectively. The tourism industry accounted for 7.3% of the total employment rates while the percentage of those employed directly in tourism was 2.5%. However, the government realizes that there is a need to invest in tourism infrastructure and promotion to make Latvia a more attractive destination for foreign visitors (Single Programming Document, 2003).

More than 300 farms operate in the sphere of rural tourism. As the purchasing ability of residents and interest of foreigners about recreation in Latvia increases, rural tourism is becoming an actually functioning sector of the national economy. The environmental load of rural tourism may, however, be large.

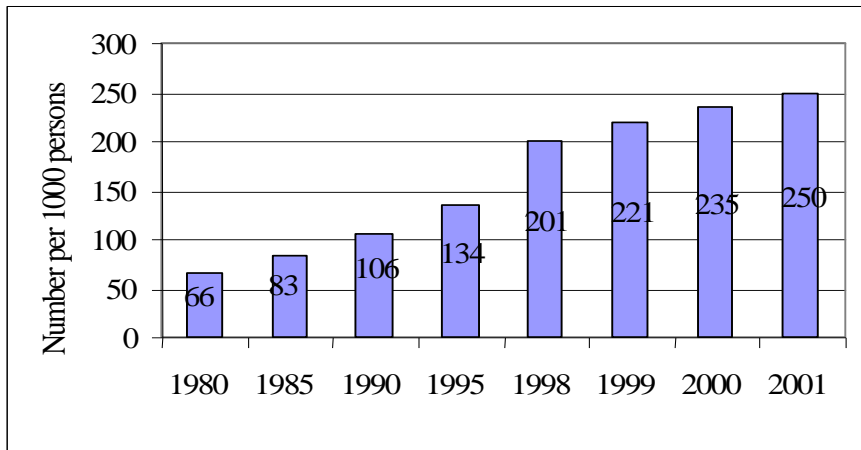
Special assistance must be provided to forms of tourism which take into consideration environmental requirements, provide for the long-term preservation of natural and cultural resources and are socially and economically acceptable. "Lauku ceļotājs", a rural tourism association, has developed and implemented the Green Certificate, an environmental management system for dwelling houses participating in rural tourism.

Household and public sector consumption

With the development of the economy and increase in inhabitants' incomes, over recent years, consumer consumption has increased by 5% annually. In the year 2003 major consumer priorities were food (32.4%), housing expenses (12.7%) and transport (10.7%).

However development of household credit systems, over the last four years, has facilitated rapid increase in consumption of cars and domestic electrical appliances. In 2000 there were on average 5 computers per 100 households (13 in 2002); the number of mobile phones has, respectively, risen from 15 to 58, passenger cars – from 29 to 36. 3.3 % of all households in 2002 had Internet access and 45% used cable television.

Figure 7. Number of passenger cars per 1000 persons



Source: Central Statistical Bureau

Despite this rapid increase in the consumption of goods, over recent years, there has been a decrease in the household consumption of resources, such as water and energy. This decrease has been mostly due to increases in prices for these services, which has resulted in the more rational use of resources. Another shift has been in the composition of domestic waste – the proportion of organic matter, paper and plastic has increased, while that of glass and metal has decreased.

Policy instruments

Sustainable development policies

Recent years have been particularly significant for Latvia, preparing for being a EU member country and finally joining the EU in May 2004. As the result of accession process, legislation (including environmental) in Latvia has significantly changed and adapted to EU *acquis communiqué*. It also applies to the policy goals of establishing the sustainable management of natural resources at the heart of the *new economy* by replacing the morality of the *consumer society* with a respectful attitude towards one's fellow man and towards all living things that make up the diversity of nature.

The European Commission findings on Latvia's application to join the European Union also determine that "the environmental policy emanating from the European Union agreement (*the Amsterdam Treaty*; repeatedly approved during the Vienna Summit in December, 1998) is geared towards sustainability that is based on the incorporation of nature conservation in EU sector policy". Additionally, the "European agreement requires that Latvia develop and implement such a development policy that would be governed by the principles of sustainable development and into which environmental consideration are completely built in".

The main principles of environmental policy in Latvia (to be viewed as undeniable benefits for the whole of society) are:

- polluter pays principle;
- sustainable development;
- reducing the impact on the environment.

These principles are also integrated in the new National Environmental Policy Plan - 2004 – 2008⁴. This plan together with other planning documents of the respective level in economical and social sphere is to become a mutually united basis for establishment and implementation of the state sustainable development policy.

Latvia has also adopted a new Environmental Policy Plan (which replaces the older plan of 1995). The plan sets out main priorities and tasks for Latvia in the environmental area for the years of 2004 – 2008. The plan is an extensive document of 159 pages, and it defines main priorities and estimated results in the areas of air pollution, climate change, water quality, and sustainable use of natural resources, waste management, the research and rehabilitation of polluted sites, radiation, chemicals' management and control (including genetically modified organisms). The special policies are set for mitigating the impact on environment from the different sectors of economy, such as industry, energy production, transport, agriculture, forestry, fisheries, tourism, and defence. A special attention is also given to the environmental education and information, as well as the involvement of society in the environmental activities. The National Environmental Policy Plan concludes that the main issues for coming years in Latvia are going to be:

- The industrial development should be based on the use of cleaner technologies and with the rational import of necessary materials for production. The timber resources should be used as efficient as possible. The attention should be given to the processes that produce less waste and to the utilization of waste,
- The current land use is not sustainable. It is connected to the restructuring of the agriculture and unstable market for agricultural products. One can see the trend towards more industrialised agricultural production that can create serious consequences in the future for environment and for the society. Therefore, the plan sets out as favourable for Latvia to move in the direction towards biological/organic farming.
- The growing traffic in the cities is becoming one of the most serious environmental problems in Latvia at the moment. This is a common task for the state institutions and municipalities to solve.
- One of the main priorities remains the access to a good quality of drinking water for all inhabitants of Latvia. There are programmes already working with the issue, however, this still will be important in the future.
- The plan puts a special attention towards preserving the biological diversity in Latvia.
- The plan is especially addressing the issue of the information of the society and involvement of the society in solving the environmental issues.

Another significant national policy document defining sustainable development and its policies is Strategy for Sustainable Development of Latvia⁵. To ensure implementation of this strategy Sustainable development board has been set up. Unfortunately, this institution over the last years of its activities has not shown any initiative.

⁴ Approved by the Cabinet of Ministers on 04.02.2004. Available at Ministry of Environment homepage: www.vidm.gov.lv. The old National Environmental Policy Plan was approved in 1995.

⁵ Adopted by the Cabinet of ministers on 15.08.2002.

Tax policy

Total tax burden and taxation of production factors

The tax burden, which is defined as the percentage ratio of total tax revenue (and comparable non-tax payments) to GDP at market prices, has a considerable impact on various aspects of the economic and social development. The greater the total tax burden, the greater resources available to be divided up for public purposes, which are reflected in the overall state budget. Accordingly, more opportunities arise to direct financial resources to meet the requirements of social programmes and to provide for projects related to the provision of public services and infrastructure development managed by the State. An increased tax burden is a means of ensuring a higher level of income reallocation and as a result a higher level of social security and social equality.

At the same time, an increased tax burden reduces entrepreneurial profits. On a macroeconomic level, it reduces the opportunities for economic growth and the competitiveness of companies in external markets. However, viewed objectively, there is no set "optimal tax burden". The size of total tax revenues, which is chosen during the development of national fiscal policy, is dependent on many socio-economic factors as well as the guidelines that govern national economic policy.

Firstly, the national tax burden could be lower, if there is another large source of revenue within the structure of the overall budget, for example – revenue from privatisation. Secondly, the national tax burden is dependent on the demographic structure of its population – if the state has a large number of children and pensioners and a correspondingly small number of inhabitants of working age then the tax burden must correspondingly higher, in order to guarantee funding for social programmes.

Alternately, in the short to medium term, the government may choose to effect a decidedly liberal fiscal policy, with low taxes designed to stimulate increased entrepreneurial activity and an influx of foreign investments. Each individual system of tax rates and regime of tax breaks is also important, because their goal is to support or slow down certain socio-economic processes in a selectively chosen way (regulating function of taxes).

The structure of the total tax burden is also significant from the perspective of regulation. The tax burden may be examined in relation to traditional production factors – work, capital and resources. Those taxes that are not directly related to one of the production factors are collated in a separate group – neutral taxes (or in other words – taxes on consumption).

The most typical examples of taxation types (and non-taxation revenues) that are applied to these groups are:

- **taxes on labour:**
 - personal income tax;
 - social security payments;
- **taxes and non-taxation revenues on capital:**
 - corporate income tax;
 - property taxes;
 - privatisation revenues;
- **taxes and non-taxation revenues on resources:**
 - environmental taxes (in Latvia – natural resources tax);
 - excise tax on oil products;
 - state revenues from forests;
- **neutral taxes (or taxes on consumption):**
 - value added tax;
 - excise tax on alcoholic drinks and tobacco.

Looking at the breakdown of the total tax burden among these groups, the socio-economic consequences can be analysed, which arise through swapping the internal ratios of the total tax package. If there is an increase in the covering of a certain group (production factor) with taxes, then there is a corresponding increase in the respective production factor costs and the economy is stimulated to develop in such a direction where this factor is utilised to a lesser extent. Therefore, an increase in the tax burden on labour is likely to result in a reduction in the number of jobs and a corresponding increase in unemployment.

An increase in the tax burden on capital is likely to result in a reduction of domestic investment and entrepreneurial activity levels nationally. Consequently, this will almost certainly result in a decline in the growth rate of GDP.

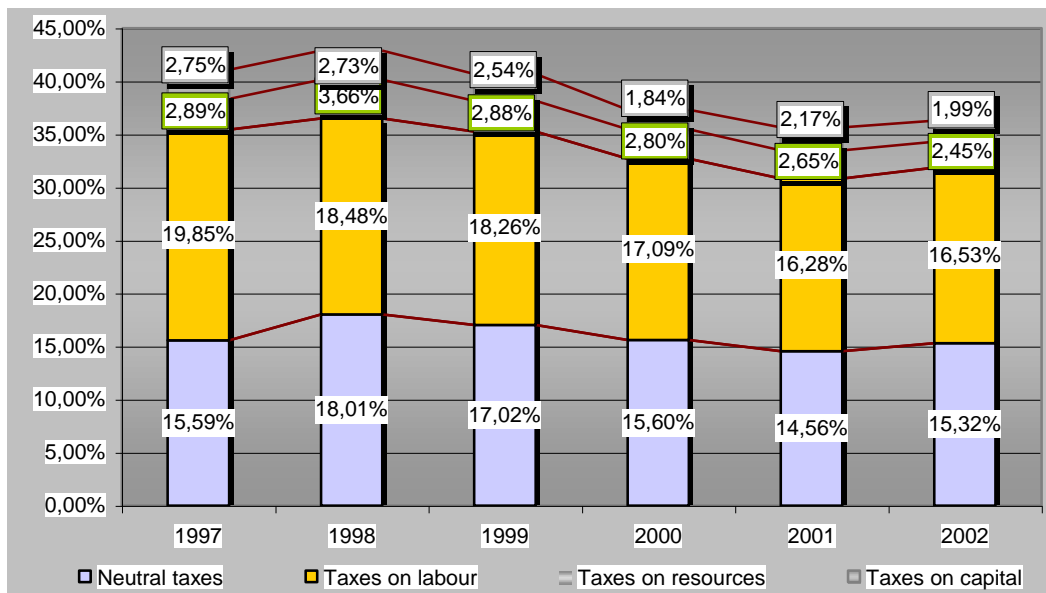
In turn, an increase in the tax burden on resources is likely to precipitate a reduction in the level of resource consumption in the economy, promoting the economising of resources (including energy resources) and the growth

of sectors that involve negligible consumption of resources (service sectors, knowledge intensive production and production with a high added value).

In Latvia, specific surveys aren't yet to be carried out regarding the tax burden and changes in its structure. Likewise, there are no surveys and projections to analyse the socio-economic consequences of such changes. Therefore the data incorporated here, even though it based on internationally proven methodology, should only be thought of as an approximate assessment of the real situation.

In practise, in Latvia since 1998, several recent governments have as shown in diagram (Figure 8.), implemented policy aimed at reducing the tax burden. The only exception to this is an increase in the ratio of budget revenues to GDP (provisional data) of 0.6% points in 2002.

Figure 8. Changes in total tax burden and its structure in Latvia



Source: Central Statistical Bureau

Long-term policy has been developed and is being implemented in regard to several areas of tax policy (including corporate income tax, social security payments). However, such policy is not sufficiently clearly defined in relation to other taxes or the total tax burden. In fact, the reduction in the tax burden on capital may be viewed as being stable, as well stabilisation of the tax burden on labour at the current level (16.5% of GDP or 45.5% of total tax revenues) may be observed.

Taking a separate look at the tax burden on resources (not only natural resources tax, but mainly excise tax on oil products), there has been steady decline in this proportion of the tax burden (from 3.66% in 1998 to 2.45% in 2002, that is, an annual reduction of 0.3% points). In Latvia, this particular component of the tax burden is (2.5% of GDP or 6.8% of total tax revenue) comparatively smaller than that in many other countries around the world.

Issues of tax policy are always dependent on the specific government's overall political platform and greater stability should not be expected in this area than in any other. However, the development of a justified long-term strategy would be desirable for this area that would be systematically harmonised to all sensitive areas – the social security system, the development of entrepreneurial activity and the creation of new jobs, the development of a national strategy for education and science and correspondingly – a growth in the added value of Latvian industrial production, an increase in the efficiency of resource utilisation, a long-term strategy for the attraction and utilisation of EU structural funds etc.

In relation to the sustainable development policy co-ordination system established in Latvia (essentially – the activity of the Council for Sustainable Development), the opportunity for the development of a concept for environmental tax reform and a co-ordination council that would order and co-ordinate the necessary surveys, as well as harmonise and co-ordinate the reform implementation process politically should also be considered. The reform strategy tried and tested in several countries around the world (including in countries of economic transition – Poland, Hungary, Slovenia) might provide a discernible stimulus to the recovery of Latvia's socio-economic climate.

Excise tax on oil products

As with revenue from value added taxation, revenue from excise taxation is influenced by changes in domestic demand.

The largest share of taxation revenue is made up of the excise tax on oil products – in 2001, this amounted to 53% (or 85.7 million LVL) of the total revenue from excise taxation. Excise taxation revenue from oil products has suffered as a result of changes in the structure of Latvia's fleet of cars (this is due to an increase in the ratio of cars that consume gas or diesel fuel). This is demonstrated by the tax rate – for diesel fuel it is only 100 LVL for 1,000 litres, whereas for petrol it is 160 LVL for 1000 litres. In accordance with statistics collated by the Road Traffic Safety Inspectorate (CSDD), in August 2001 in comparison to the beginning of 1999, the proportion of vehicles that utilise petrol within the total number of vehicles had fallen from 88.1% to 83.8%, whereas the corresponding figure for vehicles with diesel engines had risen from 11.8% to 14.9%.

It is forecast that in 2002, the revenue from excise taxation on oil products will increase by 17.6%. The primary explanation for this increase is the increased number of cars, as well as an increase number of kilometres covered by drivers.

Factors that have a positive bearing on the income from excise taxation are the growth in Gross Domestic Product (macroeconomic factor) and the improvement in the administration of taxes. Factors with a negative on excise taxation revenue include – changes in the structure of consumption for excise goods (macroeconomic factor), the influence of free ports and special economic zones, the cancellation of excise taxation rates on precious metals, precious stones and their by-products (legal factors), as well as the shadow economy and tax debts.

Natural resources tax (NRT)

The purpose of the specialised tax - natural resources tax – is to reduce mismanagement of natural resources and pollution of the environment, to reduce the manufacture and sale of production polluting the environment, to promote the implementation of new and improved technology reducing pollution in the environment, to support the strategy of sustainable development in the economy as well as to generate the funding necessary for environment protection measures.

In the law “On natural resources tax” it is determined that 40% of tax payments paid in relation to the extraction of natural resources or pollution of the environment in quantities that are within the specified limits shall be transferred to a state budget for state environmental protection till 1 January 2004, after this date for state budget (administered by the Latvian Environment Protection Fund). The remaining 60% shall be transferred to the special environmental protection budgets administered by the local governments in whose territory the activity in question was performed.

Natural resources tax covers:

- natural resources extracted as a result of any commercial activity;
- environment pollution - waste, emissions into air and water;
- goods and products that are harmful to the environment;
- packaging of goods;
- radioactive substances;
- vehicles (since 1 October 2004).

The tax is calculated according to the basic rates and additional rates. The basic rates for the types of usage of natural resources for which tax must be paid are specified in the annexes of the law “On Natural Resources Tax” (adopted by Parliament, 14.09.1995, amendments – 19.12.1996, 06.04.2000 and 20.12.2001 and 07.04.2004) and in the corresponding Cabinet of Ministers regulations. Additional rates are enforced for the usage of natural resources in excess of the quantities specified in the limits, the taxation of which is calculated by summing the basic rate in regard to the amount of pollution released into the environment that exceeds the limit, as well as additional rates, which are three times the amount of the basic rate.

Law “On Natural Resources Tax” provides tax allowances, alleviation and partly refund if are realized environmental protection projects and reduce environmental pollution:

- natural resources tax allowances to taxpayers they financed project with objective to reduce environment pollution;
- natural resources tax alleviation to enterprises they realized voluntary packaging waste management program;
- natural resources tax refund on recycling of goods or products harmful for the environment.

Natural resources tax allowances, which are receive to taxpayers they realized environmental protection projects, promote setting of environmental infrastructure and attract investments what in result create basement of development of business activity and creation of new working places. This tax allowances till yet receive wastewater treatment enterprises.

The natural resources tax alleviation, which receives to enterprises they realized voluntary, packaging waste programs, promotes packaging waste sorted collecting and recovery of packaging waste.

In result of partly refund of natural resources tax to enterprises they recycling or exported to recovery goods or products harmful for the environment in the Latvia are developed second raw material collection and recycling. That is good indicator for Latvia because in beginning of 90 years the recycling system was zero. At same time are established new working places and minimized waste amount that arrive to landfill.

NRT payments are directly dependent on Latvian corporate economic activities and the burden they place on the environment. NRT tax revenues both increase with the increase of total economic activity, and decrease as companies and local governments perform environmental protection measures. NRT is also closely linked to the fluctuations in other taxes, for example, customs tax. In planning tax revenue, a reduction in tax revenue is also taken into account that is linked to the issue of tax allowances and discounts in accordance with the law "On Natural Resources Tax" to companies, which implement a voluntary packaging waste management programmes.

Support from EU structural funds for environmental issues

Since May 2004, there are possibilities to use EU structural funds for environmental projects that are channelled thru Latvian financial agencies.

There are number of European programmes that are available (e.g. LIFE, PHARE, ISPA, LEONARDO for education projects) for municipalities, companies, NGOs etc for environmental projects. Since 1st of May, Latvian organizations have the accessibility of European structural funds for projects in various sectors, including environment. This section gives an overview of possible funding for environmental projects for industry.

From 2004-2006 the overall available financing from structural funds is 830 million EUR (from European Regional Development fund, Social Fund and the funds from Latvian government). The Latvian Development Plan or so called the Single Programming Document has set 5 priorities for the use of funds:

1. priority - Sustainable Development;
2. priority – Promotion of innovation and entrepreneurship;
3. priority – Promotion of employment and development of human capital;
4. priority – Support for agriculture and development of rural areas;
5. priority – Support for sustainable development of fisheries.

In the line of these priorities, Latvian companies can use following programmes:

- Support for modernization of infrastructure for commercial sector
- Support for consultations and participation in the international trade fairs and missions for enterprises
- Support for development of new products and technologies
- Support for raising the competence, vocational education and development of new skills for employees

In all four available programmes, the environmental criteria are also taken into account. Each project application should contain a section on project's impact on environment. The project application guidelines explain more in detail that all projects should comply with the environmental legislation in Latvia and EU and refers to the law on environmental impact assessment. In all programmes there are possibilities to apply for environmental projects, surely, if the project complies with the programme criteria.

The support programme for consultations and participation in the international trade fairs and missions for enterprises includes available support for small and medium sized enterprises, *inter alia*, for consultations on management systems, including EMS according to ISO 14001 or EMAS.

Voluntary environmental management instruments for industry

In this report, following voluntary environmental management instruments used by Latvian industry, are presented:

- Environmental management systems (EMS),
- Cleaner Production,
- Eco-design or, design for environment (DfE).

A final section of this report looks at the use of European structural funds for environmental projects in Latvia for industry.

Environmental management systems

It is a world-wide trend that there is more and more use of different management systems and their standards. The most commonly known and used are:

- ISO 9001:2000 – Quality management systems
- ISO 14001:1996 – Environmental management systems
- Eco-management and audit scheme – European Union Regulation No. 761/2001, better known as EMAS
- OHSAS 18001:1999 – Occupational Health and Safety Management Systems (it is not an official standard, however, certifications are possible).

All the standards listed have several common features and requirements, which provide a possibility of working with several of them simultaneously and establishing an integrated management system. Each of the referred management systems may be utilised as an effective means to reach certain policy goals. Moreover, these management systems are voluntary, their application is based upon the will and wishes of the organization to improve their work, to ensure the quality of their production or the services provided, to assess and reduce organization's impact on the environment, to assess the possible threats to the health of employees and to reduce or prevent them.

The costs of implementing an environmental management system are different in each particular case. The costs are determined by the size of the enterprise, the complexity of the organization, and the level of use of external consultants.

At the moment, the widest uptake is of the quality management systems ISO 9001:2000, however, also ISO 14001 certifications are growing. Many companies internationally, as well as in Latvia, decide to implement integrated management systems, often integrating quality and environmental management systems, but sometimes also all most common three systems – ISO 14001, ISO 9001 and OHSAS 18001.

Today in the world, the certifications against ISO 14001 are growing. There is a slower uptake of EMAS – an environmental management scheme that is largely similar to ISO 14001, although with several stricter requirements, especially when it comes to the reporting of environmental performance. One of the reasons is that ISO 14001 is applicable internationally, but EMAS has more of European coverage, even if the registration is also available for a non-EU resident organization.

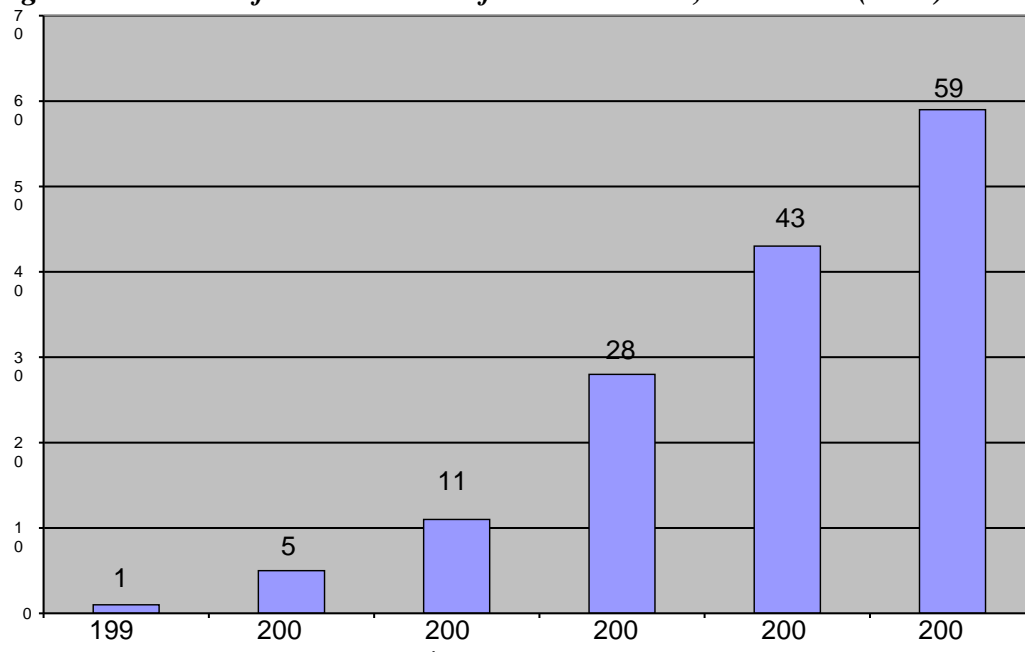
If the standard ISO 14001 developed by the International Organization for Standardization is a global-scale standard, then the EMAS mostly is accepted and applicable in the Member States of the European Union (however, it is possible to get EMAS registration if an organization is not based in an EU member country). Since May 2004, also Latvian organizations should be able to register in EMAS. The EMAS Competent body in Latvia is the State Environmental Impact Assessment Bureau, which has a responsibility of implementation of EMAS in Latvia. However, so far there is no indication from industry about a special interest in being registered in EMAS – there is a need to promote and make industry aware of EMAS benefits.

Both the ISO 14001 and the other standards are sufficiently universal that they may be applied not only to manufacturing enterprises, but also to service providers, for example, hotels or banks, and the state administration institutions. Especially EMAS regulation stresses the importance to implement EMAS in the municipalities and government institutions that should deal more with indirect environmental aspects. In Latvia, two municipalities (Liepāja and Jelgava) participate in the project “*EMAS – Peer review for the cities*” and are implementing EMS in their municipalities based on EMAS. It should be noted that similarly to other countries, a service sector has a growing role in the national economy and at the moment in Latvia contributes to around 70% of the GDP. This indicates that more and more attention should be given to implement EMS in the service and public sector.

Latvia, as well as other countries, does not have an official register of ISO 14001 certificates. However, Latvian Association for Quality (www.lka.lv) accounts all the management system certificates known to them (ISO 9001, ISO 14001, OHSAS 18001, HACCP and similar). Based on the experts' view, the data on the ISO 14001 certificates can be evaluated as rather accurate. At the moment (June 2004), there are 59 ISO 14001 certified organizations in Latvia, from which majority are manufacturing enterprises (26), followed by various service sector companies (19) and construction companies (14).⁶ The numbers are growing rapidly, as shown in the Figure 9 below.

⁶ Latvian Quality Association, www.lka.lv

Figure 9. Number of ISO 14001 certificates in Latvia, 1999-2004 (June)



In the period 2001-2003 (the trend continues in the first half of 2004) there has been a rapid growth in the number of enterprises in Latvia, which have received the ISO 14001 certificates. This was determined by various factors. Firstly, a Danish government programme granted financial support to several manufacturing sectors – pharmaceutical industry, metal processing, wood, food industry and chemical and textiles industry in order to provide consultative support for the implementation of environmental management systems. Secondly, some other projects were implemented (*Eco Forum Baltica*, Finish government supported a project in the construction industry) that fostered the additional certification according to ISO 14001. As it looks now, many companies are not any more looking for the external support for ISO 14001 implementation – many of them do the ISO 14001 implementation using their own resources and using the benefits from implementation of an integrated management system. Especially due to the possibility to certify an integrated management system according to two or three standards at the same time, the certification numbers have grown more rapidly during last 1-2 years.

Cleaner Production

Cleaner Production (CP) is a predecessor of EMS and often is a part of EMS. However, it can also be applied as a separate concept and it is one of the instruments for sustainable development for industry. UNEP has defined CP as:

„Cleaner Production is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment. Cleaner Production can be applied to the processes used in any industry, to products themselves and to various services provided in society.

For production processes, Cleaner Production results from one or a combination of conserving raw materials, water and energy; eliminating toxic and dangerous raw materials; and reducing the quantity and toxicity of all emissions and wastes at source during the production process.

For products, Cleaner Production aims to reduce the environmental, health and safety impacts of products over their entire life cycles, from raw materials extraction, through manufacturing and use, to the 'ultimate' disposal of the product.

For services, Cleaner Production implies incorporating environmental concerns into designing and delivering services.”⁷

CP is a win-win strategy for businesses - it reduces the environmental impact while generates the profits. Therefore, it is important that businesses recognize and use this strategy. This section will look at the application of CP in Latvia and its strengths and weaknesses.

Latvia's government's representative, Minister of Environment V. Makarovs signed the UNEP's International Declaration on Cleaner Production on October 2002.

⁷ http://www.uneptie.org/pc/cp/understanding_cp/home.htm#definition

There are no comprehensive data about the application of CP in Latvian industries. Most of the CP activities are carried out whether as a part of the foreign aid/pilot projects, or independently by companies themselves, quite often as a part of environmental management system (EMS). The introduction of CP in Latvia started in 1992 with the World Environmental Centre financed projects for Latvian industry. From 1992-1995, 13 projects were carried out with an investment of around 152 000 USD, resulting in total savings of 890 000 USD per year, and reduced environmental impact in terms of less waste, air pollution and reduced consumption of energy and water.

The table below shows some selected CP indicators⁸ that compares Latvian and Lithuanian situation⁹:

State	Latvia	Lithuania
International CP declarations	✓ CP Declaration signed	✓ CP declaration signed
CP organizations	Latvian Pollution Prevention Centre founded in 1994 as an independent non-governmental organization	CP centre founded in 1994 on the basis of the Institute of Environmental Engineering at Kaunas Technological University, with the financing of private sector (30%), government (7%), international/bilateral projects (60%) and Institute (3%).
Training, education and demonstration projects	✓ 19 waste minimization projects carried out, 16 persons trained, 4 manuals on waste minimization translated	✓ 210 waste minimization projects carried out, 567 persons trained, 22 manuals on waste minimization developed and/or translated
CP integration in the legislation and planning documents	✓ The principles of CP have been integrated in the Law on Environmental Protection and the National Environmental Policy Plan	<ul style="list-style-type: none"> ✓ The Law on environmental protection sets out requirements to use cleaner technologies and environmentally friendly manufacturing ✓ CP concept is integrated in the Lithuanian Environmental Protection Strategy ✓ There is an action plan for CP development There is a programme for sustainable industrial development in Lithuania

As regards how much Latvian industries uses available financial instruments, the information is following:

- only 1 project per year in the period of 2001-2003 has been financed from the Latvian Environmental Investment Fund (the objective of the Fund is to give soft loans for environmental projects in industry),
- NEFCO (Nordic Environmental Finance Corporation) has financed 4 CP projects for Latvian companies from 2001-2003. In comparison, for example, in Lithuania NEFCO financed 23 CP projects in companies.

Analysis of CP application in Latvia provides following conclusions¹⁰:

- in Latvia the system for efficient CP promotion has not been formed, because of: (1) the CP promotion takes place only within pilot projects; (2) there is no an state authority specially responsible for CP implementation; there are no the CP programs and plans, specific planned activities and a national CP center;
- the environment for CP developing is not enabling, because of: (1) there is a weak cooperation among state and other authorities and organizations involved into CP implementation process; (2) the effective system for state policy performance control has not been formed; (3) bases for technological renovation of industries (this is linked to overall economic situation of Latvia), have not been formed.

On the positive side, Latvia has signed a CP declaration; the CP concept is integrated in the legislation and planning documents, and there is a possibility to get soft loans for CP projects from Latvian Environmental Investment Fund, NEFCO, and also European structural funds can be used for this purpose. There is availability of local competence in CP e.g. consultants. However, to promote higher uptake of the CP in the industry in Latvia, there is a need to¹⁰:

- to appoint a state authority(ies) responsible for CP implementation;
- to develop a national CP Program;
- to form the cooperation among state and other authorities and organizations involved into CP implementation process;
- to establish a national CP centre;
- to inform about investment possibilities of CP projects;
- to establish a scientific & technological center for investigation of industries' environmental aspects and developing CP solutions.

⁸ For full list of indicators, use the reference below (in Latvian only).

⁹ Alekse T. Clenaer Production in Latvia; Analysis of Metal Processing Sector. Masters Thesis. Riga, 2004.

¹⁰ Alekse T. Clenaer Production in Latvia; Analysis of Metal Processing Sector. Masters Thesis. Riga, 2004.

Design for Environment or eco-design

If the CP is more applied to processes, there are also product-related tools for environmental improvements. CP definition includes the products too; however, for the sake of simplicity, we will describe the situation with eco-design in Latvia (together with other Baltic States). The main source for this section is the publication of Nordic Council of Ministers „Eco-Design in the Baltic States’ Industry”, 2003¹¹.

The above-mentioned study identified the main drivers for eco-design, eco-design situation in industry, education and training needs, possible support mechanisms for eco-design and main actors in the field.

Product related environmental activities in companies

To identify what the companies are doing in terms of environmental improvements in products, a small survey was carried out in all three Baltic States. The results acquired in all three countries were similar and therefore applicable to Latvia as well to Estonia and Lithuania.

Most of the respondents of the survey (total 54 companies) in all three Baltic States indicated that they have included the environmental aspects of the products in their environmental policies. However, it was found out that still, the focus is environmental problems in processes and there are many urgent environmental problems related to processes that companies need to solve.

Most related to products were following environmental activities:

- to replace hazardous raw materials with less hazardous,
- to minimize the waste,
- to reduce use of raw materials,
- to use more environmentally friendly raw materials.

The awareness of eco-design in companies is low, even amongst most advanced companies. The focus of attention is on processes, modernization of equipment etc.

However, there are some eco-designs strategies used for modifications of products, and these usually concern a single issue. The issues usually are replacement of hazardous chemicals used in the product or in the product finishing stage (e.g. use of lacquers), improvements in packaging (reduction of material per unit of packaging, change of packaging type) and improvement of quality and longevity (this may not be for environmental reasons). Similarly, the methods for taking into account the environmental aspects in products most often are checklists to select less hazardous materials. There is no indication of use of Life Cycle Assessment in Latvia or in other Baltic States in the commercial sector, except for some research and pilot projects.

Drivers for eco-design

The most important drivers for eco-design is legislation, market demands and cost reduction. Especially legislation on packaging and chemicals is fostering changes in products. Additionally, companies that operate in export markets where there are specific regulations e.g. on electronic and electric waste, were forced to take into account these issues already before the national legislation was in force.

Policy framework for eco-design

There is no elaborate environmental product policy developed in Latvia or in any of the Baltic States. Even if product policy measures are mentioned in the general environmental plans and programmes, there are no suggestions on how to implement them in practice. The policy documents merely declare on paper that there is a need to stimulate introduction of environmentally friendly products in the Baltic States.

Competence, education and training on product development and eco-design

The main sources of education in product design and design engineering are technical universities (Riga Technical University). Product design is also taught in art schools (e.g. Academies of Art). Some other educational institutions provide branch-specific education in design and engineering. Vocational training on product development is not available on regular basis. The environmental issues are taught minimally at these establishments. The eco-design courses are planned to be in curricula at universities that belong to BALTECH (the network of universities around the Baltic Sea) consortium as a part of MSc programme on Environmental Management, for example, there is an eco-design course at Riga Technical University.

The competence in industry in eco-design is not developed. Companies use internal competence sources mainly that allow them to solve the single issue problems but surely lack more wider understanding of eco-design.

¹¹ Belmane I., Karaliunaite I., Moora H., Uselyte R., Viss V. Eco-design in the Baltic States’ Industry. Feasibility study. Nordic Council of Ministers. TemaNord 2003:559. Copenhagen 2003.

One of the biggest problems that are related both to industrial development and innovation as well as eco-design, is the weak level of innovation in Latvian industry. There is a very weak link between science and research institutions and the industry, and this is a barrier for economic development as well as creating more environmentally friendly products.

A survey of environmentally friendly entrepreneurial activity

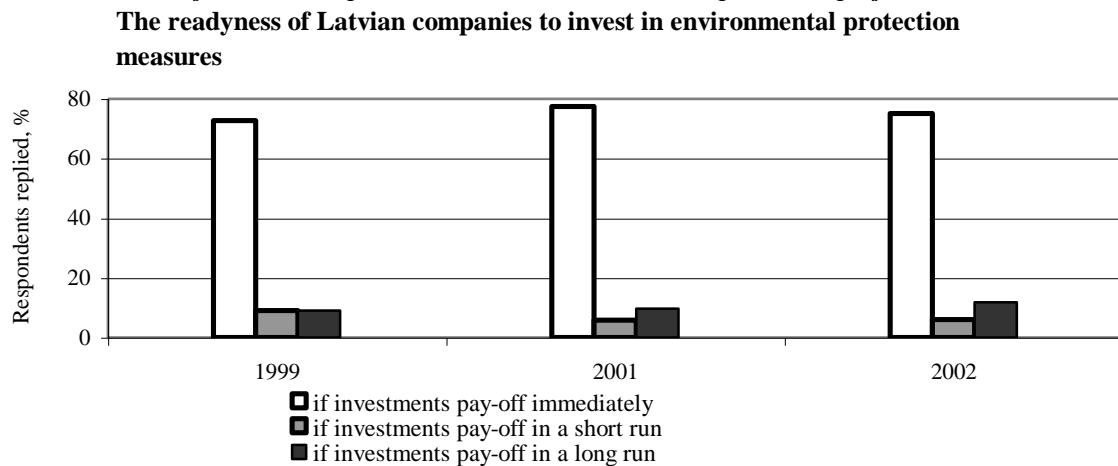
University of Latvia has carried out the surveys of self-assessment of Latvian companies about their perception on environmentally friendly entrepreneurial activity (EFEA). EFEA survey reflects the self-assessment or perception of Latvian industry about their impact on environment and its management. The survey shows following self-assessment indicators:

- Strategic entrepreneurial decision regarding environmental protection;
- Organisational issues that apply to entrepreneurship resulting from the interaction of those participating in the business environment (personnel, co-operation partners, consumers etc.);
- Technological solutions.

In order to assess Latvian entrepreneurial activity the University of Latvia has been carrying out a survey of companies since 1999. A typological selection of 800 companies was developed for this purpose, into which Latvian companies were incorporated on principle of random selection. In developing the selection, the company's location and line of business were taken into account as well as the company's size in terms of its number of employees.

In highlighting the main points regarding these strategic indicators, it should be pointed out that Latvian companies, in making investments in their entrepreneurial activity that are related to aspects of environmental protection, and are primarily interested in short-term return on investment. A three-year survey (Figure 10.) indicates that this trend is being maintained. One positive feature is that there has been a slight increase in the proportion of those companies, which are prepared to invest in projects that offer a longer-term return on investment – for example, in educational projects within their own companies.

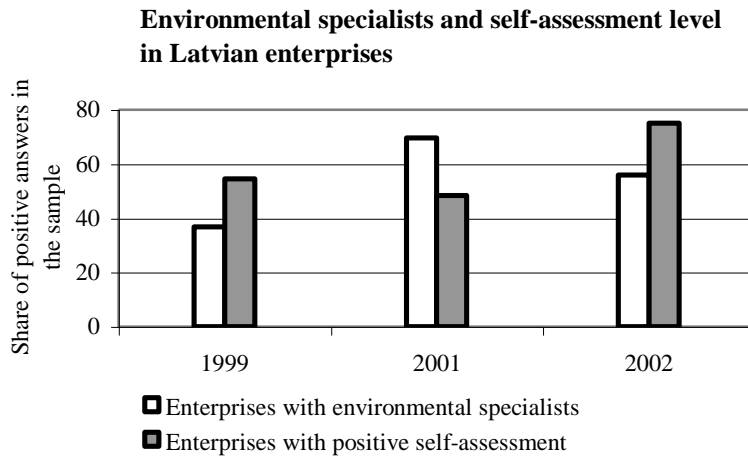
Figure 10. Readiness of Latvian companies to invest in environmental protection projects



Source: The Faculty of Geography and Earth Sciences of University of Latvia

Of the **strategic group's indicators** the definite interest (Figure 11.) of companies in consultations from environmental specialists should be noted, because it proves that there is likely to be a demand for such specialists within Latvian entrepreneurial activity. In turn, the positive self-assessment provided by entrepreneurs indicates that EFEA methods are becoming a realistic feature of business for a lot of Latvian companies.

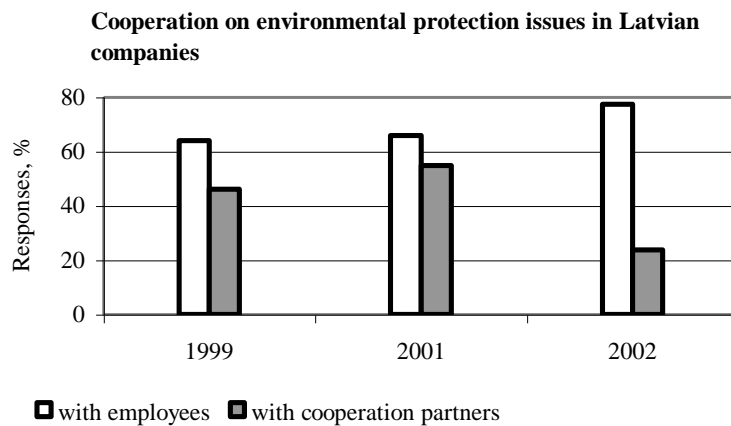
Figure 11. The level of self-assessment among environmental specialists and entrepreneurs in Latvian companies



Source: The Faculty of Geography and Earth Sciences of University of Latvia

Among **organisational factor indicators** two stand out. Firstly, that which indicates the nature of internal company co-operation in regard to environmental protection issues. The results regarding co-operation with personnel (Figure 12.) indicate that employees within Latvian companies are successfully helping to introduce improvements related to environmental protection. In turn, co-operation with co-operation partners is less effective.

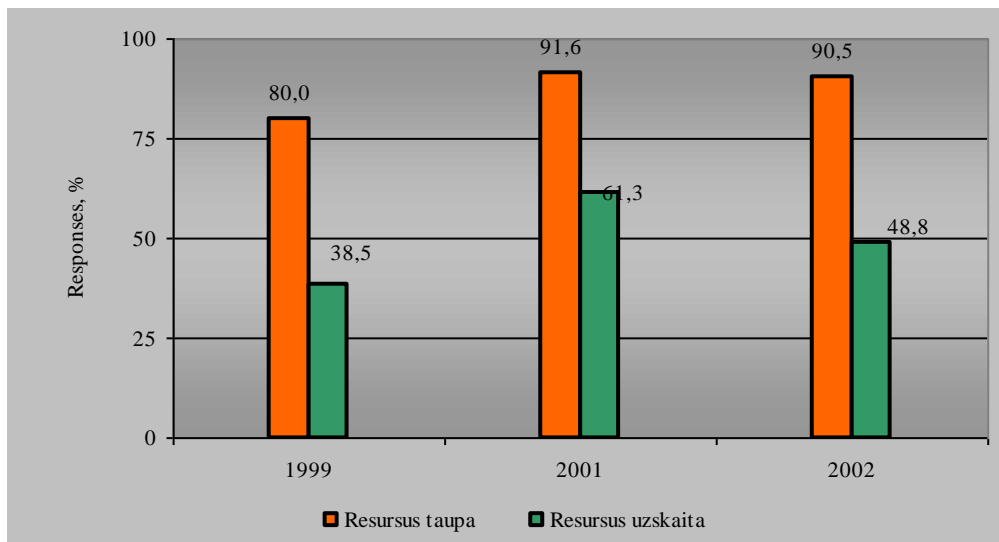
Figure 12. Co-operation of Latvian companies in nature conservation issues



Source: The Faculty of Geography and Earth Sciences of University of Latvia

Technological factor indicators indicate whether companies are choosing technological solutions in taking into account environmental protection criteria. The first pair of indicators in this group relates to resource conservation and accounting. The majority of Latvian companies purchase and use equipment that conserves resources: electricity economising equipment etc., however, far fewer in number are those companies that carry out resource accounting (Figure 13.). Moreover, very few companies in Latvia carry out accounting of the full life cycle of products or services.

Figure 13. Resource management in Latvian companies



Source: The Faculty of Geography and Earth Sciences of University of Latvia

The results of the survey, however, must be taken with caution since the survey provides data of industry self-assessment but the self-assessment is not compared to the real situation in companies, for example, what kind of technologies are used (e.g. BAT), what kind of environmental specialists with what kind of competence are employed etc.

Consumer information

The end-consumer is one of the most decisive elements for the introduction of sustainable production and consumption patterns. The consumer can make much more responsible choices and use of goods and services. The producer is responsible for offering suitable production and Government agencies are responsible for developing appropriate infrastructure. Consumers need general education about goods and services and their impact on the environment and information about products and the sales locations of producers.

One of the ways to educate consumers is information available on product labels. Several labelling systems have been designed to ease consumer choice. Labels show utilization possibilities by type of product. Those are:

- Chemical Substance Label – gives the basic information on use and threats of the product and its ingredients.
- Energy Efficiency Label – currently only obligatory for washing machines, refrigerators, electrical ovens, and bulbs.
- Packaging Label - this label applies to plastic, paper and metal packaging. The packaging is required to show the material code and recycling method.
- Food Products Label – this include labelling for genetically modified organisms.
- GMO labelling – gives consumers information of GMO content in the food products.

Unfortunately, consumers are not always aware that they should have knowledge of this information prior to acquiring goods. There are several institutions working on providing consumer education. The Consumer Protection Centre and Latvian Consumer Interest Protection Association (PIAA in Latvian) work on general consumer education and protection of their rights. As an example of what can be done, the PIAA has prepared a consumer information page for publication, „What must a consumer know about genetically modified foods?” There are also some environmental NGOs working with the consumer education, but they are very marginal.

Latvia, in recent years, has developed legislation that fully corresponds to EU directives. The Consumer Rights Protection Center has been created as well as other institutions including the Food and Veterinarian Service, the National Sanitary Inspection, and others. However, above mentioned organizations do not get involved with the analysis of the ecological aspects of consumption and related consumer education. Their primary mandate is to protect consumers from dishonest merchants and poor products.

There has also been a rapid development of advertising. This encourages consumers to ever-greater consumption without always providing full information about products and services; sometimes even being deceptive. Even the state institutions are using such marketing methods. For example, state owned energy company “Latvenergo” at the end of 2003 run the advertising campaign encouraging all the consumers to purchase new household electrical appliances. Advertisements are a new phenomenon for Latvian consumers. Consumer protection is necessary

against partial and deceptive advertising that promotes the purchase of poor quality goods, services, and unneeded products. Sometimes advertising also promises to solve unsolvable problems. Though an active unified consumer protection system is lacking, there are several government agencies whose mandate includes regulation of the advertising market.

Eco-labelling

In order for a consumer to make an informed purchasing decision, a great deal of information is necessary regarding the producer, the goods, how they were produced, used, and utilized, and how this impacts the environment, social circumstances, and the local economy. Many questions must be posed which cannot always be answered by examination of packaging and advertisements. Often the merchants or even those marketing the product don't know the answers. To solve these problems, Latvia is using a variety of environmental labels to provide consumers with greater information about products in an attempt to ensure informed consumer choice, but these labels are rarely recognized by consumers and poorly promoted.

In Latvia products are available with popular Scandinavian eco labels such as the: Nordic Swan, Good Environmental Choice, and some products with Germany's eco label, The Blue Angel, and The EU Eco-Label. However, these labels have an insignificant role in consumer choice. Green Liberty has made public opinion poll on consumer choices and only 4% responded, that they choose products according to their environmental impact. However there are also several national eco-labelling schemers on the marketplace.

One of the most popular is **eco-label on organic food**. Quality of organically grown agricultural products is guaranteed by regular inspections on all the production stages for organic products, that is, all of those manufacture, process, trade or import products that are marked as being organically grown are subject to control and supervision. The certification of companies is repeated on an annual basis. In each country in which the production of organically grown agricultural products takes place there is a responsible State institution that gathers information about certified companies, supervises the certification process and prepares a list of names and addresses for certified companies.

In 2003 the number of certified biological agriculture farms is getting close to four hundred; they cover an area which equals nearly 1% of the total area of agricultural lands. The principal fields include grain farming, vegetable farming, dairy cattle breeding and bee-keeping. In the absence of a processing system for these products, mainly unprocessed products are sold such as vegetables, buckwheat, honey and bee-keeping products. As the demand for these products increases in the domestic market, biological agriculture could take up to 25% of agricultural lands if processing of these products is ensured and the EU market used. In comparison to other Northern European countries, just as in Estonia and Lithuania, in Latvia organic agriculture is developing extremely rapidly.

Table 2. The number and area of certified organic farms in Latvia, 1998. - 2002.

Year	Certified organic farms	Area (ha)
1998	39	1426
1999	63	1628
2000	78	4400
2001	219	10549
2002	353	16934

Source: Certification center "Vides kvalitāte"

Another Eco-labelling scheme, which is getting more and more popular in Latvia, is "**Green Certificate**" for **Eco-tourism**. It is an environmental quality eco-label for tourism establishments, who protect nature and landscape, use water and energy resources rationally, practice environment friendly waste collection and management, offer environment friendly tourist activities, healthy, locally produced food and thorough information on local nature attractions, historical and cultural heritage sites.

The rural tourism association "Lauku celotajs" issues this certificate. At the beginning of 2004 the total number of eco-labelled rural tourism accommodations in Latvia was 53. The most "Green Certificates" have been awarded to rural tourism establishments in Cēsis, Limbaži, Kuldīga and Talsi district.

It is also planned to introduce the Europe wide eco-certificate for hotels – "**Green key**". This is run by Environmental Protection Club. Until now there is only the intention to do it, but no practical works started.

Several branches from Environmental Protection Club (Green Liberty and Vides Vestis) in cooperation with partners from Estonia, Lithuania, Poland and Denmark have developed criteria for eco-friendly **laundry detergents and washing-up liquids**. There is also the list of environmentally friendly products prepared and in some of the

shops they are marked with special label. The goal is to develop criteria also for other product groups, like paper, cosmetics, etc.

One more important eco-label in Latvia is **forestry certification**. Two certification systems are currently utilised: the Forest Stewardship Council (FSC) and the Pan European Forest Certification (PEFC) respectively.

The FSC system is developing particularly rapidly. It is essentially related to the fact that State Joint Stock Company "Latvian State Forests" has selected this certification system in order to certify State-owned forests. By July 2002, forests covering an area of 906,000 ha had been certified on the basis of the FSC system (of which 846,000 ha – were in State-owned forest areas). There has been a significant increase in the number of companies that have received FSC certified wood chain of custody certificates, which testifies to the growing interest among Latvian entrepreneurs regarding certification. By July 2002, 35 companies had received such certificates.

The PEFC certification process is economically more viable for small forest properties, therefore until now only private and local government forest owners have participated in certification system. All together by November 2002, forests covering an area of 17,000ha had been certified on the basis of the PEFC system (of which 11,000ha had been certified prior to July 2002) and PEFC certified wood chain of custody certificates had been received by seven companies (of which three had received certificates prior to July, 2002). In the near future, certification of State-owned commercial forest areas will soon be completed; therefore, the future growth of certified forest areas will decline and will mainly depend on the volume of certification of forests managed under private ownership.

Until now, Latvian companies have primarily certified their timber chains of custody in order to preserve their current niche in the market in the event of their trading partners expressing a desire that the timber supplied to them should be certified. The future development of certification will be dependent on the market demand for certified timber products.

Green procurement

In 2002 governmental consumption in Latvia accounted for 18% of GDP and was 484.3 million Lats¹². Changing this into environmentally friendly patterns could significantly influence the market of environmentally friendly goods. State and municipal procurement on supplies, services and works is regulated by law on Procurement for Governmental and Municipal needs. This law has been changed several times and currently it fulfils all the requirements set by EU directives in this field.

This law also sets the main procurement principles. One of them states that contractor can not put forward any demands which could make better conditions for some of the tenderers, or in any other way restrict competition. This shows that the law is in line with the dominant market economy principles, but in the same way this is one of the main obstacles on greening procurement process, as environmental demands can be seen as limiting factor on competition.

But actually law is giving the right for contractor to set quality criteria and social and / or environmental criteria can be integrated in the tender's regulations, but they can not be discriminative, but should be measurable and objective. However the use of such a criteria in Latvia so far has been very limited. Only some of the municipalities and state institutions have ever used any environmental criteria in their procurement process. For example, ministry of Environment is printing their publications on recycled paper, or some municipalities have bought energy efficient light bulbs. But these cases are episodic and not always motivated by environmental concern.

Main bottlenecks for Green procurement in Latvia, similarly to other Baltic states are:

- Information and Motivation Barriers – there is lack of information and education for officials on environmentally friendly products, and possibilities to introduce environmental criteria in the tendering procedures;
- Economic barriers – environmentally friendly products in many cases are more expensive and officials lack knowledge in life cycle assessment;
- Legal barriers – green procurement is not specified in the legal acts and there are no guidelines on use of green procurement;
- Organisational and political barriers – there is lack of political and organizational courage to fasten green procurement;
- Technical barriers – could be that new products do not fit other equipment; green products could be rarely or unreliably available, etc.

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