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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

INDUSTRIAL DEVELOPMENT REVIEW SERIES

LITHUANIA

Industrial re-orientation

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LITHUANIA

Industrial re-orientation

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PREFACE

This Industrial Development Review of Lithuania has been prepared by the United Nations Industrial Development Organization (UNIDO), with the support of UNDP funding facility under TSS-1, as part of a review of industrial development in the Baltic States.

The Review attempts to present a survey of the industrial sector of Lithuania within the framework of the work programme of the Regional and Country Studies Branch of UNIDO. The purpose of the Review is to provide a ready source of information and analyses of Lithuanian industry for the United Nations system and other international agencies concerned with industrial development and cooperation. In a broad sense, the Review is designed to accommodate the needs of a wide readership in the international industrial community associated with industry, finance, trade, investment, business, research and government. More specifically, the analyses contained in the Review are intended to support technical assistance programming and investment promotion activities as well as to serve as a basis for informed discussions of the changing pattern of industrial development in Lithuania.

The present document comprises four Chapters. Chapter I presents a diagnosis of the economy of Lithuania focusing on macroeconomic trends and the short-term outlook. The policy framework for industrial development and the investment climate are examined in Chapter II. Chapter III analyses the structure and performance of the industrial sector with particular reference to output, employment, productivity, wages and salaries, international trade, investment patterns, industrial location, environmental issues, and external technical cooperation requirements. Chapter IV examines the retrospects and prospects of key industrial branches, highlighting the plight of selected enterprises in each industry branch during the transformation process. Up-to-date information on industrial production, employment and sales in internal and external markets as well as a list of enterprises slated for privatization are presented in a set of Annexes.

This Review of industrial development in Lithuania, which was the first among the Baltic States to become a member of UNIDO on 17 October 1991, is based on information available as at May 1993.

EXPLANATORY NOTES

References to dollars ($) are to United States dollars, unless otherwise stated.

Dates divided by a slash (1991/92) indicate a fiscal year or a crop year. *Dates* divided by a hyphen (1990-1991) indicate the full period, including the beginning and the end years.

In this publication, references to the Federal Republic of Germany and the German Democratic Republic indicate the period prior to unification of the two German States, on 3 October 1990. As of that date, the designation "Germany" is used. In Tables and listings, the former component States are listed under "G": Germany, Federal Republic of; German Democratic Republic.

In Tables:

Totals may not add precisely because of rounding.
Two dots (..) indicate that data are not available or not separately reported.
A dash (-) indicates that data are not applicable.

The following *abbreviations* are used in this publication:

CBSS	Council of Baltic Sea States
CIS	Commonwealth of Independent States
CMEA	Council for Mutual Economic Assistance
CPC	Central Privatization Committee
EC	European Community
ECU	European Currency Unit
EFTA	European Free Trade Association
EPD	Environmental Protection Department
FDI	Foreign direct investment
GDP	Gross domestic product
GNP	Gross national product
GSP	Generalized System of Preferences
IMF	International Monetary Fund
Litas	Lithuania's national currency valid until 1940
MFN	Most Favoured Nation
MVA	Manufacturing value added
NMP	Net material product
OECD	Organization for Economic Co-operation and Development
Rb	Rouble
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

BASIC INDICATORS

BASIC INDICATORS I: THE ECONOMY

Gross national product (1992) : Talonas 298.2 billion[a/]

GNP per capita (9 months 1992) : Talonas 45,438

Population (1992) : 3.752 million

Labour force (1992) : 1.906 million

Growth of net material product (Percentage)[b/] :

1986	1987	1988	1989	1990	1991	1992 (9 months)
6.3	4.8	10.7	1.6	-6.0	-6.7	-35.0

Structure of NMP (Percentage)[c/] :

	1985	1991	1992 (9 months)
Agriculture	30.9	24.0	12.2
Industry	32.6	53.3	56.0
Construction	13.7	5.9	7.1
Trade and tourism	5.3	6.1	14.3
Transport and communication	4.9	5.8	8.4
Other	12.6	4.9	2.0

Exports (1992) : Talonas 107,754.4 million

Imports (1992) : Talonas 77,142.8 million

Trade balance (1992) : Talonas 30,611.6 million

Current accounts :

1992 (Million talonas)	1992 (Million dollars)
12,465.05	212.02

Percentage change of consumer prices :

1986	1987	1988	1989	1990	1991	1992
4.5	4.7	2.4	2.1	8.4	224.7	992.8

Exchange rate (Rouble equivalents to $1)[d/] :

1992
181.55

Exchange rate (Talona equivalents to $1)[d/] :

1992	1993
181.55	517.21[e/]

Sources: Statistical Office of Lithuania.

a/ Preliminary.
b/ In constant prices.
c/ World Bank Statistical Handbook No. 3/92.
d/ Average of Lithuanian Banks.
e/ End-April 1993.

BASIC INDICATORS II: KEY INDUSTRIAL INDICATORS

Industrial output (1992) : Talonas 167 billion[a/]

Growth of industrial output (Percentage) :

1986	1987	1988	1989	1990	1991	1992
5.0	5.0	6.0	4.0	-3.0	-5.0	-51.6

Structure of industrial production (Percentage) :

	1970	1985	1991	1992
Food industry	31.4	24.2	31.5	29.6
Light industry	26.5	22.1	21.3	17.0
Machine building and metalworking	15.9	23.2	18.3	18.3
Building materials	6.3	5.3	5.2	5.6
Wood and paper products	6.2	5.7	5.8	5.3
Chemicals	4.5	4.2	3.0	5.2
Other	9.2	15.3	14.9	19.0

Composition of manufactured exports (Percentage, 1992) : Food (18.11), commodities (26.38), building materials (2.87), chemicals (8.15), fuels, minerals, metals (11.4), machinery and equipment (18.7), other (14.39)

Composition of manufactured imports (Percentage, 1992) : Food (2.05), commodities (5.53), chemicals (8.0), fuels, minerals, metals (53.27), machinery and equipment (14.36), other (16.79)

Average annual earnings of employees in industry (rouble) :

1970	1975	1980	1985	1990	1991
129.6	155.4	183.8	208.5	303.1	857.8

1992 (9 months) (Talonas)
5,537

Percentage change of producer price :

1991	1992
293.9	1,602.7

Source: Statistical Office of Lithuania.

a/ In current producer prices 1991.

BASIC INDICATORS III: INTER-COUNTRY COMPARISON OF SELECTED INDICATORS

Indicator	Year	Unit	Lithuania	Latvia	Estonia
Population	1990	Thousand	3,752	2,680	1,581
Gross material output produced	1990	Million Rb	25,097	20,612	12,777
Structure of GMP	1991	Percentage			
Industry			54.0	60.3	61.7
Agriculture			25.3	20.2	17.5
Transport and communication			3.9	5.5	5.3
Construction			10.1	6.6	8.6
Trade, material and technical supply, etc.			6.7	7.4	6.9
Growth of industrial output	1992	Percentage	-51.6	-78.7	-
Structure of industrial production	1990	Percentage			
Electricity generation			4.6	1.6	5.0
Basic fuels			3.2	0.4	2.1
Metallurgy			0.4	1.6	0.1
Chemical and oil processing			3.6	7.4	7.7
Mechanical engineering and metal processing			26.6	27.9	17.1
Timber, wood processing, pulp and paper			5.2	5.4	9.2
Building materials			4.9	3.1	4.3
Glass, chinaware, pottery			0.3	0.6	0.3
Light industry			21.9	18.6	22.0
Food industry			21.0	24.7	24.5
Other			8.3	8.7	7.7

Source: Statistical Office of Lithuania.

SUMMARY

Lithuania is embarking on a major transformation of its economy. Following the promulgation of Independence in 1990 formidable challenges for the transformation process surfaced when Lithuania could not insulate its economy from the general wave of economic deceleration that has swept across central and eastern Europe in recent years. Having suffered a negative growth rate of 6 per cent in 1990 the economy of Lithuania plunged into rapid deterioration with a double-digit fall of net material product in 1991 and 1992.

A major task is to adjust the economy to the challenges and opportunities of the new economic environment and, in particular, to accelerate the speed of the privatization process, successfully introduce the new currency, contain inflation, and to protect the vulnerable sections of the society which are most effected by the transformation process. The changes in the productive sectors have led to open unemployment and four-digit inflation level in 1992.

A number of policy measures have been introduced to induce the shift from a command economy to a market economy. Structural adjustment measures relating to industry are aimed at generating an efficient supply response, stimulating stronger competition in the economy, accelerating the process of privatization, strengthening the managerial incentives, restructuring and rehabilitation, of large-scale enterprises, and reducing government involvement in industry.

The structure of industry at Independence was characterized by almost equal preponderance of light and heavy industries. Within the division of labour in the former Union of Soviet Socialist Republics (USSR), Lithuania was given the role of producing many of the high-technology products particularly for military needs, with guaranteed sales in and raw material supplies from the former USSR. Most enterprises were built at a scale much too large for Lithuania's domestic economy. However, unlike the other Republics of the former USSR the emphasis on heavy industry was far less pronounced, and Lithuania was able to develop light industries to a much greater extent than other Republics of the former USSR. In 1990 mechanical engineering and metal processing industries accounted for 26.6 per cent of industrial production, while that of light industry, comprising textiles, clothing and leather, stood at 22 per cent. Food processing accounted for 21 per cent of industrial production in the same year.

An over-emphasis on quantitative targets with neglect of cost and quality worked as long as highly subsidized raw materials were easily available with ready outlets for products. Relatively advanced technology of industries, by former USSR standards, serving military needs did exist. However, the absence of a creative climate and private initiatives towards efficient utilization of vast scientific and industrial potential with lack of incentives for cost efficiency and autonomy of decision making resulted in high energy intensity, and an ecologically unsound and technologically outmoded industrial system. The continued heavy import dependency on oil, energy and other raw materials, intermediate inputs from the CIS remains a major problem. The irregularity of supplies, frequent defaults of counter trade agreements, soaring prices of imported inputs and acute shortage of hard currencies are posing challenges to the complex task of rejuvenating manufacturing subsectors.

Food processing

Lithuania has a relatively good agricultural base to provide the raw materials for food processing. Livestock production is the major agricultural activity, although there also is significant crop production, mainly fodder for livestock. The recent increase in fodder production is in response to major shortages caused by irregularities in supplies from the Commonwealth of Independent States (CIS). The country is endowed with some resources for fishing, and over 50 per cent of the total catch is caught in the economic zones of foreign countries.

The declining farm output and livestock production may possibly be arrested in the foreseeable future in the face of a significant increase in the number of private farms. An increase in the number of grain farmers is likely to increase the supply of animal feed, leading to a revival in the production of meat and milk production. With a view to significantly enhancing fish production

Lithuania is counting on international agreements on fishing quotas in economic zones of foreign countries. The development of pond-fishing, eel, and trout culture in closed systems and rational use of natural water-pools for fishing are also envisaged.

While the domestic market is limited, the traditional export markets for Lithuania's food products are entangled in a number of problems. Barter trade agreements are frequently discontinued due to the compelling need for hard currency payments. It is a formidable task for Lithuania to penetrate the sophisticated markets of neighbouring Nordic countries. Only through a significant restructuring of the food industry will it be feasible to explore possible new market niches and to penetrate the traditional markets and re-establish them as an important export destination for food products.

Textiles, clothing and leather

Textiles, clothing and leather industries depend on imports to meet about 83 per cent of their raw material needs. The major locally available raw materials are flax thread, short flax fibre and hide. Linen textiles account for 70-80 per cent of the local raw materials used in the industry.

The textile and clothing industry of Lithuania seems to thrive even in a sombre industrial climate and with significant restructuring it may emerge as a promising product area on the export front and successfully compete even with some East Asian textile exporters. The technology used in most knitting enterprises is fairly modern. However, rationalization of the production process is needed to achieve short runs of differentiated products against mass production of standard items. The sewing segment will have to achieve a higher degree of technical progress in order to reach international standards. The traditional pattern of production conforming to the quality requirements of the domestic market and the eastern and central European markets is a constraint on "quick response" to market environment.

Lithuania's light industry is expected to be able to attract foreign investors for joint ventures. The progress in privatization in terms of selling the shares to workers is so far limited to only 25 per cent of the industry's equity, implying that a major option is to look for more foreign participation in corporate equity and joint ventures. With marketing experience, expertise and international business contacts the export potential of the country's light industry could be significantly enhanced.

Pulp and paper

Although Lithuania is endowed with 1.8 million hectares of forests, the domestic supply of raw materials for pulp and paper production is inadequate. As a result a significant proportion of the industry's raw material requirements are imported from the Russian Federation and other CIS countries. Lithuania's current waste paper recycling capacity is around 80,000 tonnes per year. Despite difficulties in the procurement of waste paper, there seems to be a strong tendency to increase the country's waste paper recycling capacity. As the domestic supply of waste paper is insufficient, it is imported from Belarus, Estonia, Kaliningrad and Latvia.

The installed capacity of paper and paper board production is currently estimated at 267,000 tonnes per annum. While Lithuania is a net exporter of paper and board, substantial quantities of consumer grade paper products are imported.

Given the shortage of principal imported raw materials and the country's dependence on imports for a number of consumer grade papers, there is a need to reassess the pattern of production and the orientation of industry. The basis for future production should largely be the availability of raw materials and the pattern of production should increasingly be attuned to the main grades that satisfy domestic demand and carry a competitive edge in external markets. In order to ensure adequate supply of pulp, Lithuania may consider the establishment of a new chemical pulp mill.

A major improvement in competitiveness is likely to be achieved through rationalization of the production process and modernization of the capital stock. Consumption of waste paper for recycling is likely to increase significantly in the foreseeable future.

Building materials

The building materials industry uses local raw materials such as clay, quartz sand, gravel and dolomite. Lithuania has the biggest cement plant in the Baltic region with an annual capacity of 3.6 million tonnes of cement. With the exception of conventional bricks and asbestos cement sheets the production of most building materials suffered serious setbacks in 1991 and 1992.

The highly energy-intensive cement factory emanates considerable atmospheric pollution in the form of particulates, currently estimated at 62,000 tonnes per year. Other segments of the building materials industry are also known for their inefficient pattern of energy consumption and ecologically unsound production process. There is a need to revitalize the production pattern with a view to achieving energy efficiency and ecological compliance.

The current slowdown in construction activity may prove to be a temporary phenomenon given the government's determination to implement infrastructural projects and to meet the growing demand for housing. However, the reorganization of the country's building materials industry can yield results only when different segments of the industry adopt new production processes and improve production techniques. The EC has planned a series of actions, *inter alia*, for the dissemination of information and the transfer of technology towards a more rational use of energy in cement production.

Chemicals

Lithuania's chemical industry is almost totally dependent on imported raw materials from the Russian Federation and other CIS countries. Most of its output, with the exception of mineral fertilizers, is exported to these markets as well. The industry currently produces a wide rage of products from nitric and phosphoric mineral fertilizers to sulphuric acids, synthetic washing detergents, dyes, paints and other household chemicals. With the exception of plastic membrane the output of chemical products has fallen sharply since 1990.

The production of chemical products is being inflicted by the need to pay world market prices for oil and gas feedstock. Currently a number of enterprises find themselves in deep recession due to acute shortage of raw materials, ecologically unfriendly production processes and inefficient use of energy and raw materials. The closure of old plants that are obsolete, inefficient and polluting seems inevitable.

The modernization process should add substantial capacity in higher value-added products. Given the total dependency of the industry on imports of raw materials largely from the CIS, the success depends crucially on strengthening bilateral trade links with the CIS in order to sufficiently ensure an adequate supply of raw materials.

Machine building and metal working

The establishment of one-fourth of the enterprises in this predominant manufacturing subsector dates back to the early 1940s. Around two-thirds of the enterprises came on stream between 1945 and 1965. Only 10 per cent of the machine building and metal working enterprises is equipped with machinery of the 1970s and 1980s vintage. For decedes around two-thirds of the enterprises were totally integrated into the former USSR. In the wake of the virtual collapse of the traditional markets there is hardly any demand for products produced according to the former specifications.

The crisis is exacerbated by lack of domestic demand for products in the wake of the current industrial deceleration. The regeneration of the machine building and metal working industry hinges largely on the evolving pattern of industrial development in the foreseeable future. Rapid industrial restructuring will significantly increase the technological gap between emerging industries and the existing supporting industries that produce tools and equipment.

In reorienting the country's machine building and metal working industry, Lithuania will need to capitalize on its rich tradition, experience and skill in the production of agricultural machinery and regenerate new production structures in order to cope with the changing pattern of agricultural production from large farms to small-scale farming. The new orientation of the industry has to stem from foreign collaboration which could facilitate the access both to advanced technology and external markets. The backward integration of manufacturing into selected fields of capital goods production such as machine tools and equipment presents itself an important factor strengthening the regeneration of this important segment of manufacturing.

Electronics and electrical appliances

Most of what was considered part of the defence industry was engaged in the production of components, sub-assemblies and products for both military and civilian use. The relatively well developed Lithuanian electronics industry, by standards of the former USSR, would need upgrading of technology to meet international standards.

While the technological sophistication of the industry will need to be significantly enhanced, the crucial role of joint ventures with major players of the world electronics and electrical appliances production in the world is being increasingly recognized. Promising product areas with good market prospects seem to be television sets and tuners, consumer and household electronic and electrical goods. Joint ventures could constitute an effective means of strengthening the industry's technological base.

Recent initiatives of the Lithuanian State plant Banga to manufacture television tuners with the assistance of leading transnational corporations typifies the industry's quest for interacting with international firms. Lithuania's cheap work force imbued with traditional skills is an advantage. With a significant infusion of modern technology and upgrading of human skills a wide range of sophisticated, high precision and high definition products could be produced. The rejuvenation of the industry in Lithuania would benefit from a possible increase in the demand for these products in central and eastern Europe.

The outlook

Lithuania now faces the complex task of restructuring the country's industrial sector to enable it to meet the current and emerging challenges of an increasing reliance on market-induced development and international integration. The task ahead for industry is to systematically reduce energy and raw material consumption in individual industrial companies and subsectors through technological changes of production. There is also a major need for pollution abatement and prevention in the industrial sector.

In the wake of the virtual collapse of the industrial system in an evolving market environment, the problem is to regenerate the industrial sector with inadequate essential ingredients such as capital and a wide range of physical and institutional infrastructure. The problem is further circumscribed by the limited size of the Lithuania's domestic market which may preclude the production of many industrial products at large-scale enterprises in the absence of export orientation.

Industrial restructuring thus entails, *inter alia*, outright closure of unviable enterprises. Many industries need support for restructuring their operations through appropriate institutional support especially for rehabilitation, technology acquisition, adaptation and development, equipment, credit,

investment promotion, subcontracting arrangements and training. New forms of industrial cooperation in this context could be facilitated by the government, multilateral and bilateral donors and inter-enterprise cooperation.

Foreign direct investment could play a pivotal role in the industrial development of Lithuania in as much as it can provide the country with urgently needed technology, capital, management, equipment, know-how and skills. However, attracting foreign direct investment is a highly competitive activity. Lithuania has to compete not only with other two Baltic countries but also with the re-emerging countries of central and eastern Europe, the Russian Federation, other countries of the CIS and a host of potentially attractive locations in developing countries, especially in East Asia.

The so far less pronounced priority accorded to heavy industry could make the restructuring task easier and less cost intensive than in the other two Baltic countries and the CIS. The process of industrial restructuring in the initial phase may entail efforts to maintain and modernize those existing industries which seem to show prospects in the new economic environment, such as textiles, clothing, food, wood and electronics industries. The market strategy will need to be two pronged: one will be to maintain the traditional links with the CIS and the other to embark on export processing, including subcontracting for west European companies. Simultaneously the gradual rationalization and phasing out of non-viable production lines and plants would need to be launched. The impact of rising costs of energy, material inputs and labour, will need to be assessed as will the trends in international competition. Simultaneously, efforts to stimulate domestic entrepreneurship and to accelerate the pace of privatization will need to be intensified. Retraining of labour for new production lines and processes also warrant immediate attention. External technical cooperation input flows into these crucial areas are essential for strengthening the current phase of industrial re-orientation.

I. THE ECONOMY OF LITHUANIA

A. RECENT ECONOMIC TRENDS

The economy of Lithuania is on the verge of rapid economic transformation. The impetus to embark on a major transformation of the economy stemmed from the promulgation of Independence by the newly elected Supreme Soviet in March 1990. The official international recognition of the country's Independence in September 1991 further strengthened the drive towards a market economy. The economy's heavy dependence on the Commonwealth of Independent States (CIS) as the main source of raw materials and major destination for exports has created formidable challenges for the transformation process.

Economic trends

As an integral part of the former USSR, the pace of economic expansion in Lithuania in most of the 1980s surpassed that of other Republics. According to official USSR statistics, with a 22 per cent increase in net material product (NMP) during 1985-1989, Lithuania ranked as the fastest growing economy in the former USSR. The growth of NMP in Lithuania was higher than that of the other two Baltic States and was significantly higher than that of the other former USSR and eastern Europe (see Table I.1). In the wake of the energy embargo of the former USSR and the two-week-long economic boycott as a result of the declaration of Independence in March 1990, the economy of Lithuania suffered a negative growth rate of 6 per cent in that year. Lithuania could not insulate its economy from the general wave of economic deceleration that swept across central and eastern Europe in 1991. The economy plunged into rapid deterioration with a double digit fall of NMP in 1991 and fell further in 1992.

Industrial trends

Until the late 1980s, Lithuania's industrial growth rate significantly surpassed the pace of industrial expansion in eastern Europe and the former USSR. In 1990, Lithuania still managed to record a positive industrial growth rate whereas in both eastern Europe and the USSR a decline was already registered. The good performance of Lithuania's industrial sector in the 1980s (as well as in previous decades) vis-à-vis eastern Europe, the USSR and neighbouring Baltic economies could not be sustained in the early 1990s. Lithuania experienced a 5 per cent fall in industrial production in 1991. Preliminary estimates indicate that industrial production has fallen by over 50 per cent in 1992. The severe industrial decelerations appear to have continued in early 1993.

Since 1989, agricultural production has declined substantially. With the drought in 1992, agricultural production is expected to have fallen even further. As much as 50 per cent of farm land currently under cultivation, confiscated by the Soviets since 1940, might be claimed back by previous owners or their heirs under the restitution scheme.

Table I.1. Intercountry comparison of growth of NMP, 1987-1991
(Percentage)

	1987	1988	1989	1990	1991
Lithuania NMP	5.1	10.7	1.4	-5.0	-12.8
Lithuania NMP produced	4.5	9.9	1.5	-6.0	-21.0
Latvia NMP produced	1.5	6.2	7.4	-0.2	-7.9
Estonia NMP produced	1.9	4.7	7.0	-11.1	-13.1
USSR/CIS	2.9	5.5	3.0	-2.3	-17.0
Eastern Europe	2.5	2.1	-0.9	-0.8	-13.0

Sources: *IMF*, "Economic Review, Lithuania", (Washington, April 1992), p. 18;
WIFO, Osterreichisches Wirtschaftsforschungsinstitut, "Oststaaten - Transformationskrise setzt sich fort", (Vienna, May 1992), p. 253;
WIIW, Wiener Institut fur Internationale Wirtschaftsvergleiche;
"The Baltic States, Country Risk Service, quarterly update", *The Economist Intelligence Unit*, data supplement, June 1992.

The budget

Lithuania had an unexpectedly high budgetary surplus equivalent to around 3 per cent of GDP in 1991. This was largely due to increased revenues resulting from price liberalization as well as ceasing of transfers to Moscow. The budgetary surplus was also ascribed to a reduction in subsidies and liberalization of prices ahead of Lithuania's major suppliers of imported raw materials. However, the fiscal situation seems to have become much more precarious in 1992 in the wake of adverse shift in terms of trade and continuing economic deceleration. The adverse shift in the terms of trade was mainly due to soaring import prices of oil and gas. As the government was prepared not to pass on the burden of these price increases to the general public, it had to pay for the cost of subsidization. Since the government revenue in real terms is expected to decline significantly while the need for increased public spending is growing, a budgetary deficit equivalent to 4.2 per cent of GDP was forecast for 1992. The actual budgetary deficit was likely to be even larger.

Trade

In the late 1980s, the former USSR absorbed around 93 per cent of Lithuania's exports, while about 84 per cent of the country's imports originated therefrom. Within the former USSR, the Russian Federation was the principal destination of exports and origin of imports, accounting for 50 and 55 per cent of total exports and imports respectively.

Lithuania's trade with other former Soviet Republics has already started to decline significantly. Total trade (imports and exports combined) declined from 108 per cent of GDP in 1987 to 65 per cent of GDP by 1991. However, not only inter-republic trade lost its importance but also foreign trade with former CMEA and developing countries (from 11 per cent in 1987 to 4.4 per cent of GDP in 1991). That decline in foreign trade is basically a reflection of the disintegration of the CMEA and the fact that an increase in trade with western countries could not in the short run sufficiently compensate for the loss of market in eastern Europe.

With freeing of its prices in 1991 (ahead of other former Soviet Republics) and the rest of the former USSR still working under regulated prices, Lithuania recorded a substantial trade surplus with the Republics of the former USSR, despite a nearly threefold increase in the price of its oil imports. The main reason was that average export prices, because of shortages in other parts of the former USSR, could increase almost twice as fast as average import prices. The market of the former USSR thus proved to be a sellers' market without competitive pressures to contain the increase in the prices of manufactures.[1]

But, this very favourable shift in the terms of trade for Lithuania is likely to represent only a temporary phenomenon, reflecting Lithuania's progress in liberalizing prices during 1991, ahead of the Russian Federation and other members of the CIS.[2] With growing domestic shortages within the country, despite the price hikes, Lithuania saw itself even forced to impose export controls on a wide range of products.

Prices and wages

As Lithuania pressed ahead with price reform as part of overall liberalization and deregulation of the economy the rate of inflation reached 224.7 per cent in 1991 and accelerated further in 1992. From January 1991 to July 1992, the consumer price index rose by 2,200 per cent. Some sources portray Lithuania as the country with the highest inflation in the Baltic region in 1991, while other sources indicate that Lithuania's inflation in 1991 was still significantly below the inflation rate of Latvia and at about the same level as that of Estonia.[3]

The developments in the CIS have been a major reason for the acceleration of inflation in 1991 and 1992, especially in respect of energy imports. Supplies of Soviet energy had already been erratic in 1990 and 1991. The situation deteriorated in late 1991 and early 1992 due to both physical shortages (following the crisis in the Russian oil industry) and due to rapidly rising oil prices. According to a decree proclaimed in the Russian Federation (January 1992), all Republics not belonging to the CIS are charged world market prices and would have to pay in hard currency.[4] This can be regarded as a major external price shock for the Lithuanian economy. Subsequent counter trade negotiations attempted to smooth the price shock.

In contrast to other former Soviet Republics, Lithuania's high inflation rate was not so much the result of a liberal monetary policy or a liberal fiscal policy as this was the case in other former Soviet Republics but due to external factors. Most other former Soviet Republics experienced lower inflation rates despite significantly higher growth rate of domestic credit and much higher rates of increase in national debt.

The strong increase in inflation in Lithuania was partly a reflection of Lithuania's relatively poor endowment with major raw materials (especially the lack of domestic oil and industrial raw materials) which made Lithuania more vulnerable to price increases than other former Soviet Republics. Another major reason for the above average growth rates of consumer prices in 1991 was the accumulated monetary overhang resulting from decades of forced savings. For the whole of the former USSR financial holdings due to forced savings accounted for around 20 per cent of GDP in 1990,[5] and the share for Lithuania was even higher. The accumulated amount of bank deposits in Lithuania amounted to 2.1 per cent of all Soviet bank deposits in 1988 (up from 1.5 per cent in 1970) although Lithuania's population represented just 1.3 per cent of the population of the former USSR.

Concomitant with the significantly high rate of inflation, the average level of wages increased by almost the same level in 1991, enabling Lithuania to maintain a relatively high standard of living compared with some neighbouring Republics. However, imports of some goods and services started to rise above the purchasing power of the Lithuanian population in 1992.

Recent wage increases in Lithuania should be seen against the background of very low (real) wages. An official study by the Lithuanian Ministry of Social Welfare indeed revealed that approximately 47 per cent of the Lithuanian population lived on incomes verging on the poverty line in mid-1991.[6] The minimum wage rate was linked to the cost of a consumption basket defined to reflect minimum subsistence needs in order to ease the economic hardship of large groups of society. It proved to be difficult to target those wage increases to the most affected groups of society only. As minimum subsistence needs were more affected by price deregulation than the prices for the whole range of goods produced, and as wages, mainly for political reasons, were allowed to rise parallel with the increase in the minimum wage rates in 1991, nominal wages started to rise significantly faster than the price index in the fourth quarter of 1991. Wages rose by about 350 per cent in the fourth quarter of 1991 against the previous year, while the retail price

index went up by about 278 per cent, implying a real wage increase in the fourth quarter of 1991 on a year earlier of about 20 per cent which further fuelled inflationary pressures.[7/] Prices subject to administrative control as of September 1992 were rents, various public utilities, transportation fares, fuels, etc.

Employment

The extremely low unemployment rate of 0.5 per cent at the end of 1991 was the result of both disguised unemployment as well as the extraordinary efforts of the government in the first year of Independence to cope successfully with shortages. According to privatization regulations, radical restructuring of production should be avoided with a view to reducing the number of persons becoming redundant.

Nevertheless, in February 1992, approximately 100 major enterprises (in electronics, engineering, chemicals and other industries) were forced to work well below capacity (mainly because of a severe shortage of fuel) leading to 20,000 workers representing 8 per cent of the workforce in Lithuanian State industry being out of work.[8/] Unemployment continued to rise further during 1992.

Money supply

One of the major problems has been the dependency on Moscow for money supply. Since Independence hardly any significant supplies of rouble notes from Moscow arrived in Vilnius (apart from one major shipment in December 1991 and one shipment in April 1992), leading to major shortages in money supply and prompting the government to introduce coupons, which on 1 October 1992 became the only legal tender. Efforts are under way to introduce a new currency, the Litas, in the foreseeable future.[9/] However, foreign exchange reserves to back up the new currency are still very small. Lithuania's foreign exchange reserves amounted to just $42.5 million at the end of 1991, i.e., $13 per inhabitant, compared with $95 in Poland, $203 in the CSFR, $373 in Hungary, and $1,342 in Austria.[10/]

France, Sweden[11/], and the United Kingdom[12/] have already agreed to return to Lithuania a total of 6.4 tonnes of gold, valued at around $72 million at world market prices which were frozen when Lithuania was incorporated into the former USSR in 1940. Nevertheless, foreign exchange reserves will remain low by international standards. Under these circumstances Lithuania, so far, has refused to accept any debt commitments entered by the former USSR other than those directly associated with enterprises on its territory. According to Lithuanian sources, the IMF will provide $85 million as a stabilization fund to help back the new currency and the EC has sanctioned a $300 million loan for all three Baltic States to reduce their balance of payment deficit and thus indirectly back their respective new currencies. The possibility of another $300 million from the rest of the Group of 24 industrialized nations, most of it borne by EFTA countries, is in the offing.[13/] Lithuania's net official international resources stood at $76 million by end-June 1992. Since Independence, the country has not accumulated any foreign debt.

With a view to alleviating supply bottlenecks which exacerbated the microeconomic inefficiencies, the Government of Lithuania has sought bilateral trade agreements with the CIS and other Baltic States. There are indications that bilateral trade agreements have frequently been discontinued, leading to acute shortage of key inputs and idle capacity in many factories. Major uncertainties regarding the supply of raw material inputs continue to constrain the transformation process. Following elections in October 1992, the new government is reported to have decided not to change the direction of the transformation process but to avoid any shock therapy by reducing the speed of the reform process. It plans to significantly improve the economic relations with the Russian Federation and other members of the CIS with a view to alleviating acute shortages of essential imports in the short run and to efficiently participate in the regional and international division of labour in the long run.

MACROECONOMIC TRENDS

Fig. I.A. Growth of net material product (NMP) and industrial output, 1986-1992

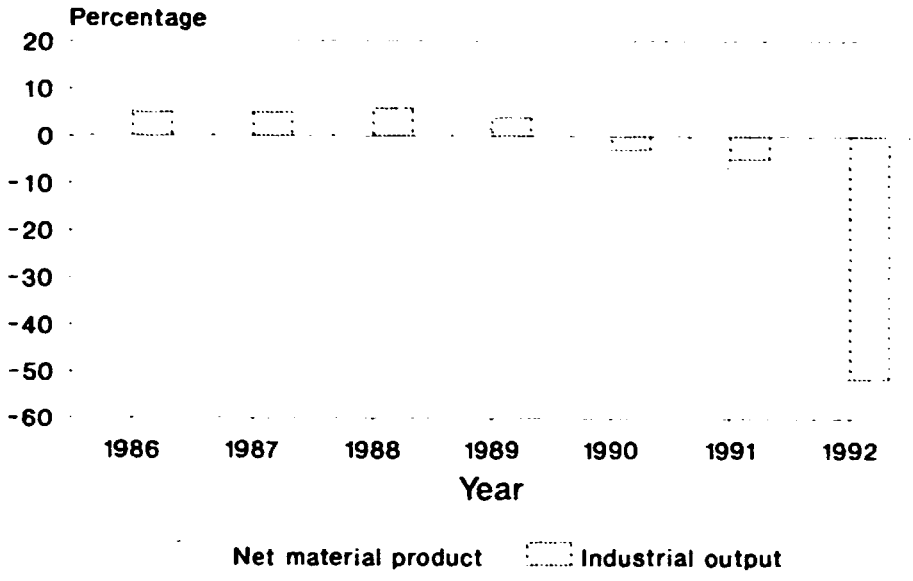


Fig. I.B. Structure of net material product, 1980, 1991 and 1992

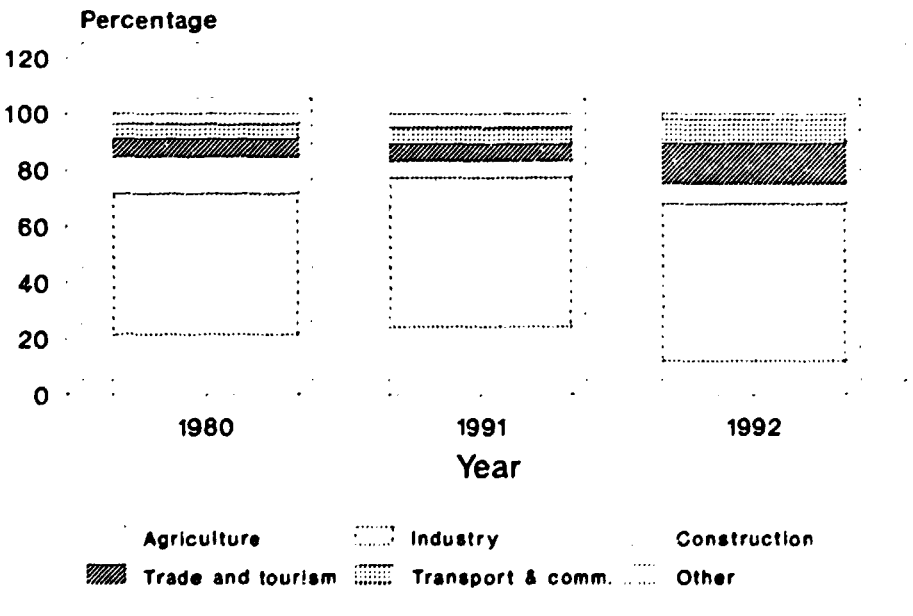


Fig. I.C. Trade with the CIS, Georgia, Estonia and Lativa, 1987-1991
(In current prices)

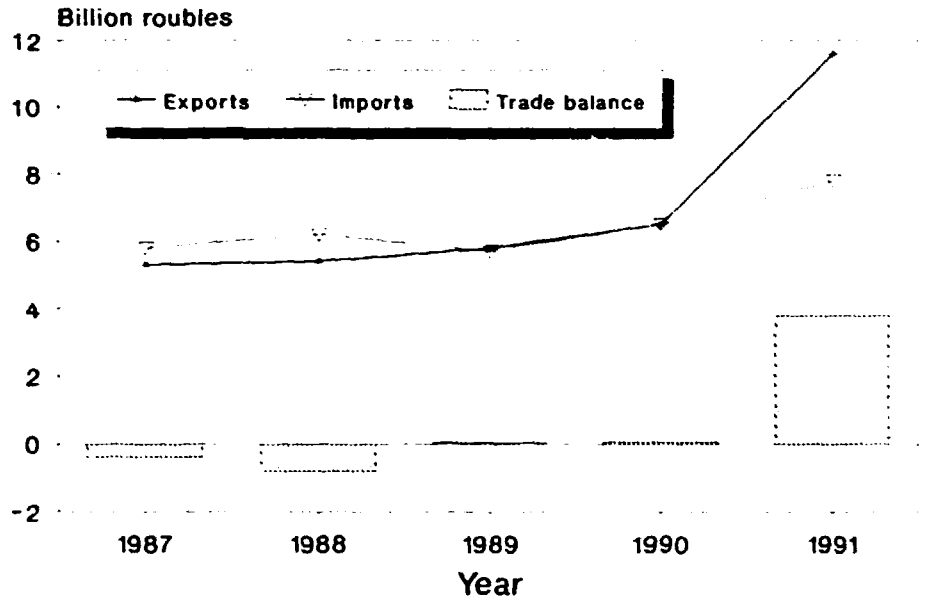


Fig. I.D. Trade with OECD countries
1988-1991
(In current prices)

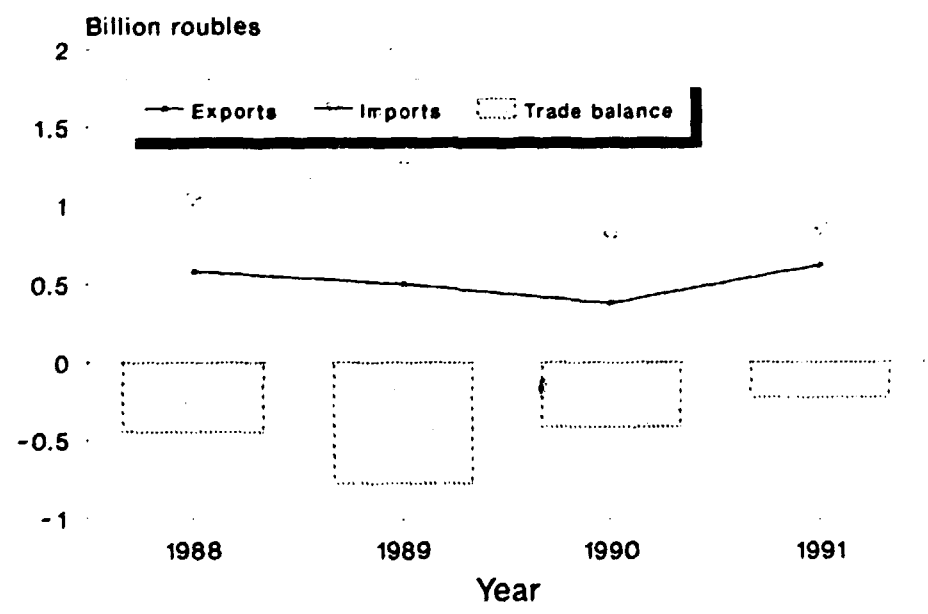


Fig. I.E. Exports in convertible currencies, 1988-1991 (In current prices)

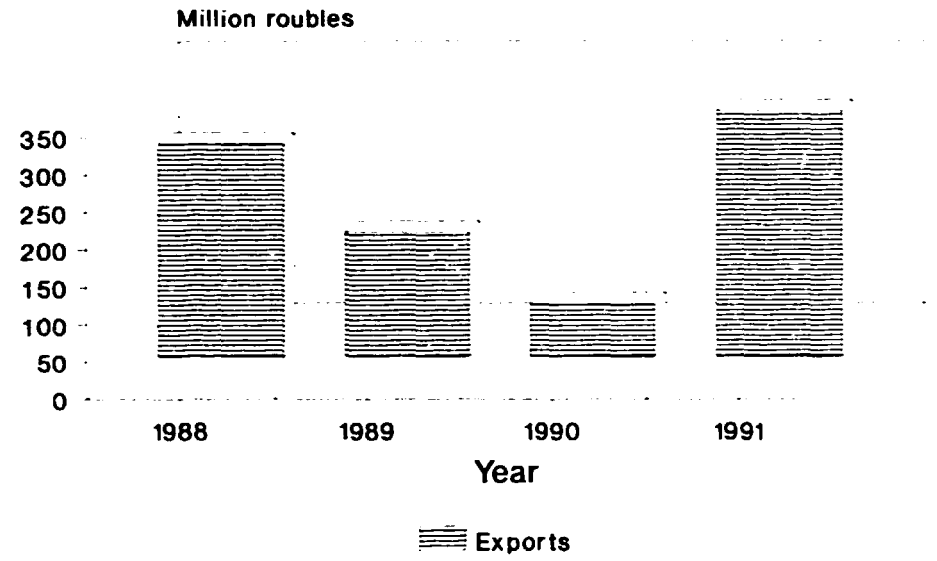


Fig. I.F. Employment in manufacturing, 1970-1992, selected years

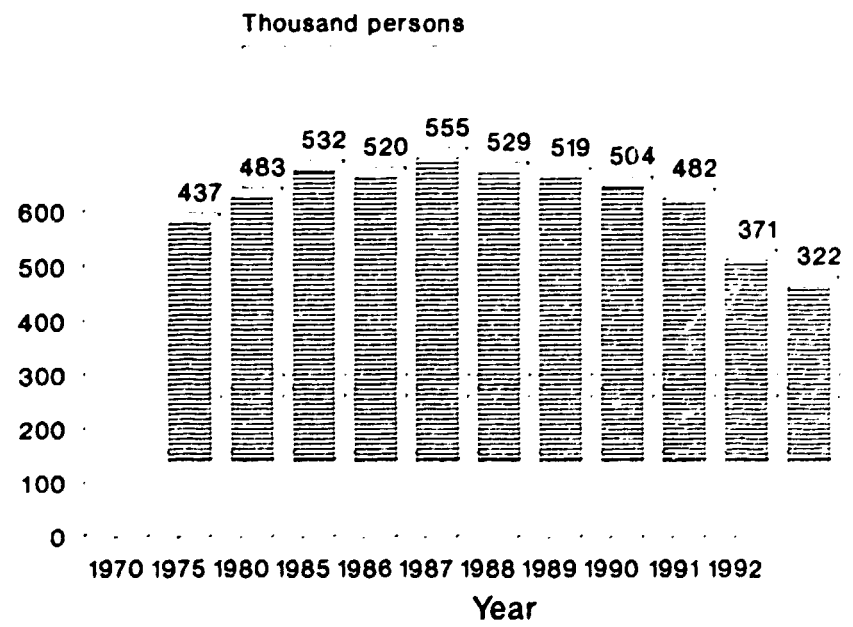


Fig. I.G. Percentage change of consumer prices, 1986-1992

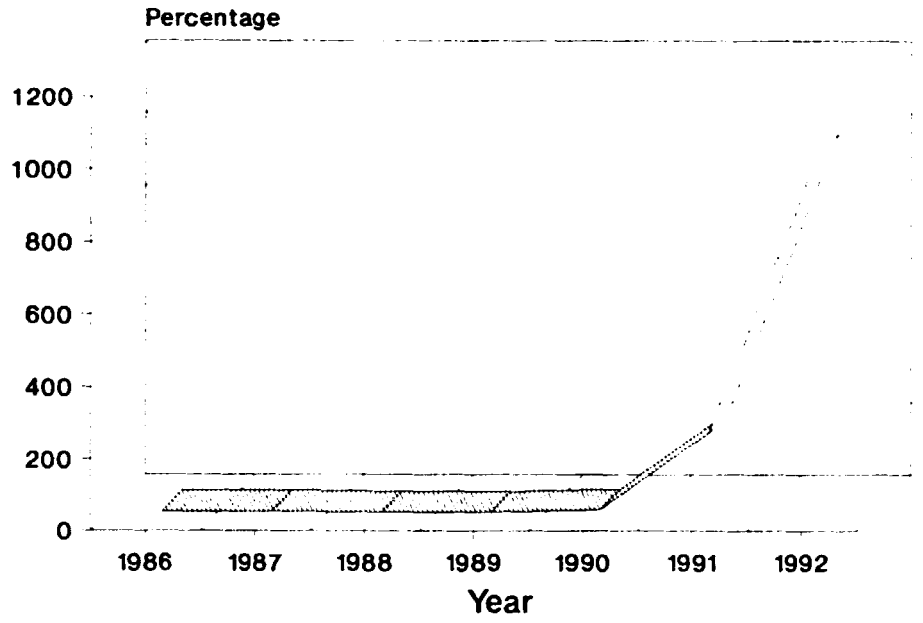
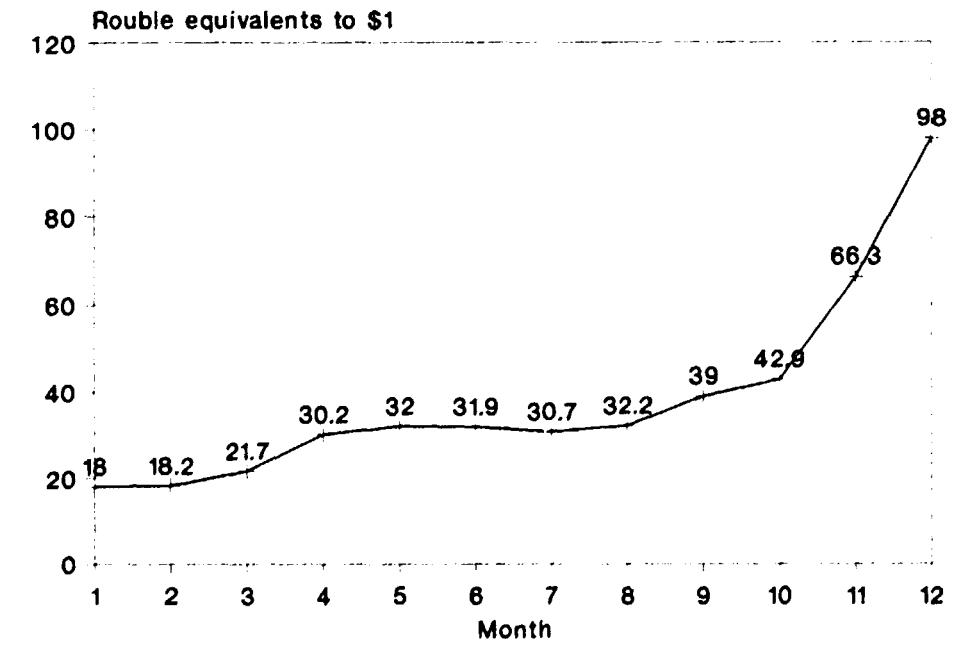


Fig. I.H. Exchange rate, 1991



Note: Bank of Lithuania's average monthly buying rate.

B. A DIAGNOSIS OF THE ECONOMY[14/]

The present economic crisis in Lithuania results mainly from the legacy of integration with the former Soviet economic system. It is only very recently Lithuania has embarked on the complex process of economic transformation towards a market-based system and greater international integration. There is a long way to go for the country in simultaneously: (i) creating the legal and institutional framework for economic transformation and market development; (ii) building up the new government administrative machinery and policies for introducing and supporting economic restructuring; (iii) commercializing, privatizing and restructuring industrial enterprises; (iv) gradually reducing the dominance of raw material supplies from and sales to one source and destination in order to become more integrated into and utilize opportunities in the international economy; (v) adjusting the purchasing, sales and cost calculation practices of companies to the market system requirements; (vi) introducing appropriate monetary policies, foreign exchange regime and new trade arrangements following the expected introduction of the national currency; (vii) attracting foreign investment and loan capital; (viii) acquiring and generating new technology for sustainable industrial development; ix) developing managerial skills and export market capacities of industrial enterprises. These indispensable and urgent tasks entail a proper diagnosis of the inherent problems of the economy.

In sharp contrast to its Baltic neighbours, Lithuania was still an agrarian society in 1945,[15/] with three-quarters of the population engaged in agricultural operations. Even today, agro-business, i.e., agriculture and food processing comprising mainly meat and milk processing, accounts for about half of Lithuania's domestic product. The share of agriculture in net material products in 1991 was 24.0 per cent (see Table I.2). The share of industry in NMP stood at 53.3 per cent in the same year. Major lines of production within the industrial sector include food processing, micro-electronics (consumer electronics, computers, robots etc.), mechanical engineering, consumer goods, light industry (textiles and garments), chemicals as well as shipbuilding and electricity (nuclear power plant at Ignalina near Vilnius)[16/].

Table I.2. Structure of net material product, 1980-1992, selected years
(Percentage)

	1980	1991	(9 months) 1992
Agriculture	19.2	24.0	12.2
Industry	45.6	53.3	56.0
Construction	11.5	5.9	7.1
Trade and tourism	6.0	6.1	14.3
Transport and communication	4.8	5.8	8.4
Other	12.9	4.9	2.0

Source: Department of Statistics, Vilnius.

In relative terms, Lithuania remained less industrialized than its Baltic neighbours which is, however, not necessarily a major disadvantage in the transition phase. Its *per capita* income, although high by Soviet standards, remained around 20 per cent below the level of its Baltic neighbours and so did *per capita* gross domestic product.[17/] In terms of NMP *per capita*, Lithuania ranked fifth within the USSR, after its two Baltic neighbours, the Russian Federation and Belarus.

Lithuania played a key strategic role because of its harbour of Klaipėda (Memel) which used to be the most important ice free harbour of the former USSR in the Baltic region ("East See")[18/] and which thus in the future could become a major source of income in East-West transit trade for Lithuania as well as the gateway of Lithuania's industrial sector towards the East and the West.

After Independence, Lithuania as well as the other Baltic States were quick to exploit their new "leverage" of possessing ice-free ports "by attaching onerous terms of trade" for the Russian Federation[19/], thus mitigating the Russian Federation's leverage on the Baltic States due to its *de facto* monopoly on a number of raw materials and oil for Baltic industries. However, the country's "greatest asset" is badly in need of modernization.

The continued heavy import dependency on oil, raw materials and intermediate (components) inputs from the CIS is a major problem. The low input costs in the past had led to high energy and raw material intensity in industry and had contributed to building up a production structure which is highly vulnerable to price increases of energy and raw materials. This dependency on cheap (well under world market prices) oil inputs from the CIS now causes great uncertainties for industry due to the irregularity of supplies and possible erratic price increases. It continues to expose the economy to unpredictable, sudden changes in supplies and prices of oil. At the same time, it tends to perpetuate the distortion of energy costs for industry. On the other hand, current arrangements for oil supplies certainly cushion, albeit delay, the economic transformation process. It must, in any case, be assumed that the current price and payment arrangements with the CIS will at some point be discontinued. Hence, Lithuania needs to urgently prepare for this change through far-reaching industrial restructuring and through gradual price adjustments.

The change to national currency could imply that trade with the CIS (and other countries) be handled in hard currency, which neither the CIS nor Lithuania possess. A major breakdown of this trade relation can thus be expected just as it happened with other countries in central and eastern Europe. Thus, Poland's trade with the former USSR[20/] virtually collapsed when the rouble clearance terminated. A fall of some 40 per cent in trade and the reversion to barter trade were the results and this still seems to prevail. In the former Czechoslovakia, the move to a convertible currency basis resulted in 1991 in a fall of total exports to former CMEA countries by about two-thirds, with significant implications for industrial and total output in the former Czechoslovakia.

In view of this expected trade shock, advance precautions will need to be taken so as to soften the impact. Corresponding trade arrangements with the CIS may have to be negotiated and the IMF negotiations are expected to address this problem and ensure the required support for the transitional period.

One of the problems is related to the lack of financial intermediaries between the government and international financing institutions on the one hand and the industrial companies on the other. This means that financial resources are being directed to the enterprises for investment purposes or as subsidies, loans etc., without stringent control of, or leverage over the company's performance, and/or repayment. It also may mean discriminating, non-market conform allocation of financial resources by or through the State. Indeed, a major problem confronting many central and east European countries stems precisely from a high indebtedness of State enterprises among themselves and to the State, without the State having the ability to assume any financial control or - on the other hand - arrange for debt relief. This also applies to trade with other Baltic and CIS countries. The large amount of unsettled bills puts a heavy strain on further development and cooperation with enterprises from countries of the CIS. International financial agencies/banks have difficulties in disbursing investible resources directly to individual companies and mostly do not find adequate government agencies which could effectively serve as intermediaries. Hence, in order to facilitate enterprise restructuring and new investment, the commercial banking sector will need to be developed as a matter of priority, the role of the Central Bank more clearly defined and the direct intervention and financial allocations and transfers by Central Government authorities restrained.

Lithuania now faces the complex task of restructuring the country's industry to enable it to meet the current and emerging challenges connected with an increasing reliance on market-induced development and international integration. This restructuring can be seen as a process at three levels: the overall industry, the specific industrial subsector and the individual enterprise levels. At the level of industrial enterprises, especially the larger enterprises, considerable efforts are

needed to adjust to the emerging, new conditions. These efforts cover diagnostic and actual restructuring work in the fields of management and marketing; technical and technological matters connected with adaptation and development of product and production processes; and financing including foreign investment-related aspects and cost accounting, financial control etc.

The very high energy and raw material intensity of manufacturing industry in general, and of some industrial subsectors in particular, constitute a major constraint for Lithuania's industry to attain international competitiveness. This is particularly so if the current arrangements for the supply of oil and raw materials from CIS are discontinued.

The task ahead for industry (and the concerned authorities) is to systematically (i) reduce energy and raw material consumption in individual industrial companies and subsectors through technological changes of production processes, and (ii) shift industrial production towards less energy- and raw material-intensive structures and product lines.

Lithuania also faces a major need for pollution abatement and prevention in the industrial sector. A particular example of heavy pollution can be seen in the (dead) rivers of Neris and Nemunas which meet in Kaunas and flow to the Baltic sea and the Kulpe River in northern Lithuania; also highly polluted is the Kursiu Lagoon which is the recipient of wastes from a pulp and paper factory in the Sovietsk area (Kaliningrad Region of the Russian Federation). For Lithuania and the neighbouring countries at the Baltic Sea these polluted rivers are of great and increasing concern.

The process of industrial restructuring in the initial phase may entail efforts to maintain and rehabilitate/modernize those existing industries which seem to show prospects in the new economic environment, such as textiles and clothing, food, wood, metal, engineering and electronics industries. Thereby, the market strategy may need a two pronged approach: one will be to maintain some of the traditional links with the CIS and the other to embark on export processing including subcontracting for west European companies. Major scope exists here to increase domestic value added and exports. Simultaneously, the gradual rationalization and phasing out of non-viable production lines/plants in industry would need to be launched. Rising costs for energy, material inputs and labour and the impact of these changes will need to be assessed and so will the trends in international competition. Simultaneously, the efforts to stimulate domestic entrepreneurship as well as foreign direct investment will have to be intensified. Retraining of labour for new production lines and processes will need to be enhanced.

C. THE ECONOMIC OUTLOOK

The economy of Lithuania is affected by both the transformation process as well as the break-down of traditional trade relations with the former members of the USSR.[21/] In contrast to other east European countries which were also confronted with the specific difficulties in transforming a planned economy (i.e., an economy which operated to a large extent according to quantitative or physical targets, largely neglecting costs) towards a market economy, Lithuania is not (yet) in a position to control its monetary policy which so far has impeded any serious attempts to proceed with macro-economic stabilization of the economy.[22/] The formidable task is to adjust the economy to the challenge and opportunities of the new economic environment and, in particular, to accelerate the speed of the privatization process, to successfully introduce the new currency, to contain inflation, and to protect the vulnerable sections of the society who are hard hit by the transformation process.

The traumatic changes in the productive sectors have led, for the first time in 50 years, to open unemployment.[23/] Inflation, which is no longer under direct control of Lithuanian authorities after prices have been freed, is reported to have reached four-digit level in 1992. In addition, Lithuania's important agricultural sector (and thus also the important agro-industrial sector) was affected by a severe drought in 1992, which will weaken one of Lithuania's most competitive sectors. Real value added in agriculture already fell by about 8 per cent in 1991 due to declines

in meat and dairy production following a large animal stock reduction in 1990 when the supply of imported feed grains was disrupted during the trade embargo.

Irrespective of these accumulated negative short-term effects[24] which led to a severe downturn of economic activity in 1992, and a further (but smaller) downturn in 1993, Lithuania's mid- and long-term prospects are favourable and significantly above those of the CIS[25] and at least as good as those many other east European and other Baltic States.

The policy measures taken by the Lithuanian Government have so far been very reasonable. The government has so far showed the necessary flexibility to deal with the immense problems facing the country. As a result of the Soviet economic boycott in the spring of 1990, the Lithuanian Government had already acquired some experience in dealing with economic emergency situations.[26]

Due to the new legal framework of privatization which was mainly built on German experience, the number of newly privatized enterprises has already started to rise to, initially, 1,000 per month (mostly small-scale businesses and services). New joint ventures have been created, initially at a rate of 100 to 150 per month. Tourism has started to show first signs of a boom, especially due to tourists from Scandinavian countries (although the tourist industry is not yet in a position to offer western standards).[27]

The workforce is relatively better educated than that of the CIS and is high by east European standards. Lithuania as well as its two Baltic neighbours were in the past doing better than the rest of the former USSR in applying new technologies (such as bio-technology and electronics) which should help Lithuania to relatively quickly adapt to the use of western technologies as well. The use of computers in Lithuania was above the USSR average. There was a concentration of USSR microprocessor production in the region; the Lithuanian as well as the Estonian academy of sciences played a significant part in several major Soviet research projects, including the 1985-1988 project on fifth generation machines and software.[28] Significant research has been done at the Agricultural Academy (bio-technology). Prominent results also were achieved in mathematical analysis, analytical chemistry, physics, electrochemistry, electric optics, construction statics and textile fibre,[29] lending credence to an important human resource potential in the country.

The overall receptiveness of the Baltic region to private economic activity has generally been regarded as being above the former Soviet average with private enterprises already having emerged in the *Perestroika* period of the late 1980s.[30]

Lithuania also has an advantage over most members of the CIS and over its Baltic neighbours in respect to its industrial structure and population. Although the Lithuanian industrial structure was "over-specializated" within the different branches of industry, the typical Soviet pattern of industrial development, with general priority being given to heavy industry, was far less pronounced in Lithuania than in most other Republics. This could make the restructuring task easier and less cost intensive than in the other two Baltic States. It also prevented the large-scale influx of non-Lithuanians into the country during the Soviet period as this was the case in the other two Baltic States.[31] Thus, with 80 per cent of the population being titular Lithuanians, this share being high by Soviet standards and extremely high by Baltic standards,[32] Lithuania should be far less affected than other former Soviet Republics by the general danger of ethnic frictions. Lithuania should thus be in a position to grant generously minority rights for its Russian (9 per cent of population) and Polish (8 per cent of population) minorities without having to fear for the rights of its titular Lithuanian population.[33] With 70 per cent of the industrial workforce having been titular Lithuanians[34] in the late 1980s, and also high-skill positions being held by Lithuanians, the danger of production stops caused by ethnic frictions and subsequent demographic movements of ethnic minorities to other Republics, is far less a danger in Lithuania than in most other former Soviet Republics. The more generous treatment of its Russian minority (as compared to other Baltic States) has already been honoured by the Russian Federation. The Russian President singled out Lithuania among the Baltic States for accelerated troop pull out (20,500 out of 35,000

by August 1993)[35] in return for Lithuanian assistance in the construction of new civilian houses in the Russian Federation for retiring troops, to be paid for by military equipment and ships of the former Soviet Baltic fleet.[36] In late October 1992, this policy was, however, once again reversed by the Russian Federation, mainly for domestic reasons.

In contrast to most east European countries and the Russian Federation, there has not been the same strong resistance from the Lithuanian bureaucracy against reform and transition towards a market system. This is due to the circumstance that the bureaucratic apparatus in Lithuania is not affected by this process to the same degree as in most other east European countries or in the Russian Federation. In the past, the bulk of industry was not controlled by the Lithuanian bureaucracy but by the branch ministry apparatus in Moscow, and any potential resistance from that side does no longer affect Lithuania after its regained Independence.[37]

It is thus generally considered that economic recovery in Lithuania (as well as in the other two Baltic States)[38] will occur earlier than in the CIS[39] and that Lithuania (as well as its Baltic neighbours) could form a gateway for western trade with the CIS.[40] This should promote both Lithuania's industry as well as Lithuania's service sector, especially transport, communications and financial services. With appropriate assistance and upgrading Lithuania could develop the potential to become internationally competitive at an early stage of the transformation process within areas such as agriculture, food processing, light industry, transportation, and the service sector,[41] to be followed at the next stage by high-technology areas such as electronics and components, which can benefit from Lithuania's unique combination of high-skill and low-cost labour and which should make Lithuania extremely interesting for neighbouring Nordic countries as a production site for high-skill and labour-intensive activities.

In contrast to other Baltic States, which were close to Nordic standards in the inter-war period[42], the level of industrialization was far lower in Lithuania at the time. Lithuanian industry, however, has grown relatively close to both Soviet as well as Baltic standards since the Second World War. In other words, whereas for Latvia and Estonia membership in the USSR clearly hampered their economic development and widened the gap to their Nordic neighbours, Lithuania at least benefitted from large-scale USSR investment into industry, thus creating an industrial and technological basis for future economic development. This is particularly relevant to human resource development. As mentioned earlier, the qualifications of the Lithuanian workforce is generally considered to be very high, especially in technical fields but less so in commercial areas which were hardly given any priority during the Soviet period and less so in foreign languages other than Russian. Thus, apart from education in commerce and western languages (in particular English, but also German and Scandinavian languages) necessary upgrading should be effected to improve the Lithuanian workforce towards the very high levels of their Scandinavian neighbours.[43] Irrespective of Lithuania's isolation from the West for 50 years, it has developed an 'industrial' culture which should significantly facilitate Lithuania's re-integration into the international industrial economy[44].

NOTES TO CHAPTER I

1/ "The Baltic States - The economic and political implications of the secession of Estonia, Latvia and Lithuania from the USSR", *The Economist Intelligence Unit*, March 1990, p.20.

2/ IMF, *Economic Review, Lithuania*, (Washington, April 1992), p. 23.

3/ "Baltenstaaten trifft Rezession 1992 hart", in *Nachrichten für Außenhandel*, 4 June 1992, p. 1.

4/ The Economist Intelligence Unit, *Country Report No. 1, 1992, The Baltic States*, p. 102.

5/ IMF, *Forced Savings and Repressed Inflation in the Soviet Union: Some Empirical Results, IMF Working Paper WP/91/55*, (June 1991), pp. 1 ff.

6/ "Lithuanians on verge of poverty", in *The Baltic Independent*, October 18-24, 1991, p. 3.

7/ IMF, *Economic Review, Lithuania*, (April 1992), p. 5.

8/ Sauka, Linas, "Economics", in *Lithuanian Weekly*, (13-20 February 1992), p. 2.

9/ The Economist Intelligence Unit, *The Baltic States, Country Report No. 1*, 1992, p. 103.

10/ IMF, *International Financial Statistics*, July 1992. In 1991, the former Czechoslovakia (with a population of 15.7 million) had reserves (international liquidity) of $3,190 million, Hungary (with a population of 10.6 million) had $3,936 million, Poland (with a population of 38.2 million) $3,633 million. In small developed countries such as Austria (with a population of 7.7 million) reserves amounted, in 1991, to $10,332 million. Lithuania's reserves of $47 million (Lithuania's population amounts to 3.7 million) have thus to be considered as still very small.

11/ Sweden was one of the few countries to recognize the annexation of the Baltic States by the Soviet Union and, thus, in July 1940, handed the Baltic gold over to Moscow. Nevertheless, Sweden agreed to compensate Lithuania as well as the other two Baltic countries for the gold Lithuania had deposited in Sweden before the outbreak of World War II. However, the type of compensation i.e., the return of the gold under the title of "foreign aid", has created some controversy in Lithuania where the transfer of Lithuanian gold to Moscow was regarded as unlawful.
See "Sweden to compensate for Baltic gold" in *The Baltic Independent*, (February 11-27, 1992), and "Baltic gold cannot be repaid as aid package" says Lithuanian President, in *The Baltic Independent*, (February 28 - March 5, 1992), p. 4.

12/ "Briten geben Balten Gold zurück" in *Die Presse*, (Vienna, 24 January 1992).

13/ Hill, Andres, "EC joins in loan for Baltic States", in *Financial Times*, 7 September 1992.

14/ This section draws largely on a Report on UNIDO Mission to Lithuania, 30 March to 2 April 1992 (unpublished).

15/ Litauen: Bernstein & High-Tech, in *Trend*, 10/1992, (Vienna), p. 322.

16/ "Lithuanian N-plant scheduled to restart", in *Financial Times*, (8 September 1992), p. 4.

17/ According to the official Lithuanian statistics gross domestic product (GDP) amounted to R 14,292 million. According to IMF statistics, gross domestic product was slightly lower at R 12,897 million. However, both sources show gross material output produced at around R 25,197 million, material input at around R 15,100 million, and net material product as well as national income at around R 10,000 million.

18/ "Das unabhängige Baltikum vor wirtschaftlichen Chancen und Herausforderungen", *Deutsche Bank*, 2 October 1992, p. 4.

19/ "The mist on Russia's window", in *Financial Times*, 9 September 1992, p. 8.

20/ This trade was "only" about 50 per cent of Poland's total trade at that time.

21/ Ellemann-Jensen, Uffe, The Baltic: The Rebirth or a Dynamic Region, in *West-Ost Journal, No. 5/6*, 1991, p. 9.

22/ "Prekäre Wirtschaftslage im Baltikum", in *Neue Zürcher Zeitung*, (9 March, 1992).

23/ Managing Director's Address: "The magnitude of the problems facing the 15 republics is unprecedented", in *IMF Survey*, April 27, 1992, p. 131.

24/ "Lithuanian slump seems to set to worsen", in *The Baltic Independent*, (April 3-9, 1992), p. 5.

25/ "Das unabhängige Baltikum vor wirtschaftlichen Chancen und Herausforderungen", *Deutsche Bank* (Focus Eastern Europe No. 24), 2 October 1991, p. 1.

26/ "Lithuania set up commission for economic emergency", *The Baltic Independent*, (31 January - 6 February 1992), p. 5.

27/ "Baltic tourist boom", in *The Baltic Independent*, 17-23 April 1992, p. 8.

28/ "The Baltic States", *The Economist Intelligence Unit*, March 1990, p. 18.

29/ "The Baltic States - A reference book", (1992), p. 187.

30/ "The Baltic States", *The Economist Intelligence Unit*, March 1990, p. 18.

31/ This statement would need to be qualified; in Lithuania too there was a significant influx of a Russian workforce; at the same time the Polish population in southern Lithuania, however, declined in importance, so that the overall importance of non-Lithuanians remained constant. See also "Lithuania faces a different problem of minority right to the other two Baltic States. Its Polish population has been vocal in its criticism of alleged discrimination by Lithuanian authorities", in *The Baltic Independent*, (29 May to 4 June 1992), p. 9.

32/ The share of titular Estonians in Estonia amounted to 61 per cent in 1989, down from 94 per cent in 1945; the share of titular Latvians amounted, in 1989, to only 52 per cent, down from 83 per cent in 1945. In contrast, the share of titular Lithuanians remained at about 80 per cent, more or less constant since 1945.
"The Baltic States - The economic and political implications of the secession of Estonia, Latvia and Lithuania from the USSR", in *The Economist Intelligence Unit, Special Report*, March 1990, p. 5.

33/ So far, complaints to Moscow about ethnic discrimination have been raised by the Russian population in Estonia and Latvia, but far less so from Lithuania. See Carney, James, "Russia to the rescue - Yeltsin threatens to use the military to safeguard Russian

minorities outside the homeland", in *Time*, 6 July 1992, p. 27.
Nevertheless, one of the most serious problems in the region is the potential of ethnic dispute. In Lithuania 35,000 Russian soldiers are stationed and another 100,000 in the two neighbouring Baltic countries, Latvia and Estonia. The army is officially supposed to leave the Baltic countries by 1994. But any ethnic tensions could change that timetable. See Sajdik, Marianne, "Hinhaltetaktik der Russen beim Rückzugsgefecht im Baltikum", in *Standard* (Vienna, 9 August 1992), p. 4.

34/ Eastern Europe & the USSR Economic Structure and Analysis, in *The Economist Intelligence Unit*, (June 1990), p. 17.

35/ "Yeltsin speeds up troop pull-out from Lithuania", in *Financial Times*, 9 September 1992, p. 5.

36/ "Litauer bauen den Russen Wohnungen", *Kurier*, (Vienna, 8 September 1992), p. 3.

37/ "The Baltic States" - The economic and political implications of the secession of Estonia, Latvia and Lithuania from the USSR, *The Economist Intelligence Unit. Special Report No. 2033*, (March 1990), p. 35.

38/ Carney, James, "The Baltics - A painful freedom, three fledgling States are discovering that gaining Independence was the easy part, the path to prosperity is much more painful, *Time*, (10 February, 1992), p. 16.

39/ The Economist Intelligence Unit, *The Baltic States, Country Report No. 1*, 1992, p. 24, and Sachs appeals for hard currency and tough leaders", in *The Baltic Independent*, (17 - 23 April 1992), p. 4.

40/ This scenario was developed in study by B. Karlsson and Brian Van Arkie on the economies of Lithuania, Latvia and Estonia (for the Swedish Government) in 1991. See "The Baltic States", in *International Herald Tribune*, (28 August 1991).

41/ Ellemann-Jensen, Uffe, The Baltic: The Rebirth or a Dynamic Region, in *West-Ost Journal, No. 5/6*, 1991, p. 9.

42/ Hanson, Philip, The Baltic States: The Economics of independence, in *The EIU Regional Reference Series, Eastern Europe & the USSR*, June 1990, p. 16.

43/ "Prekäre Wirtschaftslage im Baltikum", in *Neue Zürcher Zeitung*, (9 March 1992).

44/ "Das Baltikum auf schwierigem Wege", *Dresdner Bank*, December 1991, p. 12.

II. INDUSTRIAL POLICY AND INVESTMENT ENVIRONMENT

A. MACROECONOMIC MANAGEMENT: IMPLICATIONS FOR INDUSTRIAL DEVELOPMENT

At the time of writing this Review the Government of Lithuania was engaged in extensive discussions with the World Bank and IMF on structural adjustment measures pertaining to anti-monopoly policy, privatization, enterprise reforms, legal framework for commercial activities, restructuring of the banking system, social safety net to protect the vulnerable sections of the society, and regional economic policy. A number of policy measures already undertaken led to a fundamental shift from the command economy to a market economy. Structural adjustment measures relating to industry are aimed at generating an efficient supply response, stimulating stronger competition in the economy, accelerating the process of privatization, strengthening the managerial incentives, addressing the crucial problems of large-scale enterprises that require restructuring and rehabilitation and reducing the scope for direct government involvement in industry. An attempt is made in this section to derive the industrial implications of macroeconomic management during the transition phase.

Price reform: towards market prices

The legal framework for the progressive removal of price controls was already spelled out in July 1990 when a new law on prices was drafted which became effective in 1991. Prices continued to be liberalized in stages during 1991 and early 1992.[1/] The short-term goal was to free all prices in Lithuania except those for certain basic food items (bread, milk and meat), oil, wood, telecommunications, postal services and apartment rents.[2/] As of November 1991 prices of most industrial goods were liberalized.[3/] As of 20 January 1992, most consumer goods became "market determined" and all special vouchers for consumer goods were abolished.[4/]

By mid-February 1992, most prices had been liberalized.[5/] In order to cushion the impact on the population, the government had promised to provide compensation for at least 70 per cent of the prices. The compensation package (especially for pensioners who were compensated from the social security budget) was estimated at about 50 per cent of all public spending in 1991.[6/]

Those prices still under control fall into four categories: (1) the procurement prices of agricultural products which were regulated only to the extent of establishing minimum support levels; (2) prices of selected consumer goods, including alcoholic beverages, tobacco, certain types of bread, milk, cheese, and sugar; (3) fares for State-run transportation; and (4) charges for certain goods and services falling under the competence of local governments, including rents and urban transportation fares. With regard to the remaining controls, particularly those on energy prices and rents, the authorities intend to pass on the higher import prices for energy to end users, but no specific timetable has so far been set.

Both the mark-ups of food-processing enterprises as well as the mark-ups of large wholesale distributors of goods are still controlled because of the oligopolistic market structure in which they operate. An anti-monopoly law, consistent with European Community legislation, is likely to be enacted by Parliament in the foreseeable future.[7] Rapid movement to privatize the distribution networks and promote the emergence of competition through the development of a greater number of private distributors and producers is foreseen and will be urgently needed in order to have prices determined by market forces.

The government realizes the importance of eliminating subsidies along with price liberalization before the introduction of the new currency, with a view to reducing the strains on the budget and creating the necessary and sufficient conditions for price stability thereafter. It is believed that soaring prices of energy products will create incentives for achieving energy efficiency in the industrial process of production and reducing the energy intensity of industrial products.

Income policy: cushion against declining purchasing power

Lithuanian authorities pursue an income policy that accommodated inflationary pressures and thus contributed to perpetuating the wage-price spiral during 1991. Until the beginning of 1992, Lithuania had not faced the need to drastically reduce real incomes, since it had not encountered either the adverse shift in the external terms of trade or pressures on the Budget. Accordingly, there was no strong case for an explicit policy to constrain the growth of nominal incomes during 1991 as it was the case in other east European countries. To the contrary, under the specific circumstances it was appropriate to follow the opposite direction. With shortages prevailing in the former USSR and with Lithuania still forming part of the rouble area, the high inflation and the high wage increases helped Lithuania maintain the living standards of the bulk of its population and prevented the outflow of goods to other Republics.

According to the IMF, average wages in the State sector increased by 165.1 per cent in 1991 compared to an inflation rate of 224.7 per cent which corresponds to a decline of real wages by 26.5 per cent in 1991. This is corroborated by calculations made by the German Ministry of Trade and Industry (decline in real wages of some 20 per cent, i.e., as in Latvia but significantly less than the 40 per cent decline of real wages in Estonia in 1991)[8]. According to other IMF data published, real wages fell by 39.4 per cent in Estonia, by 21.6 per cent in Latvia, and by 18.4 per cent in Lithuania in 1991.[9] However, legal minimum wages increased by 714.3 per cent in 1991 which was equivalent to a real wage increase of 317.8 per cent. In other words, legal minimum wages increased by far more than the inflation rate while overall wages declined in real terms in 1991.

Some reports indicate that in the newly emerging private sector wage increases followed the strong minimum wage increases rather than the real income decline of the State sector. But even the State sector saw, according to the same IMF statistics, an increase of 351.3 per cent in the 4th quarter of 1991 against the previous year, a real wage increase of 26.2 per cent (on a year earlier) while having had to experience a 26.5 per cent decline for the whole of 1991.[10]

As of February 1992 the government tried to change its policy given the changes in the economic environment (especially the price liberalization in the Russian Federation). It no longer "recommended" State enterprises to raise wage rates in advance of the rise in prices.

This new policy reflected the fact that enterprises were encountering difficulties in meeting wage increases and that strains on the Budget were increasing. This policy shift was also based on the assumption that a large adverse shift in the external terms of trade was likely as prices of traded goods moved towards world market levels.[11] However, so far the government has been reluctant to follow the far more drastic (and controversial) Polish policy[12] in taxing companies for granting wage increases above a certain level in order to keep wage increases to a minimum. Wage restraint coupled with tight monetary and fiscal policies is expected to make the inflation target achievable and maintain the real purchasing power of wages. Enterprises and organizations will be asked to keep the growth in average wages below a certain uniform wage guideline.

Fiscal policy: fiscal discipline faces strains

So far, Lithuania has pursued sound fiscal policies. However, it is unlikely that the fiscal discipline of the past years can be maintained in 1992 (and in the following years) in the wake of declining output, rising unemployment, adverse shift in the external terms of trade, and soaring cost of subsidies of essential items.[13/]

The major sources of revenue are the payroll tax, the profit tax, and the individual income tax. In December 1991, the turnover tax (35 per cent of total revenue in 1991) was replaced by excises and a value-added tax which was set at 25 per cent and which was subsequently (still in December 1991) reduced to 15 per cent (the same rate as in Germany). The new value added tax is projected to contribute 15 per cent and excise taxes 18 per cent to total revenue in 1992. Most excise rates are ad valorem (including those for alcoholic beverages and petroleum products) and range from 2.5 to 45 per cent. The payroll tax (23 per cent of total revenue) is earmarked for the Social Insurance Fund. The tax on profits of legal entities (29 per cent on profits which brought 17 per cent of total revenue in 1991) was the third largest source of government revenue, followed by the tax on individual income with the top marginal rate at 33 per cent which contributed to 12 per cent to the total government revenues.

On the expenditure side, the most interesting feature has been the drop of subsidies from 29 per cent of GDP in 1990 to 6.4 per cent in 1991. The major part of the subsidies have been used to keep prices low for coal, gas, heating, and agricultural inputs (such as fertilizers) as well as to finance the postal system and the railways. Significant increases in expenditure were due to Lithuania's needs for police and defense (2.3 per cent of GDP) and a strong rise in social outlays.[14/]

As in other Baltic States, Lithuania introduced a new scheme which will provide a basic social safety net for those most affected by the transformation process, i.e., the unemployed and the sick. "Social security" was in the past mainly the domain of former USSR enterprises. This task has now been taken over by the State (as is the case in most western countries). About 60 per cent of previous wages can be obtained as unemployment benefit for a period of 6 months. This scheme can only be fully funded as long as the unemployment rate stays below 10 per cent; in neighbouring Latvia a similar unemployment insurance scheme is not able to work under an unemployment rate of more than 3.5 per cent. Health care and other social services (but also transport and rents) have also remained heavily subsidized.[15/]

Currency reform: need to increase back-up facilities

In November 1991 the Lithuanian Parliament officially adopted a law for the introduction of the Litas as the new national currency[16/]. The timing of introducing the new currency is yet to be decided.

As mentioned earlier, because of lack of roubles[17/] the Lithuanian Government has already (May 1992)[18/] started introducing coupons as it could no longer delay the payments for its civil servants.[19/] By June 1992 such coupons acted as a parallel currency, representing between 70 and 80 per cent of the stock of money in circulation[20/] (as roubles were hoarded). *De facto*, however, the coupons were only accepted by government-owned shops and State institutions, but not (or if, then at higher prices) in the markets or by private firms.[21/]

This situation changed when the coupons became the only legal tender on 1 October 1992. At a later stage coupons are expected to be exchanged for "Litas". At present coupons float against the rouble. In order to ease the foreign exchange situation, Lithuania has already started to organize foreign exchange auctions for hard currencies[22/] and in April 1992, the Bank of Lithuania granted private companies the right to freely buy and sell hard currency in the country.

The international financial community, with the exception of the World Bank,[23/] was at the outset rather critical of Lithuania's plans[24/] to re-introduce the Litas (Lithuania's national currency which was valid until 1940),[25/] as it was feared that this could jeopardize the remaining trade links with the Republics of the former USSR.[26/] As other former Republics of the USSR went ahead with currency reform in 1992 the situation changed in respect of the introduction of the new currency.

The fact that Lithuania was slower in introducing a new currency than Estonia was, *inter alia*, due to the lack of existing backup facilities for the new currency and Lithuania's willingness to work closely with the IMF on this matter. The only "important" reserve, which Baltic States have to back their currencies is gold, held by foreign central banks since the annexation of the Baltic States in 1940.

These gold reserves amount to $131 million for Estonia, $101 million for Latvia and according to different sources between $63 million and $72 million for Lithuania ($29 in the United Kingdom, $22 million in France, and $12 million in Sweden; in addition, some gold in Switzerland)[27/] which should add up to total Lithuanian gold reserves of some $72 million at market prices. According to the Lithuanian Ministry of International Economic Relations, Lithuania expected the IMF to provide $85 million as a stabilization fund to back the new currency when introduced.[28/]

Apart from the other option of maintaining the rouble as the legal tender, a number of western financial experts had advocated the creation of a new common Baltic currency for all three Baltic States.[29/] But all three Baltic States did not show much enthusiasm for such an approach which once again would have had limited national sovereignty on currency matters[30/].

There are some indications that following the introduction of the new currency, monetary policy will be formulated with a view to providing domestic credit at a rate compatible with the pace of economic expansion.

Interest rate policy: an effective instrument to spur investment

When Lithuania liberalized its prices in 1991, it did not do the same (and it hardly could have done the same as a Member State in the rouble area) with interest rates, which resulted in strongly negative real interest rates and a subsequently strong reduction in private savings which fuelled inflation even further and aggravated existing shortages.

However, this policy also had some positive side effects and might have been followed by the authorities on purpose. The strong overhang in liquidity (i.e., in effective nominal money balances) which was built up over the last decade of strong monetary expansion in the USSR was thus largely and relatively quickly eliminated without openly restricting property rights.

Basically, such monetary adjustments could have been accomplished in four ways:

- either by a direct reduction of effective nominal money balances - as was done after World War II in the Federal Republic of Germany (1948) and Austria by blocking and/or eliminating savings accounts;
- by a significant increase in interest rates far above the inflation rate in order to reduce aggregate demand;
- by a quick sale of assets (privatization); or
- as it was done, by a big (hopefully) one-shot inflation without adequate compensation by interest rates[31/], a recipe which was already followed by the Federal Republic of Germany as well as Austria after World War I.[32/]

The second option, which is the traditional solution under a market system to eliminate the monetary overhang, is however only possible as long as the monetary overhang is not too large and as long as economic entities react to rising interest rates by reducing aggregate demand, i.e., investment and consumption expenditure. In a still "socialist" economy with a limited private sector, neither enterprises nor commercial banks respond well to tight monetary policy. As a legacy of the centrally planned system, State-owned banks, as a rule, do not push State-owned enterprises with non-performing loans into bankruptcy but instead continue lending to them which does not seem to evoke any change in the spending behaviour, especially of State enterprises.[33/] At best, newly founded private enterprises might be affected by a crowding out mechanism which may constrain the privatization process. In addition, credits for private consumption are relatively uncommon so that interest rates do not significantly influence private consumption behaviour.

Once the new currency is introduced, positive real interest rates are of paramount importance. At the same time, this is not to say that only purely market determined interest rates (which might lead to extremely large real interest rates in Lithuania in the transition period, actually impeding a quick industrial restructuring) are a desirable result in the early phase of the transition towards a market economy.[34/] Whereas most economists plead for an early convertibility of the new currency for current account transactions in order to prevent distortions of relative prices, the liberalization of the capital account can occur at a much later stage.[35/] As long as foreign capital transactions are restricted - as was the case in most "transition" countries (including the Federal Republic of Germany, Austria and Japan[36/] after World War II, or the Republic of Korea[37/] after its war in the 1950s) a relatively independent national interest rate policy is possible which can keep interest rates relatively low in order to spur investment.

Foreign debt policy: the importance of creditworthiness

In March 1992, Lithuania and its Baltic neighbours jointly renounced any responsibility for the foreign debt of the former USSR. The official position was that all three Baltic States were not "participants" of the former USSR, but countries "under occupation".[38/] Lithuania thus only accepts debt commitments entered by former USSR enterprises on its territories which were taken over by the Government of Lithuania after the declaration of Independence.[39/]

Such a policy did not find official consent by western banks and governments. There was not any firm or unanimous western reaction to that decision of the Baltic States. But it does not seem that this decision has facilitated the influx of fresh (loan) capital into the region. On the other hand, it is questionable whether this had indeed occurred with the Baltic States taking up all responsibility for their share in former USSR loans. The main confusion centres on the fact that the West never officially recognized the former USSR annexation of the Baltic States, which makes it difficult to argue that legally all three countries are responsible for a share of former USSR debt.

However, western governments have pressed the Baltic Governments to accept at least some responsibility for the debt in order to "regain international credit worthiness". The Group of Seven industrialized nations thus decided in autumn 1991 to delay the provision of long-term loans to the Baltic States until the debt question was cleared up. On several occasions in 1992 France ruled out any long-term credit to the Baltics "as long as the debt problem was unresolved" and so did Italy. The United Kingdom also urged the Baltic States to officially accept their share in former USSR, although "conceding the principles did not have to imply payment in practice". Less firm has been (so far) the United States and as well as the German position in this matter.[40/]

External trade policy: accent on bilateral trade agreements

The new official foreign trade policy[41/] of Lithuania is aimed at transforming Lithuania into a open market society and keep customs duties very low. While maintaining close trade links with

the new countries of the CIS, trade with western countries, especially with western Europe, is intended to increase significantly. In relative terms the share of trade with the countries of the former USSR is thus supposed to decrease from more than 80 percent to about 50 per cent in a five-year period. In order to achieve this objective, Lithuania attempts to recapture its traditional markets which it held in the inter-war period, i.e., mainly Germany, followed by the United Kingdom and Belgium as well as the markets in the Nordic countries. (In the inter-war period, the share of the USSR was just 3 per cent[42/] of Lithuania's foreign trade.) The new government which assumed office in November 1992 seems to give utmost importance to the strengthening of subregional trade links in the short-run.

In contrast to the inter-war period, Lithuania attempts however to place less significance on its food-processing exports to western Europe; manufactured food products should mainly be destined to the countries of the CIS in exchange for oil and gas. Exports to western countries should comprise (after the restructuring of the Lithuanian industrial sector with the assistance of foreign companies) mainly consumer goods, especially electronics, textiles, and furniture, as well as capital goods of the machinery industry and products of the chemical industry (fertilizers).[43/]

So far, Lithuania's external trading regime is still quite stringent with a number of export restrictions, in particular with a restrictive handling of export licences and export quotas and the requirement that exporters have to surrender 20 per cent of their foreign exchange earnings at an exchange rate which is well below the prevailing market exchange rates.[44/] According to reliable sources, nearly half of the hard currency earned from exports to western countries has still to be paid to the State.[45/] As of March 1992, Lithuania did not yet have any customs tariff of its own so that theoretically the former USSR customs tariffs was still valid. However, in practice no customs duties for imports were raised in early 1992[46/] and import licences were easily available.[47/]

In other words, Lithuania's foreign trade policy has so far been characterized by a very stringent export regime, but at the same time by a very liberal import regime. Although in May 1992 a new law regarding customs tariffs as well as the creation of an administrative body to execute the new law was adopted by Parliament,[48/] the import regime has (so far) remained liberal. As the availability of foreign exchange, nevertheless, is still limited - leading to delays - exporters to Lithuania tend to ask for irrevocable and confirmed letters of credit, which however increases transaction costs and thus the prices of goods imported.[49/]

In order to overcome "uncertainty" in foreign trade relations - and thus reducing costs, Lithuania is increasingly moving towards bilateral trading arrangements. Thus, Lithuania already used its new sovereignty - apart from becoming member in a number of international organizations such as the United Nations, UNIDO, the IMF[50/] and the World Bank[51/] - to conclude a number of trade and cooperation treaties. The main targets of its external trade policy were thereby the Russian Federation, the EC and the Nordic countries as well as its two Baltic neighbours and the United States. These trading arrangements are of immense importance to the economy of Lithuania as a number of enterprises are confronting difficulties in obtaining vital inputs. Lithuania is likely lose traditional markets unless trade relations with new trading partners are established.

In September 1991, Lithuania decided, in principle, to form a customs union with its two Baltic neighbours. In addition, it was announced that visa requirements do not apply for citizens of Baltic States, and that all Baltic citizens are to have similar rights as nationals in all Baltic States, including the right to work and open up businesses. Furthermore, six major joint economic programmes have been planned in respect of cooperation in the field of communications, construction of a Baltic motorway (Via Baltica), production of agricultural machinery, supply and processing of oil, energy and sugar production.[52/] In January 1992, the "Baltic Council" which already existed in the inter-war period was officially re-established.[53/] According to an agreement concluded in March 1992, the three Baltic States eliminated all trade restrictions (including all financial and administrative restrictions as well as visa requirements)[54/] among themselves and formed a Baltic Free-Trade-Zone as of 1 May 1992.[55/]

However, plans to establish at the same time a currency union were not realized.[56/] Although close cooperation with its Baltic neighbours is certainly important for Lithuania, the economic structure of the three Baltic States is far from being complementary.[57/] Thus, close cooperation with other countries in the region including the Russian Federation, Germany and the Nordic countries remains important as well.

Lithuania also concluded a free-trade agreement (which came into force in summer 1992) with Sweden. This agreement was for Lithuania the first of its kind with a west European country. All import duties and quantitative restrictions in trade with Sweden for manufactured goods were abolished (as well as for some agricultural products and services[58/]). This agreement between Sweden and Lithuania was similar to the EFTA-CSFR treaty concluded in 1992. As Lithuania at the time of the treaty did not raise any customs duties, the abolition of such duties only affects Sweden. It thus clearly aims at accelerating industrial development in Lithuania by giving it an easy market access to the Swedish market.[59/] Trade and cooperation agreements were also signed (but not yet ratified) with Finland[60/] and Austria.[61/]

Lithuania, following a Danish-German initiative,[62/] also participated in a conference of ten Baltic Sea States of the "Hanse-Region" (including all Nordic countries, the Russian Federation, Germany, Poland and its two Baltic neighbours (convened on 6-7 March 1992 in Copenhagen) where the participants agreed to set up the Council of Baltic Sea States (CBSS) which will promote economic cooperation and in particular cooperation in foreign trade, the environment, energy, communication as well as political cooperation.[63/] This should help transform the region into a "Baltic Growth Zone"[64/] and could lead - at a later stage towards a large Free-Trade-Zone, reviving the century old Free-Trade-Zone of the "Hanse-Region" which had made the region one of the most prosperous regions in Europe some centuries ago.[65/]

Immediately after the United States had recognized the Independence of Lithuania (and its Baltic neighbours) in September 1991, it was announced that the United States would normalise trade links with the Baltic States and that they would grant the Baltic States $14 million assistance[66/] as well the "Most Favoured Nation" (MFN) status.[67/] As in the case of most other former East bloc countries, Lithuania was granted MFN status by both the United States and the EC.[68/] In July 1992, the United States and Lithuania concluded a framework agreement concerning free trade, the guarantee of foreign investment as well as of the protection of property rights.[69/]

Relations with the Russian Federation (as well as with other neighbouring Republics of the former USSR) are generally regarded highly important for the prospects of economic activities in Lithuania.[70/] Still in December 1991, Lithuania and the Russian Federation signed a new trade and cooperation treaty with the intention to speed up trade relations on a barter trade basis.[71/] Lithuania also signed a new interstate treaty with the Russian Federation which was ratified in January 1992 and which attempted to settle relations in all respects to mutual satisfaction and in accordance with international norms.[72/] Based on this treaty negotiations started on a new bilateral arrangement with the Russian Federation, covering trade for the first quarter of 1992 which was supposed to maintain trade at 70 per cent of the volumes traded a year earlier. Lithuania was guaranteed the delivery of 1.5 million tonnes of oil during the first quarter of 1992 (i.e., half the capacity of the Mazeikiai refinery) at Rb 3,000 per tonne, i.e., still well below the world market price but significantly up from Rb 502 per tonne in January 1992. As of April 1992, Lithuania was expected to pay the full world market price for oil (around Rb 20,000 per tonne)[73/]. Before that date, oil shipments have been cut off intermittently and the Russian Federation indicated that after the first quarter of 1992 it planned to curtail sharply the amount of oil it would provide for Lithuania's own consumption.

Improved relations, however, led the Russian Federation to lift its customs tariffs vis à vis Lithuania. The Russian Federation signed a new trade and cooperation agreement with Lithuania (as well as with its two Baltic neighbours) on 20 March 1992, in order to clear customs barriers that had been in effect since 31 December 1991. The Russian Federation's decision to introduce rigid limits and high customs duties in trade with former Republics of the USSR had meant that almost all raw material exports to Lithuania came under a special licence scheme, significantly

reducing the Russian Federation's supply to Lithuania. Oil supply to the Mazeikiai Oil Refinery, for example, was reduced by half. Lithuania was thus forced not only to reduce the heating of residential houses by 3 degrees Celsius but also to reduce the electrical power and natural gas consumption of enterprises by 25 per cent, irrespective of the consequences for production. Eighty large enterprises and more than 20 medium-sized enterprises in Lithuania were subsequently forced to significantly reduce their output (including complete standstills). Copper shortage was another major problem, especially for Lithuania's electrical engineering industry. In addition, the Russian Federation export tax was a considerable financial burden for Lithuania. Due to the high Russian Federation export taxes the cost of raw materials as well as machine components, are on average two to three times higher in Lithuania than in the Russian Federation.[74/] For example, export taxes were ECU 45 per tonne on timber, ECU 180 per tonne on newsprint or 800 ECU on aluminium pipes and containers. At the end of 1991 it was possible to buy newsprint from the Russian Federation at Rb 8,000 per tonne, but now export tax alone amounts to Rb 23,000 per tonne.[75/]

As of 1 April 1992, a new counter trade and clearing agreement between the Russian Federation and Lithuania became effective. The agreement was based on the Russian Federation deliveries of energy and provided for Lithuanian counter-deliveries of foodstuffs. In contrast to a similar treaty concluded between the Russian Federation and Estonia, the agreement provided for a much greater range of possible counter-deliveries, which makes Lithuania interesting for companies using the Baltics as a platform for export to the Russian Federation. The agreement provided for both clearing trade and enterprise-to-enterprise barter trade, which was part of the Lithuania Government's policy to "decentralize" trading arrangements. Deliveries valued at $2.6 billion in each direction are envisaged. All goods exchanged are to be valued at world market prices.[76/] Nevertheless, the new type of relations with the Russian Federation prompted the creation of special commodity exchanges for such counter trade deals which - after having operated at the fringes of legality in the initial phase - have already been officially legalized.[77/]

Lithuania also entered into negotiations with the EC and expressed its wish to become - in the long run - a full member[78/] and in the medium term, to become an associate member of the European Community[79/]. In addition, Lithuania - as a first step in this direction towards European integration - already applied for EFTA membership in October 1991.[80/]

Together with its two Baltic neighbours Lithuania was granted recipient status under the EC/G24 PHARE assistance programme (as of 1 January 1992)[81/] in support of economic reform and structural adjustment, especially in respect to restructuring State enterprises, modernization of financial services, promotion of the private sector with emphasis on small- and medium-sized enterprises, and development of labour markets and social sectors.[82/] For 1992, the EC earmarked 45 million ECU in emergency food and medical supplies for the Baltic States with 10.2 million ECU to help set up a market economy.[83/]

Lithuania also signed a cooperation agreement with the European Community on 5 February 1992,[84/] as well as a trade and cooperation agreement between the EC and the Baltic States which was signed 11 May 1992.[85/] The cooperation agreement with the EC provides for most favoured nation treatment in trade with the EC (except in coal, steel and textiles).[86/] In principle, (and thus in contrast to most other EC trade and cooperation treaties) there are no quantitative restrictions foreseen for exports from Lithuania to the EC[87/]. Customs duties will not be imposed on most Lithuanian goods. In the near future, Lithuania thus plans to concentrate its export activities towards the EC on mineral fertilizers, cement, furniture, semi-manufactured wood, refrigerators and textiles. Lithuania - together with its Baltic neighbours - also signed a political declaration with the EC (11 May 1992) declaring their shared ideals and pledging foreign policy coordination.[88/] Lithuania has already been promised a status of "associated membership" to the EC and it is hoped that the cooperation treaty is a first step for Lithuania to obtain such an "associate membership" status based on the model of the "European Agreements" signed with Poland, the former Czechoslovakia and Hungary in late 1991. Already before (23 December 1991), the Council of the EC amended the regulation concerning import arrangements of products originating from State-trading countries in order to liberalize or suspend quantitative

restrictions in respect of the Baltic States by extending the suspension of a number of such quantitative restrictions concerning central and east European countries to products originating in the Baltic States.[89/] However, in the agreement it was made explicit that this suspension of quantitative restrictions would not apply to textile products re-imported into the Community after undergoing processing or working in Lithuania and that quantitative restrictions could be re-introduced in the event of any product causing or threatening to cause economic difficulties in the Community.[90/] Whereas the latter is in line with similar agreements with other countries, the former clearly puts Lithuania at a disadvantage with neighbouring the former Czechoslovakia, Hungary and Poland, which obtained in their "European agreements" the right to engage in all outward processing activities, including textiles. In addition, Lithuania together with its Baltic neighbours became subject to the EC's "prior surveillance systems for imports of textile products".[91/] However, a bilateral agreement on trade in textile products between the EC and the Baltic States is being prepared.[92/]

B. THE PRIVATIZATION PROCESS: THE MAIN AGENDA OF POLICY REFORM

The creation of an effective private sector has been the most important goal of Lithuania's economic reform programme. Compared to its Baltic neighbours, Lithuania seems to have a leading position in the sphere of privatization,[93/] and the government was confident to sell nearly two-thirds of its assets by the end of 1992.[94/] By mid-1992, 70 per cent of house/apartments and more than 20 per cent of all small- and medium-sized enterprises had already been privatized.[95/]

The transfer of State-owned assets to private ownership is expected to improve economic efficiency. Where privatization involves purchase and investment by foreign parties, it is hoped that there would be benefits of transfer of technology in addition to capital investment.

Legislation pertaining to privatization is already in place.[96/] The Lithuanian privatization modalities draw largely on the models of the former Czechoslovakia and Poland. As the former Czechoslovakia, Lithuania opted for "mass privatization" by distributing vouchers - free of charge - to Lithuanian citizens. In contrast to similar systems in other former CMEA countries, the privatization system of Lithuania also has an "age element", based on the assumption that elder people worked for a longer time as employees of the State for those assets and should thus be given a larger share than younger people.[97/] As in the former Czechoslovakia, privatization started with the selling off of small-scale enterprises in auctions before starting to sell off large-scale enterprises using a voucher system. As in Poland, State enterprises were first transformed into State-owned joint-stock companies before being privatized. Up to 30 per cent of the shares of those joint-stock companies could then be bought by the workforce at very favourable terms. The problem of lack of private capital and the willingness of the government to achieve widespread participation in the privatization scheme by all groups of society seems to have been solved, according to the former Czechoslovakian model, by distributing vouchers to Lithuanian citizens in the form of "special investment accounts" at the Savings Banks. In order to invest, every Lithuanian citizen was given a minimum of 5,000 roubles which could be increased by savings.[98/]

As in other former CMEA countries, Lithuania started with the privatization of small-scale enterprises. The reason behind that policy was to quickly create a reasonably large private sector comprising small- and medium-sized enterprises which would find possibilities to quickly expand their operations in order to absorb the subsequent shift of the workforce out of large-scale industrial enterprises. Until the end of January 1991, nearly all had been offered for sale and small-scale enterprises that had been largely in the services and trade sectors, were sold at auctions.[99/] All auctions and sales have been public. Information on forthcoming privatization opportunities has been provided in the government's privatization bulletin which is circulated throughout the country.

Over 100 small enterprises were immediately sold in September 1991 through public auction to domestic investors. As of the end of January 1992, most of the small enterprises already offered for sale had been purchased, along with a number of large enterprises. From September 1991 to March 1992, 1,650 small enterprises were sold through such public auctions for more than 400 million roubles (with the total of the initial starting price of those enterprises at the auctions amounting to about Rb 100 million, i.e., on average, small companies were sold at auctions at about four times the initial starting price). A further 300 medium- and large-size enterprises were sold through subscription of shares whose State capital totalled approximately 1.05 billion roubles.[100/]

Large enterprises have been subject to a share subscription scheme, in which the price of shares is adjusted to balance supply and demand after initial bids by individuals are submitted, with the final selling price of shares set at the same level for all buyers. Laws adopted by the Supreme Council cover the privatization of industry, agricultural entities and housing, land reform and restitution[101/] of property.

Box II.A. Modalities of privatization

Initially, the privatization scheme was available to domestic investors only, based on the voucher system to ensure rapid mass privatization. In February 1991 vouchers were distributed to Lithuanian citizens in the form of "special investment accounts" at the Savings Bank. Every Lithuanian adult received vouchers which also took into consideration the age and the amount of savings. An average citizen with no substantial savings could reckon with vouchers worth roubles 20,000. Of the 2.7 million people entitled to vouchers, 2 million have already received their entitlement, the rest was to be distributed by December 1991. The vouchers entitle the holder to bid for ownership of an enterprise or shares in an enterprise. (A minimum of 5 per cent of the price must be paid in cash for the vouchers.) Vouchers originally were not transferrable, but in practice, individuals have found ways to obtain sole ownership of property by purchasing it as part of a group with arrangements for subsequently buying out the other owners.[102/] In addition to vouchers, individuals were permitted to use matching amounts of cash to increase their total potential purchasing power. All State-owned enterprises, apart from agricultural entities, were to be offered for sale by the end of 1992.

In May 1991 the Supreme Council adopted a resolution to allow the sale of enterprises to foreigners for hard currency as well. A list of more than 100 enterprises for sale to foreign investors has already been approved by the government. These enterprises identified by government are both industrial enterprises in the field of electrical appliances and electronics, textiles, construction materials as well as food processing (especially in sugar and milk) and enterprises in the service sector. Among those enterprises are a number of larger industries based in urban areas which were identified to require technology as well as capital from the West in order to ensure long-term profitability. State-owned enterprises were offered for sale to foreign investors against hard currency in August 1992, with the first round mainly concentrating on retail trade and tourism. State-owned industrial enterprises will follow soon.[103/] However, for all firms sold off to foreigners the production profile must not be changed for at least one year in order to prevent massive lay-offs.[104/] Although such a regulation is understandable given the fear of massive unemployment, it nevertheless impedes structural change and thus restricts the potential for success and efficiency gains due to privatization.

One of the central questions - which is more difficult to solve in Lithuania than in other former COMECON countries - concerns the ownership of so far "union-owned" property in Lithuania. Given the dissolution of the former USSR the Lithuanian Government has adopted a resolution that all union-owned property in Lithuania is now owned by Lithuania.

From September 1991 the government implemented a series of measures to foster the process of privatization. The restructuring programme is separated from the privatization programme and is being implemented on sectoral basis. Therefore some enterprises are privatized before they are restructured. Evaluation of enterprises to be privatized is based on their book value. However, the Central Privatization Committee (CPC) has the right to increase the initial share price while approving privatization programme.

Prior to the preparation of the first privatization programme, the list of enterprises including their structural subdivisions has been compiled in accordance with the Law on the Initial Privatization of State Property. This list includes 3,500 enterprises or their affiliates. Pursuant to the Law, the privatization process was carried out in parallel with the de-monopolization process, with a view to disintegrating monopolized structures into smaller self-dependent economic units. As a result of this, the list incorporates more than 7,600 enterprises; of these, 4,580 enterprises or their structural units are included in the privatization programmes. Around 3,215 small enterprises, the authorized capital of which does not exceed 1 million talonas, are to be sold by auctions. Fifty seven per cent of the total number of enterprises slated for privatization in Lithuania have been privatized within one and half years.

By now, more than 3,000 small enterprises have been sold by auction for 2.5 billion talonas, 1,380 enterprises have been privatized by public offer for 17 billion talonas. The average sale price of each share was 30 per cent higher than the nominal price of the share. From the beginning of the privatization process 15 billion talonas of State property, representing 39.5 per cent of the amount earmarked for privatization according to the Law on Initial Privatization of State Property, has been privatized. More than 100 enterprises are expected to be sold for hard currency to foreign and Lithuanian investors.

Recently restrictions to sell vouchers were lifted. All citizens have the right to sell their vouchers at auctions, or to transfer them to other citizens of the Republic of Lithuania. In addition to vouchers, each citizen can use an established cash quota for acquisition of entities under privatization. This quota is equivalent to the sum of vouchers granted by the State. No other cash may be used for privatization excepting for the following: (i) houses can be purchased entirely for cash without any quota; (ii) limitations have been lifted for enterprise not sold in a first round of privatization; and (iii) cash quota is not to be used when enterprises are sold for hard currency.

The privatization of small enterprises at auctions has been rather impressive. Ever since the privatization of small entities was launched in September 1991, approximately 70 per cent of all small State enterprises were included in privatization programmes and about 77 per cent of them were sold within a period of 16 months. The average selling price was more than 14 times higher than State capital of the sold entities and about three times higher than their initial price. The privatization process slowed down in the last quarter of 1992. Nevertheless, the government is expected to finish small-scale privatization within the framework of the mass privatization scheme by the end of 1993.

The institutional framework for the public subscription of shares is as follows:

- The Central Privatization Committee (CPC) adopts privatization programmes of enterprises which are under the Government of Lithuania as well as coordinates the privatization programmes of entities which are under the local governments. The CPC also controls the implementation of these programmes.

- Drafts of the privatization programmes are prepared by the Ministries and by local privatization committees in case of an enterprise under control of a local government. The CPC also controls the implementation of these programmes. Respective Ministries and local governments are responsible for segmenting monopolized enterprises into smaller units.

- The Ministry of Economics consolidates separate privatization programmes prepared by other Ministries and local privatization committees in the form of a general Privatization Programme of Lithuania and submits it to the CPC for the final approval.

- Public subscription of shares is carried out by privatization agencies of local governments.

Privatization of large-scale enterprises has not been as successful as privatization of small units. Since September 1991, 2,076 enterprises were included in the privatization programme, 1,380 of them, representing 67 per cent, were privatized. The capital of the privatized entities amounts to 47 per cent of the State capital of enterprises included in the privatization programme. Such significant difference between the number of privatized enterprises and privatized capital can be explained by the fact that most of the biggest enterprises were the so-called "all union enterprises" which, to a very large extent, are dependant on raw material supplies from the CIS. Since economic relations with the major suppliers are disrupted and restructuring towards the western markets requires huge investments most people prefer to participate in the privatization process of small- and medium-sized enterprises which are more flexible and could generate quick profits. The number of employees in entities privatized by the technique of public subscription of shares exceeded 280,000. Several amendments to the Law on Initial Privatization of State Property were adopted by the Parliament in September 1992 and February 1993, expanding the scope and modalities of privatization.

The privatization process for hard currency is also regulated by the Law on Initial Privatization of State Property adopted by the Parliament in February 1991. Initially the law stated that the list of enterprises to be privatized for hard currency must be adopted by the Parliament. This list of 114 enterprises was prepared by the government in September 1991, but the implementation process for hard currency was launched only in September 1992. Since 1 September 1991 the government has passed several amendments to the law regarding privatization for hard currency. In June 1992, the possibility to privatize entities through tender procedure was introduced. Late in September 1992 other two methods of privatization for hard currency were adopted by the Parliament: auctions of shareholdings of enterprises to be privatized and direct sale of the entity to investor in case only one has submitted his offering to the tender. The procedure of including enterprises on the list of privatization for hard currency was also liberalized. At present it can be done by the CPC. The right to initiate privatization for hard currency is given to the enterprises themselves, founders of entities and to potential investors.

Portions of shareholding of medium- and large-scale enterprises included in the privatization programme for hard currency are sold by tender. According to the legislation up to 70 per cent of shares of enterprises to be privatized for hard currency may be sold. The employees in the enterprises, which are sold for hard currency, can acquire up to 30 per cent of such enterprise.

Privatization programmes and preparation of enterprises to be sold by the tender method are carried out with the advise of foreign consultants. So far such assistance came from international sources such as USAID, PHARE, etc. Recently the government made provisions for hiring foreign advisers for the preparation and implementation of the privatization programme to be submitted to the CPC for approval. Upon the approval of the programme by the Central Privatization Commission, the Privatization Department of the Ministry of Economics shall announce within 15 days a tender in the Privatization Information Bulletin as well as announce the tender abroad.

Until now eight large-scale enterprises have been fully prepared for privatization for hard currency and tenders of these enterprises have been launched. Other two are under preparation. A tender on privatization of Klaipėda Tobacco company has already ended. The sum of $12 million will be paid to the Government of the Republic of Lithuania by the winner. Future investments in Lithuania are expected to be to the tune of $40 million. The Central Privatization Committee plans to issue about 60 large-scale enterprises for tender in 1994.

To sum up, although the privatization process in Lithuania is being vigorously pursued it is still too early to tell whether Lithuania's experience provides lessons to other Baltic countries. The innovative mass privatization scheme covering all sectors of the economy requires widespread public participation and simultaneous creation of the required framework for a capital market. This process has just started in Lithuania.

C. ENTERPRISE RESTRUCTURING: BRIDGING THE GAPS

Enterprise restructuring entails efforts to bridge the gap between current performance and the required level of efficiency in order to change the product mix and cost structure that is positioned to remain internationally competitive.[105/] Such gaps stem largely from inept economic systems and global changes in the incidence of technical progress, organization, marketing and factor prices. Efficient industrial restructuring depends not only on appropriate factor prices and economies of scale, but also on enterprise flexibility, as well as technological and marketing strengths. Indeed, principal factors laying the foundations on successfully restructuring programmes which can be built during the transition phase are quick adaptations in production, marketing, and management methods.

In the sphere of industrial restructuring increased attention should be paid to policy and institutional changes at subsectoral levels as against the narrow approach of targeting a new public sector projects for physical rehabilitation. Sound macroeconomic policies will need to be supplemented by removal of barriers to entry, exit and expansion of industrial enterprises and the elimination of policy-induced public or private monopolies, with a view to promoting competition and efficiency.

In addition to the privatization programme, the Government of Lithuania has been implementing measures to create independent commercially-oriented entities by dismantling previous State-owned conglomerates and large enterprises. By early 1992, such enterprises were made independent of respective founding ministries. Since then they have been enjoying complete financial autonomy and subsidies from budgetary expenditure have been discontinued. With substantial assistance from the World Bank, efforts are under way to re-examine the organizational arrangements for managing State enterprises and to introduce significant changes that would enhance their performance. Efforts are also under way to strengthen financial accounting. To this end, the Parliament has enacted a law on new accounting procedures complying with international standards. The required institutional arrangements are likely to be proposed soon and new accounting practices are expected to be fully in operation in 1993. An effective system for reporting enterprises' financial flows will be in operation by the beginning of 1993.

While the production structure built on the "Soviet model" will be significantly altered, due attention is being paid to a rather slow pace of production restructuring in order to avert high output losses and unacceptably high social costs. Nonetheless it is being recognized that failure to maintain financial discipline at the enterprise level will seriously undermine stabilization efforts as well as the transformation process. With a view to addressing dilemmas and crucial issues, assistance to selected sectors and large-scale industries will be required from bilateral and multilateral organizations. These efforts are likely to focus their attention on Lithuania's potential to expand production of exportable goods and services.

D. LEGAL FRAMEWORK FOR INVESTMENT: MAIN CODIFIED NORMS

The relatively quickly implemented legal system for privatization has already contributed to a spurt in the emergence of private enterprises in 1992. As of 1 May 1992 out of 50,000 companies registered in Lithuania about 36,000 were already privately-owned and about 8,500 were shareholding companies. The number of State-owned companies was 3,900. From 1 March to 1 May 1992, the number of new private enterprises increased by about 2,000.[106]

It was important for Lithuania to proceed with the legal reform. With the international recognition of Lithuania's Independence in August/September 1991, the old laws of the former USSR did not any longer apply to Lithuania. However, in practice, there are still cases in which the former USSR law may be applied as long as Lithuanian legislation has not yet been enacted.[107]

The new laws which were passed by the Lithuanian Parliament correspond very closely to those in force in west European countries. In particular, the new Lithuanian legal system draws largely on the legal system which is in force in Germany.[108] Thus the commercial law is overall very close to the German ***Handelsgesetzbuch***, which is not surprising as Germany is Lithuania's single largest trading partner in the West[109] as well as Lithuania's single largest foreign investor (followed by the United States and Scandinavian countries).[110]

The most important new laws are the following:[111]

Laws governing the Legal Status of Enterprises:
- Enterprise Law (adopted 8 May, 1990)
- Law on Partnerships (adopted 16 October 1990).
- Law on Joint Stock Companies (adopted 30 July, 1990)
- Law on State Enterprises (adopted 25 September 1990)
- Law on Agricultural Joint Stock Companies (adopted 16 April 1991)
- Law on the Register of Enterprises (adopted 31 July, 1990)

Tax laws
- Law on Taxes on Profits of Legal Persons (adopted 31 July 1990)
- Provisional Law on Income Tax of Natural Persons (adopted 5 October 1990)

Laws governing Foreign Investment
- Law on Foreign Investments
  (adopted 29 December, 1990 and amended 11 February 1992)[112]
- Law on Spheres of Business Activity Wherein Foreign Investment
  is Prohibited or Limited (adopted 2 May, 1991)

Laws governing the Legal Status of Foreigners
- Law on the Status of Foreign Nationals (adopted 5 September, 1991)
- Law on Immigration (adopted 4 September, 1991)

Laws governing Privatization
- Law on the Initial Privatization of State Property
  (adopted 28 February, 1990)
- Law on the Land Reform (adopted 25 July, 1991)
- Law on the Conditions of Citizens Rights to
  Real Estate Property Restitution (adopted 9 July 1991)

As of March 1992, the old USSR laws were still *de facto* in force for "intellectual property" (trade marks, patents, etc.), the law pertaining to "Bill of Exchanges and Cheques" and the "Bankruptcy" law.[113]

Laws governing the Legal Status of Enterprises: major highlights

The Enterprise Law deals with the right to engage in regular commercial activities. The law allows the following types of enterprises: individual (personal) enterprises, partnerships, limited partnerships, joint-stock companies (public and closed) as well as State (municipal) enterprises. The law enumerates all types of activities that require special permits (licenses) and establishes the main principles of relations between enterprises and State bodies. In the law it is made explicit that State bodies have no right to govern enterprise operations or regulate their activities by means of administrative methods[114/] which should ensure that no central command type system is to be re-established on Lithuanian territory.

The Law on Joint Stock Companies (adopted 25 September 1990) has fixed the capital of a public joint stock company at Rb 250,000. Given the strong inflation in 1991 and 1992, this minimum amount for forming a joint stock company was hardly any barrier to entry. The internal organization of joint stock companies has not been based on the anglo-saxon but on the German/Austrian model with a "general meeting", a "council of observers" (supervisory board), and a "board of directors" (board of executive directors). The corporate seat of the company must be in the Republic of Lithuania.[115/]

In contrast to some other European countries, Lithuania passed a specific law governing the legal status of State enterprises, which can be taken as a sign that the Lithuanian authorities still believe in a kind of mixed economy which does not need to be exclusively based on private ownership. A State enterprise is defined as an enterprise established from funds provided from the State (including local government) which has not issued shares ("state enterprise") or which has issued shares with their nominal value not exceeding one-fifth of the enterprise's authorized capital ("state joint stock enterprise"). Whereas the shares of a "State joint stock enterprise" can be sold and bought in public, the shares of a "State enterprise" cannot be bought or sold at the stock exchange. The legal foundation for the establishment is an act by government (or a local council). In contrast to joint stock companies in the private sector, the managing bodies of such a State enterprise are the "Meeting of Employees and Shareholders" (instead of the "General Meeting" which consists of shareholders only), as well as the Board of Directors and the Council of Observers (supervisory body). In other words, in State enterprises the workforce is being given a bigger say than in private enterprises, following the (socialist) model of some west European countries. However, in contrast to the worker's participation model in countries such as Germany or Austria which is concentrated on the activities of the supervisory board of a joint stock company, irrespective of the ownership, the workers' participation in Lithuania is directed towards the (State-owned) companies' General Meeting.

In contrast to private enterprises, the rate of interest on the use of (State) capital is uniform for all State enterprises and has to be approved by the Government or by the local government bodies.[116/] So far it is not yet clear whether the government (by this regulation) intended to protect private enterprises from crowding out, or whether the government wanted to be in a position to give State-owned enterprises some privileges in case of emergency.

Tax laws

The Law on Taxes on Profits of Legal Persons (adopted 31 July 1990) has put the tax rate for legal entities at 35 per cent,[117/] later (1991) reduced to 29 per cent of taxable profit. Municipal councils have the right to reduce taxable profits or exempt enterprises from payments of tax profit.[118/] In 1990 the old USSR tax rate was still 51 per cent.[119/] Together with various other local business taxes and fees, the overall taxes paid on profits then added up to 65 per cent of profits which was the highest rate in Baltic States and one of the reasons why joint ventures and foreign investment in the economy in general had been rather low in Lithuania and did not, initially, develop as fast as in the Russian Federation or in other Baltic States.[120/]

According to the Provisional Law on Income Tax of Natural Persons of the Republic of Lithuania, adopted 5 October 1990, enterprises which are not legal entities (individual private enterprises and

partnerships) are subject to a 30 per cent rate of income tax.[121] (The taxation for individuals is progressive, ranging from 18 per cent[122] to a top rate of 33 per cent.)[123]. Enterprises can also be subject to a licence fee. Having obtained the license, enterprises do not pay income tax on income derived from the activity indicated in the license. The rate of license fee is determined by the councils of local governments. This license fee, can however also be seen as another mechanism to prevent enterprises from changing their line of business, once they are privatized.

The concept of "profits" in the former USSR, and thus the tax base for the corporate tax and other business taxes, was not the same as in western Europe or the United States. One of the problems facing western firms in countries which formed part of the former USSR is the traditional "Soviet accounting system" which made direct comparisons difficult. In contrast to the western concept of "accrual accounting" - matching expenses to the period in which they are incurred and income to the period when goods sold are invoiced - the former USSR system was mainly based on the "cash accounting" principle, i.e., revenues were only "recognized" on the profit and loss account when cash was received while costs were already "recognized" when payments for goods and services were made. This could be interpreted as a conservative response to concerns over whether or not enterprises would be paid. But it makes it impossible to correlate income and expenditure in a single accounting period. For capital goods, the former USSR accounting model utilized the concept of depreciation. However, depreciation rates were very low by western standards, reflecting the traditionally longer period of use for which assets were employed in the former USSR than in the West.[124] Whereas the low depreciation rates lead to artificially large "profits", and thus to a high tax base and subsequently to higher taxes, the cash accounting principle in times of strong inflation tends to work to the advantage of enterprises as they do not have to pay corporate taxes with "good" money (i.e., money which still represents a certain purchasing power) before they finally receive cash for their goods sold (which then - in terms of purchasing power - has lost significantly in value).

In the Law on Taxes on Profits of Legal Persons of July 1990, Lithuania, however, seems to have already laid the basis for a substantial change in the traditional accounting system towards the western accrual system. The law explicitly states that "Earned Income shall consist of income generated from the sale of goods and services", i.e., the law does not define earned income as "payments received" from the sale of goods and services but already uses the more general term "income" which is open for further interpretation. In order to arrive at "taxable profit", enterprises have to deduct from gross income (i.e., earned income plus miscellaneous income) production and distribution costs ("material expenditures and other comparable expenditure"), depreciation charges, insurance premiums, taxes, rents, interest rates on loans, environmental expenditures as well as scientific research, design and construction expenses and expenses associated with the introduction of new technology.[125] In how far "cash expenditure" (old system), or "expenditure (cost) incurred" western model) is meant by the law, is not too clear. An interesting feature worth emphasizing is that the law defines depreciation as "charges providing for the replacement of fixed assets", which should give enterprises the legal right not to restrict depreciation to (low) historic cost of capital equipment but to (far higher) replacement values, i.e., significantly increasing depreciation charges and thus decreasing taxable profits.[126] As mentioned earlier, Parliament has already enacted a new law on accounting procedures complying with international standards.

Laws governing foreign investment

The Law on Foreign Investments in the Republic of Lithuania was adopted 29 December 1990. The following discussion analyses the major features of that law as well as the amendment as of 11 February 1992[127] which overall improved the conditions for foreign investors in order to speed up foreign investment.[128]

The objective of the law on foreign investment was to create favourable conditions for the investment of foreign capital in the Republic of Lithuania and to establish the legal order by which such investment is made.[129] The law allows ownership interests in joint venture, firms with foreign capital as well as shares in Lithuanian firms and ownership of other securities. In order

to make a foreign investment, a foreign investor has to request a "licence"[130/] from the Republic of Lithuania. Within 12 months from the date of the receipt of the licence the foreign investment has to be made; otherwise the licence is revoked.

On a number of minor points the foreign investment law is however quite restrictive: e.g., the property of firms with foreign capital must be insured by an insurance agency of the Republic of Lithuania; financial operations of firms with foreign capital have to be conducted through banks registered on the territory of the Republic of Lithuania.[131/] These restrictions are obviously intended to use foreign investment in a way which should give the local service sector the initial boost to develop.

One of the main principles of the law is that any "discrimination against foreign investment in any form shall be prohibited". In addition, the 1992 amendment explicitly states that foreign investment is not to be nationalized or taken by the State in any other way. Furthermore, Lithuania concluded a bilateral agreement with Germany which is supposed to give additional protection for capital investment in Lithuania.[132/]

Restrictions for foreign investors

Land cannot be bought by foreigners, foreign firms or joint ventures; according to the original law foreign companies could only lease land for 25 years with a priority right concerning the extension of the term of the lease.[133/] The amendment in February 1992 extended the 25 year lease to a maximum 99 year lease.[134/] Furthermore, the amendment changed the law in such a way that without any explicit agreement in the lease contract the price of the lease is considered to be fixed for the total lease period which should give foreign investors a larger degree of confidence into the economic viability of the project as well as the legal system of Lithuania.

In the original law on foreign investment some codified rules which attempt to prevent the sale of the Lithuanian industry to foreigners while at the same time favouring the creation and maintenance of joint ventures were incorporated. The founders of joint venture have "the right to transfer to third persons their share contributed to the joint venture, provided other founders have no objections". However, "upon the sale of the whole authorized capital or of a founder's interest in it to a foreign partner, other founders of the joint venture shall have a right of priority with respect to the acquisition of the sold interest."[135/] In other words, this rule attempted to prevent joint ventures concluded between some Lithuanian partners and a foreign partner leading to the subsequent take-over of the joint venture by the foreign partner. Furthermore, foreign investors could only own registered shares. The Government of Lithuania has the right to prescribe quotas for selling shares of State enterprises of the Republic of Lithuania to foreign investors.[136/] However, most of these restrictions were either significantly eased or completely abolished in the 1992 amendment. All rules for example which restricted the transfer of shares in a joint ventures were declared "invalid".[137/]

Already in the 1990 investment law it was foreseen that a foreign investment could be 100 per cent foreign owned.[138/] But such 100 per cent foreign investments were not the target of the government in order to attract foreign capital. The target was to attract joint ventures with between 25 and 75 per cent share of foreign capital. Such joint ventures were exempt from profit tax for a term of 3 years and in the subsequent period the profit tax was just 20 per cent of profits compared with 29 per cent for fully owned Lithuanian companies.[139/] For joint ventures with less than 25 per cent or more than 75 per cent foreign capital, the tax-free period was reduced to 1 year and the profit tax increased to 25 per cent.[140/] In the 1992 amendment, those criteria concerning tax advantages for joint ventures were abolished. Instead, a new legislation was introduced which is intended to spur foreign investment in the next few years without interfering in the capital pattern. New enterprises which are founded (or registered) with foreign capital before 31 December 1993 will only have to pay - for a period of 5 years - 30 per cent of the prevalent rate (i.e., 8.7 per cent instead of 29 per cent) in taxes for the profits pertaining to the share of the foreign investors. The domestic share of the profits remains to be taxed by 29 per cent. Enterprises founded between 1994 and the end of 1996 with foreign capital will have to pay - for a 6 year period - 50 per cent of the prevalent rate (i.e., 14.5 per cent).[141/]

Material contributions by foreign investors to authorized capital during the period of the formation are exempt from customs duties. The possibilities for foreign investors to transfer profits have been further improved in the 1992 amendment.[142/]

Dividends to foreign investors received in Lithuania are exempt from taxes. Income received by foreign investors and upon which a profit tax has been paid may be repatriated without any additional tax. However, investors, who are exempt from profit taxes, have to pay a tax of 5 per cent on the repatriated profit. This rule is clearly intended to keep capital in Lithuania.

In order to attract sufficient foreign capital, the law foresees the possibility of having local profits expatriated in hard currency[143/] or in kind (by products produced in the company).

Foreign investors obtain a 70 per cent reduction of profit taxes for 5 years until the end of 1993 to be followed by a 50 per cent reduction of profit taxes until the end of 1996 for 6 years.[144/] Still missing is a comprehensive network of tax treaties with OECD countries as it is already the case with Bulgaria, the Czech Republic, Hungary, Poland, Romania and the Slovak Republic.[145/]

Nevertheless, some legal problems remain for the time being. Whereas joint ventures are already governed by the new Lithuanian legislation, cooperation agreements as well as licensing agreements are still governed by the laws of the former USSR.[146/] The formation of "state stock companies" with a foreign investor holding 49 per cent of the shares is not allowed. In such a case a public corporation or a closed corporation may be founded instead.[147/]

In addition to the law on foreign investments, the Lithuanian Parliament adopted a "Law on Spheres of Business Activity wherein Foreign Investment is Limited" (2 May 1991).[148/] Foreign investment is prohibited in those spheres of activity which are related to national defence and security of the Republic of Lithuania. Furthermore, foreign investment is prohibited in State enterprises which have a monopoly in the Lithuanian market unless a special directive of the government explicitly allows such an investment. In accordance with a resolution of the Supreme Council, prior to the adoption of the Law on Monopolistic activity, enterprises, producing more than 50 per cent of total volume of production manufactured in the Republic, as well as enterprises operating functioning networks of communications, electric power transmission, gas, oil, water supply, heating and sewage are considered as monopoly enterprises.

A foreign capital firm or a joint-venture (unless functioning as a public corporation) is prohibited from operating in the following fields if it holds shares of more than 49 per cent:

- operating oil and gas pipelines, communications, electric-power transmission lines, heating systems, and facilities ensuring these objects' functioning (if of national significance);
- operating highways, railways, seaports, and airports of Lithuania;
- engaging in publishing activities, preparing and broadcasting TV and radio programmes
- establishing or operating gambling houses;
- manufacturing vodka, liqueurs, or other alcoholic beverages;
- manufacturing tobacco products;
- manufacturing weapons and explosives; and
- producing narcotics etc.

Furthermore, foreign investment firms and joint ventures without a special licence are prohibited from:

- exploring for and exploiting mineral deposits;
- exploiting natural resources;
- establishing and operating internal public transport and communications systems; and
- producing and selling poisonous substances.

Box II.B. Industrial priorities and targets

So far, official priority areas have only been announced for foreign investment. In industry, priority is thereby given to furniture and paper production, machine tools industry, light industry, chemical industry, the pharmaceutical industry and food industry. Further sectors, for which foreign investment are sought include:

- **Energy sector:** The manufacturing of heating meters and heat regulating devices;
- **Transportation sector:** Investment in motor industry as well as the manufacturing of spare parts for cars, trolley-buses and other means of transportation as well as the joint assembly of cars;
- **Communications sector:** This sector needs a thorough upgrading (including the construction of an international optic fibre line between Copenhagen and Kaunas, as well as the introduction of satellite communication systems etc.), the manufacture of electronic equipment; and
- **Environment:** the construction of water treatment facilities in Lithuania's largest towns.

The economic reform in Lithuania is targeted, *inter alia,* to implement a structural reorganization of the machine tools and metal processing industry. Foreign capital investments are required for the manufacturing of agricultural machinery, implements, food-processing equipment, precision tool, TV sets, insulation and sheet construction materials, construction engineering equipment and construction materials. In light industry Lithuania seeks to modernize flax growing and processing as well as the sewing industry and textiles production. In pharmaceutical and chemical industries, the Government intends to modernize the production of endocrinal preparations, medical herbs, methanol, maleic anhydride as well as chemicals for hide processing footwear. In the food industry, foreign capital investments are needed for the purchase of new equipment, processing lines and advanced technologies and their utilization in existing enterprises. Given the ample natural resources in this area, a modernized food industry should be able to expand food production for both the local market and exports to the Republics of the former USSR, to eastern Europe, central Europe and on a selective basis to western Europe. Priority industries are thereby: production of sugar, cooking oil, milk powder, meat products and meat processing, mixed feed production of livestock, poultry and fish: fruit, berry and mushroom processing, as well as production vaccines and bio-preparations. In addition, the expansion of those above mentioned branches will also necessitate the production of packaging materials and containers.[149/]

Perhaps as important as those restrictions has, however, been the Law on the Conditions of Citizens Rights to Real Estate Property Restitution (adopted 9 July 1991) which not only includes ownership rights to land but also to dwellings and industrial buildings.

This legislation, as in the two other Baltic States and as in most other former CMEA countries, gives people whose property was seized under former USSR rule the chance to reclaim it (including non-Lithuanian nationals). The Lithuanian law is thereby very reasonable and explicitly states that real estate (including industrial buildings) is to be returned: i) in the form of the confiscated real estate, or in the form of real estate equivalent to the confiscated one, or ii) in the form of a one-time State payment that enables such persons to take over a certain part of the privatized State property in cases when the restitution of unlawfully confiscated real estate is not possible.[150/]

However, the widely publicized negative experiences with the (less well formulated) restitution law in former East Germany has nevertheless scared off a number of potential foreign investors who are wary of buying businesses that may have to revert to a former owner at some later stage.[151/]

Laws governing privatization: focus on legal norms of privatizing State property

The Law on the Initial Privatization of State Property was adopted 28 February 1991 and amended 14 March 1991.[152/] This law sets the rules regulating the process of privatization of the State property. (The privatization of the State houses and the restitution of property confiscated are governed by different acts.)

The process of privatization is conducted by the Privatization Commission and Privatization Agencies, established throughout the country in accordance with this law and by decision of the local municipal organs. The Central Privatization Commission, established by decision of the Supreme Council of the Republic of Lithuania coordinates the process of privatization. The main function of Privatization Agencies is to collect and process information on the property subject to privatization and provide free access to this information to interested persons. They also organize auctions and the subscription for shares.

According to the provision of this law, any State-owned property can be privatized, except in cases expressly defined by this law. However, for some large enterprises, the State has retained a minority ownership position, and for some business properties, depending on the discretion of local authorities, the rights of purchasers to change the nature of the enterprises are restricted for a one-year period.[153/] Every object of privatization must be re-appraised. Some State-owned property can be privatized for hard currency only. The list of such objects must be approved by the Supreme Council of the Republic of Lithuania.

Any legal persons whether a resident of Lithuania or not, can participate in the process of privatization, though the right to acquire a part of State-owned property is reserved for natural persons who are citizens of Lithuania. (There exists one exception for the nationals of other States if the property had been earmarked for privatization solely for hard currency.)

State-owned property can be privatized either by selling it at auctions or by announcing public subscription for shares. If the initial sale price exceed Rb 500,000, the object can only be sold by announcing public subscription for shares. Auctions are organized by the local privatization agencies. Only natural persons can participate in such auctions. Participants must register not later than 7 days before the auction and must pay 5 per cent of the initial value of the auctioned object as well as a registration fee.

The industrial strategy of the Lithuanian Government so far has been based on supply side measures, in particular the withdrawal of the State from the task of running industrial enterprises in order to increase efficiency. Thus privatization is the spearhead of the government's plans for restructuring the ownership pattern of the socialized sector to achieve enterprise accountability and increase efficiency. But such an increase in efficiency is only possible if price signals are correct. Hence, the government started in 1991 to liberalize the price structure. In other words, the Lithuania's industrial policy so far concentrated on codifying the legal framework and on a change in the ownership pattern which should lead Lithuania's industrial sector on to the path of a market economy.

Lithuania was thus basically following the strategy of most other transforming countries of central and eastern Europe. Firstly, they were attempting to create new institutions and laws that would facilitate market exchange. In particular, they were freeing prices and creating legal frameworks for private ownership and for the banking system. Secondly, they were attempting to transform the old central planning institutions into new institutions that were consistent with the new economic system, focusing primarily on transforming State-owned enterprises into productive, privately-owned firms.[154/]

NOTES TO CHAPTER II

1/ See Lithuanian Information Institute of the Government of the Republic of Lithuania, *Lithuania Survey - A Businessman's Guide*, Vilnius 1991, p. 21.

2/ See "The Republic of Lithuania - A guide to the New East", in *Euromoney*, February 1992, p. 31.

3/ See "Litauen gab Preise für Industriewaren frei", in *Nachrichten für Außenhandel*, (22 November 1991).

4/ See "Litauen führt Marktpreise ein", in *Nachrichten für Außenhandel*, 3 January 1992.

5/ See IMF, *Lithuania Economic Review*, (Washington, April 1992), p. 10.

6/ See Lithuanian Information Institute of the Government of the Republic of Lithuania, *Lithuania Survey - A Businessman's Guide*, Vilnius 1991, p. 21.

7/ See IMF, *Lithuania Economic Review*, (Washington, April 1992), p. 10.

8/ See "Baltenstaaten trifft Rezession 1992 hart", in *Nachrichten für Außenhandel*, 4 June 1992, p. 1.

9/ See Legrain, Philippe, "IMF says Baltic outlook 'bleak'", *The Baltic Independent*, (15-21 May 1992), p. 1.

10/ See IMF, *Lithuania - Economic Review*, (Washington, April 1992), p. 20.

11/ See IMF, *Lithuania - Economic Review*, (Washington, April 1992), p. 11.

12/ See Rosati, Dariusz, "Sequencing the Reforms in Poland" in *OECD, "The Transition to a Market Economy"*, (Paris 1991), p. 212.

13/ See IMF, *Lithuania - Economic Review*, (Washington, April 1992), p. 11.

14/ See IMF, *Economic Review - Lithuania*, (Washington, April 1992), pp. 27-30.

15/ See "Saving Social security", in *The Baltic Independent*, (15-21 May 1992), p. 7.

16/ See "Litauen: Gesetz über national Währung", in *Nachrichten für Außenhandel*, 7 November 1991.

17/ See "Rouble shortage creates chaos and alarm" in *The Baltic Independent*, (3-9 April 1992), p. 4. See also "Rouble shortage drives governments to 'suicidal' currency reform", in *The Baltic Independent*, (8-14 May 1992), p. 5.

18/ See "Währung/Baltikum - Baltische Staaten auf dem Weg in die Währungshoheit", *APA (Austria Press Agency)*, 5 May 1992.

19/ See "Rouble shortage creates chaos and alarm" in *The Baltic Independent*, (3-9 April 1992), p. 4.

20/ See The Baltic States, Country Risk Service, *The Economist Intelligence Unit*, June 1992, p. 3.

21/ See Currency update, "New Currency Steady", *The Baltic Independent*, (15-21 May 1992), p. 5.

22/ See "The Republic of Lithuania - A Guide to the New East", in *Euromoney - supplement*, (February 1992), p. 31.

23/ See "World Bank experts recommend an immediate introduction of Lithuanian national currency - Litas", in *The Baltic Independence*, (5-12 February 1992), p. 3.

24/ See "United Nations report sees Baltics struggling", in *The Baltic Independent*, (24-30 April 1992), p. 1.

25/ See Bundeswirtschaftskammer, *HA-Länderblatt, Litauen*, (Vienna, 5 March 1992), p. 5.

26/ Thus the IMF, which in the early stages was extremely critical about a new currency for Lithuania stated in its economic review on Lithuania: "The introduction of the litas is a means to break away from the instability of the ruble. Having the new currency ready to issue is also a safeguard in case extreme difficulties should arise from a shortage of ruble banknotes in Lithuania". See IMF, *Lithuania Economic Review*, (Washington, April 1992), p. 11.

27/ See "Baltic gold reserves held overseas", in *The Baltic Independent*, 22-28 May, p. 5.

28/ See "IMF to help Lithuania with currency", in *Financial Times*, (22-23 August 1992), p. 2.

29/ See Hofmann, Bert and Schmiedling, Holger, "Auf dem Weg zur marktwirtschaftlichen Ordnung - Die Baltischen Staaten mit eigener Währung" in *Neue Zürcher Zeitung*, 3-4 November 1991, p. 13.

30/ See "Währung/Baltikum - Baltische Staaten auf dem Weg in die Währungshoheit", *APA (Austria Press Agency)*, 5 May 1992.

31/ See Fischer, Stanley, and Gelb, Alan, "Issues in socialist economy reform", in *OECD, "The transition to a market economy"*, Paris 1991, p. 189.

32/ See Dornbusch, Rudiger, "Strategies and priorities for reform", in *OECD, The Transition to a market economy"*, Volume 1, Paris 1991, p. 175.

33/ See Marer, Paul, "Pitfalls in transferring market economy experiences to the European economies in transition", in *OECD, "The transition to a market economy"*, Paris 1991, p. 43.

34/ See also Fischer, Stanley and Gelb, Alan, "Issues in Socialist Economy Reform", in *OECD, The Transition to a Market Economy*, (Paris 1991), p. 190.

35/ See Dornbusch, Rudiger, "Strategies and priorities for reform", in *OECD, "The transition to a market economy", Paris 1991, p. 178.*

36/ See Yoshitomi, Masaru, in *OECD, "The transition to a market economy"*, Paris 1991, p. 145.

37/ See Park, Yung Chul, in *OECD, "The transition to a market economy"*, Paris 1991, p. 152.

38/ See Baltics, in *Eastern Europe Finance*, April 7, 1992, p. 2.

39/ See IMF, *Lithuania Economic Review*, (Washington, April 1992), p. 8.

40/ See Legrain, Philippe, "Long-term loans blocked by Soviet debt wrangle", in *The Baltic Independent*, (22-28 May 1992), p. 7.

41/ This policy was outlined by the Minister for International Trade Relations, soon after the international recognition of Lithuania's independence. See Repetzki, Beatrice, "Litauen will eine offene Wirtschaft - Minister Aleskaitis empfiehlt Kooperation bei Elektronik", in *Nachrichten für Außenhandel*, (27 November 1991), p. 1.

42/ See "Das Baltikum auf schwierigem Wege", *Dresdner Bank*, December 1991, p. 11.

43/ See Repetzki, Beatrice, "Litauen will eine offene Wirtschaft - Minister Aleskaitis empfiehlt Kooperation bei Elektronik", in *Nachrichten für Außenhandel*, (27 November 1991), p. 1.

44/ See IMF, "*Lithuania - Economic Review*", (Washington, April 1992), p. 12.

45/ See "Lithuanian slump seems to worsen", in *The Baltic Independent*, (3-9 April, 1992), p. 5.

46/ See "The Republic of Lithuania - A guide to the New East", in *Euromoney*, February 1992, p. 31.

47/ See Bundeswirtschaftskammer, *HA-Länderblatt*, Litauen, (Vienna, 5 March 1992), p. 8.

48/ The parliament adopted the (preliminary) Customs Duty Law of 9 Oct. 1990 (ZINOS, No. 30), as well as the Tariff Law of 31 January 1991 (ZINOS, 1991 No. 5, to be supplemented by (Government) Regulation of 28.6.1991 (ZINOS, 1991, No. 22, 10.8.1991)). See "Neues Zollrecht in Litauen", in *Nachrichter für Außenhandel*, 7 May 1992, p. 5.

49/ See Bundeswirtschaftskammer, *HA-Länderblatt*, Litauen (Vienna, 5 March 1992), p. 6.

50/ Lithuania was accepted as member of IMF and World Bank as of April 27, 1992. See "IMF and World Bank agree Baltics membership", *The Baltic Independent*, (1-7 May 1992), p. 5.

51/ See "Litauen wurde das 161. Weltbank Mitglied", in *Nachrichten für Außenhandel*, 8 July 1992, p. 1.

52/ See "Baltikum" in Bundeswirtschaftskammer, *Ländernachrichten*, Vienna, No. 44, 31 October 1991, p. 4.

53/ See "Baltischer Rat, jetzt formell gegründet", in *Nachrichten für Außenhandel*, 28 January 1992.

54/ See "Baltische Freihandelszone", in *Nachrichten für Außenhandel*, 30 March 1992.

55/ See "Baltic free trade pact signed", in *The Baltic Independent*, 3-9 April 1992, p. 2. See also "Baltische Staaten auf dem Weg in die Währungshoheit", *APA*, 5 *May 1992*.

56/ See "Estland/Lettland/Litauen: Freihandelszone, aber keine Währungseinheit", in *Export-Praxis*, No. 11/1992, p. 7.

57/ See "Emanzipationsversuche der Wirtschaft in Litauen", in *Neue Zürcher Zeitung*, 18 March 1992, p. 16.

58/ See "Abkommen mit den Balten - Schweden vereinbart Meistbegünstigungsklausel", in *Nachrichten für Außenhandel*, 7 November 1991.

59/ See "Freihandelsabkommen Schweden-Litauen", in *Nachrichten für Außenhandel*, 20 March 1992.

60/ See "Trade Agreement Developed", in *Lithuanian Weekly*, 6-12 March 1992, p. 3.

61/ Negotiations in respect to a trade and cooperation treaty between Austria and Lithuania took place 27 to 30 April 1992. On 31 July 1992, the amended draft treaty was sent to Lithuania. The treaty includes the MFN (most favoured nation) clause for Lithuanian exports to Austria. See "*Abkommen zwischen der Republik Österreich und der Republik Litauen über die bilateralen Außenwirtschaftsbeziehungen*", July 1992.

62/ See Ellemann-Jensen, Uffe (Minister of Foreign Affairs of Denmark), "The Baltic: The Rebirth or a Dynamic Region", in *West-Ost Journal*, *No 5/6, 1991, p. 9.*

63/ See "The Baltic States", in *The Economist Intelligence Unit*, Country Report No. 1, 1992, p. 101.

64/ See Ellemann-Jensen, Uffe (Minister of Foreign Affairs of Denmark), "The Baltic: The Rebirth or a Dynamic Region", in *West-Ost Journal*, No. 5/6, 1991, p. 9.

65/ See "Das unabhängige Baltikum vor wirtschaftlichen Chancen und Herausforderungen", *Deutsche Bank*, (Focus Eastern Europe No. 24), 2 October 1991, p. 2.

66/ See "Das unabhängige Baltikum vor wirtschaftlichen Chancen und Herausforderungen", *Deutsche Bank* (Focus Eastern Europe No. 24), 2 October 1991, p. 1.

67/ See "United States trade offer to Baltics" in *Financial Times*, (12 Sept. 1991), p. 2.

68/ The three Baltic States were thus granted the same advantages as developing countries by the EC in order to foster the industrialization and increase economic growth in the Baltic region. See "Allgemeine Präferenzen für das Baltikum", in *Nachrichten für Außenhandel*, 5 February 1992.

Among former CMEA countries only Romania and Albania have not yet obtained the MFN status by the United States; although they enjoy it regarding the EC. In contrast, the two Baltic neighbours of Lithuania as well as Hungary, Czechoslovakia, Poland and Bulgaria have the MFN status for their exports. See *Eastern Europe Finance*, 2 June 1992, p. 8.

69/ See "US-Handelsabkommen mit Litauen", in *Nachrichten für Außenhandel*, 8 July 1992, p. 1.

70/ See IMF, *Lithuania - Economic Review*, (Washington, April 1992), p. 12.

71/ See "Neuer Handelsvertrag Moskau - Wilna", in *Nachrichten für Außenhandel*, 14 January 1992.

72/ A major topic in the negotiations was the withdrawal of troops of the former Soviet Union from the territory of Lithuania. A subsequent agreement between Russia and Lithuania foresaw the withdrawal of troops starting from February 1992 from Lithuania. See *The Economist Intelligence Unit*, The Baltic States, Country Report No. 1, 1992.

73/ See "The Baltic States", in *The Economist Intelligence Unit*, Country Report No. 1, 1992, p. 102.

74/ See "Compromise is reached at negotiations, but prospects remain vague", in *The Baltic Independent*, February 5-12, 1992, p. 4.

75/ See "Russia makes concessions to Baltics", in *The Baltic Independent*, (10-16 April 1992) p. 4.

76/ See "Moskau und Vilnius vereinbaren Clearing - Rußland sagt Erdöllieferungen zu", in *Nachrichten für Außenhandel*, 31 March 1992.

77/ See "GUS und Baltische Republiken - Warenbörsen für Gegengeschäfte", in *OSEC* 3/1992, p. 7.

78/ See Repetzki, Beatrice, "Litauen will eine offene Wirtschaft", in *Nachrichten für Ausßenhandel*, (27 November 1991), p. 1.

79/ See Buchanan, David, "Baltic States to open talks with EC on trade and aid", in *Financial Times*, (9 Sept. 1991), p. 2.

80/ See Repetzki, Beatrice, "Litauen will eine offene Wirtschaft", in *Nachrichten für Außenhandel*, (27 November 1991), p. 1.

81/ The EC and 24 industrial countries decided on 24 December 1991 to extend the PHARE assistance programme to the three Baltic States as well as Albania, while the territories of the former German Democratic Republic were excluded. Recipients of PHARE assistance are, in addition to the Baltic States, Albania, the former CSFR, Bulgaria, Hungary, Poland, Romania and officially also the former Yugoslavia (although funds for Serbia have been frozen). See "Baltische Staaten im PHARE Programm", in *Nachrichten für Außenhandel*, 3 January 1992.

82/ PHARE assistance in these core areas is being increasingly complemented by support in related priority areas, including energy, environment telecommunications, transport, health, housing, and education. Within each of these areas, PHARE finances technical assistance, training, feasibility studies, and projects undertaken within the framework of sectoral programmes that are intended to develop a market economy. Besides supplying technical assistance through consultants, the programme also extends credit lines for joint ventures and small- and medium-sized enterprises; and finances the purchase of equipment. As a general rule, PHARE does not finance individual projects unless they have been integrated into a strategic initiative by the recipient government. Moreover, the EC wants 10-15 per cent or more of PHARE resources used to "encourage cross-national or regional projects that involve two or more PHARE recipients". Only goods that originate in the EC or in one of the beneficiary countries may be purchased under PHARE financing. PHARE funds are being used increasingly to finance feasibility and planning studies needed for the very large projects financed by the World Bank, and also the European Bank for Reconstruction and Development (EBRD) is drawing on PHARE for its projects. Thus, co-financing of EBRD and World Bank projects accounted for 25 per cent of PHARE allocations during 1991/92. Total assistance allocated by the PHARE programme for all recipient countries during 1990 and 1991 amounted to Ecu 1,285 million, starting with Ecu 500 million allocated in 1990. The budget for 1992 will be increased to Ecu 1,000 million which is substantially more than the amount foreseen in early 1990 when allocations for the three-year period (1990-1992) were planned. See "EC PHARE Programme Issues Guidelines for Suppliers", in *Eastern Europe Finance*, (January 8, 1992), p. 2.

83/ See "Reform bars Baltic way to closer EC ties", in *The Baltic Independent*, 1-7 May 1992, p. 5.

84/ The basis for this agreement was a Commission Report on Cooperation with Estonia, Latvia and Lithuania. The areas of cooperation included economic reconstruction, training, distribution of foodstuffs, energy, financial services and transport, as well as projects relating to environment and investment promotion. The Commission suggested that once clear economic stabilization plans had been drawn up, there should be an examination of the need for balance of payments assistance and assistance for the introduction of convertible currencies. From January 1992, assistance would continue on the basis of an extension of the "Operation PHARE" to the Baltic States. See *Bulletin of the EC*, 9/1991, p. 44. Following that report, the Commission proposed on 16 October 1992, a "first generation trade and cooperation agreement" covering industrial and agricultural products and allowing for the possibility of an association agreement and recommended the Council to authorize the Commission to negotiate such a trade and cooperation agreement between the EC and Lithuania. See *Bulletin of the EC*, 10/1991, p. 70. The Council's decision, authorizing the Commission to enter into such negotiations followed on 4 November 1991. See *Bulletin of the EC*, 11/1991, p. 69.

85/ See "Baltics sign trade deals with EC", the *Baltic Independent*, 15-21 May 1992, p. 4.

86/ See *The Economist Intelligence Unit*, "The Baltic States", Country Report No. 1, 1992, p. 104.

87/ See "EG-Vereinbarung mit Litauen paraphiert", in *Nachrichten für Außenhandel*, 5 February, 1992.

88/ See "Baltics sign trade deals with EC", in *The Baltic Independent*, (15-21 May 1992), p. 4.

89/ See "Economic cooperation with the countries of Central and Eastern Europe", in *Bulletin of the EC*, 12/1991, p. 99. See also *Official Journal of the European Communities*, No. L 362/83, 31.12.1991.

90/ See *Official Journal of the European Communities*, No. L 362/84, 31.12.1991.

91/ See Council Regulation of 2 March 1992 on the introduction of a prior surveillance system for imports of certain textile products originating in Albania, the Republics of Estonia, Latvia and Lithuania, *Official Journal of the European Communities*, 11.3.1992, No. L 65/1.

92/ " ... Whereas, pending the conclusion of bilateral agreements on trade in textile products with .. the Baltic Republics, ..." "Council Regulation on the introduction of a prior surveillance system for imports of certain textile products originating in Albania, the Republics of Estonia, Latvia and Lithuania", in *Official Journal of the European Communities*, No. L 65/1, 11.3.1992.

93/ See "The IMF recently produced reports on the three Baltic economies: Reform is stalled - only Lithuania has begun the core of the reform programme, privatisation", in *The Baltic Independent*, 15-21 May 1992, p. 6. See also "Baltenstaaten trifft Rezession 1992 hart - Budgets unter Druck - Litauen vorn bei Privatisierung - Ab Juni Estnische Krone", in *Nachrichten für Außenhandel*, 4 June 1992, p. 1.

94/ See IMF recently produced reports on the three Baltic economies: The Fund's verdict: Lithuania, in *The Baltic Independent*, 15-21 May 1992, p. 6. See also "Baltenstaaten trifft Rezession 1992 hart - Budgets unter Druck; Litauen vorn bei Privatisierung; Ab Juni Estnische Krone", in *Nachrichten für Außenhandel*, 4 June 1992, p. 1.

95/ See Calabuig, Erlends, "Tentation autoritaires en Lituania", in *Le Monde Diplomatique*, August 1992, p. 6.

96/ Lithuanian Information Institute of the Government of the Republic of Lithuania, *Lithuania Survey*, 3rd edition, A Businessman's Guide, (Vilnius 1992), pp. 31-32.

97/ See Calabuig, Erlends, "Tentation autoritaires en Lituania", in *Le Monde Diplomatique*, August 1992, p. 6.

98/ See Bachmann, Klaus, "Der "Lit" als Hoffnungsschimmer", in *FAZ*, 3 May 1992.

99/ See "Baltenstaaten trifft Rezession 1992 hart - Budgets unter Druck; Litauen vorn bei Privatisierung; Ab Juni Estnische Krone", in *Nachrichten für Außenhandel*, 4 June 1992, p. 1.

100/ See Semeta, Algirdas (Chief Assistant of Government Privatization Department Staff) "Lithuania's Road to private property" in *Baltic News - Information & Analysis*, (May 1992), p. 10.

101/ The laws on privatisation also cover the restitution of property held by private owners in the interwar period which was subsequently nationalized. Because of the low level of industrialization during the previous period of Independence, this applies mainly to agricultural land.

102/ See *IMF*, "Economic Review - Lithuania", (Washington, April 1992), p. 9.

103/ See Sedlmayer, Peter, "Kurzinformation Lituauen", *Bundeswirtschaftskammer - Österreichische Außenhandelsstelle*, Stockholm, (4 August 1992), p. 1.

104/ See Faschingeder, Handelsvertragsverhandlungen mit Litauen, *Bundeswirtschaftskammer*, (Vienna, 11.5.1992), p. 3.

105/ For an analytical perception enterprise restructuring during the transition period, see OECD, *The Transition to a Market Economy*, (Paris 1991), vol. II., pp. 65-112.

106/ See "Business briefs - Lithuanian firms", in *The Baltic Independent*, May 22-28, 1992, p. 5.

107/ See "Rechtslage im Baltikum vielfach noch unklar, - sowjetisches Recht ist aber heute grundsätzlich nicht mehr anwendbar", in *Nachrichten für Außenhandel*, 31 October 1991.

108/ See Bundeswirtschaftskammer, "*HA Länderblatt, Litauen*", (Vienna, 5 March, 1992), p. 10.

109/ See Bachmann, Klaus, "Der Lit" als Hoffnungsschimmer", in *FAZ*, 4 May 1992.

110/ See "Relaxed Laws in Hope of Western Investment", in *Lithuanian Weekly*, (13-19 March 1992), p. 1.

111/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, Vilnius, pp. 25-33. For full text of main laws see, "*Selected Anthology of Institutional, Economic and Financial Legislation*", (Vilnius, State Publishing Center, 1991), pp. 1-223.

112/ See "Litauen novelliert sein Investitionsgesetz", in *Nachrichten für Außenhandel* (4 June 1992), p. 5.

113/ See Bundeswirtschaftskammer, *HA-Länderblatt, Litauen*, (Vienna, 5 March 1992), p. 10.

114/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, (Vilnius 1992) p. 25.

115/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, (Vilnius 1992) p. 26.

116/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, (Vilnius 1992) p. 26.

117/ See "Law on taxes on profits of legal persons", Chapter 3, Article 7, 31 July 1990.

118/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, (Vilnius 1992) p. 28.

119/ See IMF - *Lithuania, Economic Review*, (Washington, April 1992), p. 29.

120/ See Martin, Thomas, "Opportunities in the Baltics", in *Fortune*, (Oct. 21, 1991) p. 39.

121/ See "Survey of the Laws Regulating Economic activities in the Republic of Lithuania", in: Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, 3rd Edition, A Businessman's Guide, (Vilnius 1992) p. 29.

122/ See "The Republic of Lithuania - A Guide to the New East", in *Euromoney*, supplement (February 1992), p. 31.

123/ See *Eastern Europe Finance*, (June 2, 1992), p. 7.

124/ See Jack, Andrew, "Accountancy column - Working Russian model now in need of overhaul", in *Financial Times*, (31 July 1992), p. 27.

125/ See "Law on taxes on profits of legal persons", 31 July 1990, Chapter 2.

126/ See "Law on taxes on profits of legal persons", 31 July 1990, Chapter 2.

127/ See "Litauen novelliert sein Investitionsgesetz - Bedingungen für Investoren verbessert/Rechte an Grund und Boden ausgedehnt", in *Nachrichten für Außenhandel, June 1992, p. 5.*

128/ See "Emanzipationsversuche der Wirtschaft in Litauen" in *Neue Zürcher Zeitung*, (18 March 1992), p. 16. See "Litauen: Investitionsrisiko vorerst hoch - politische and wirtschaftliche Unsicherheitsfaktoren hemmen Kapitalimport", in *Nachrichten für Außenhandel*, (28 October 1991), p. 1.

129/ See "Lithuanian Information Institute of the Government of the Republic of Lithuania", *Lithuania Survey*, 3rd edition, (Vilnius 1992), p. 28.

130/ See "The Republic of Lithuania - A guide to the New East", in *Euromoney*, February 1992, p. 31.

131/ See *Soviet Business Law Report - Text of Lithuanian Law on Foreign Investment*, (Buraff Publications, July 1991), Art. 22 and Art. 23, p. 94.

132/ See "Litauen sichert Schutz für Investitionen zu", in *Außenhandel*, 3 March 1992, p. 1.

133/ See *Soviet Business Law Report - Text of Lithuanian Law on Foreign Investment*, (Buraff Publications, July 1991), Art. 21, p. 94.

134/ See *Eastern Europe Finance*, (June 2, 1992), p. 6.

135/ See *Soviet Business Law Report - Text of Lithuanian Law on Foreign Investment*, (Buraff Publications, July 1991), Art. 17, p. 93.

136/ See *Soviet Business Law Report - Text of Lithuanian Law on Foreign Investment*, (Buraff Publications, July 1991), Art. 27, p. 95.

137/ See "Litauen novelliert sein Investitionsgesetz", in *Nachrichten für Außenhandel*, (4 June 1992), p. 5.

138/ This is now possible in most east European countries; the only exceptions are Albania - where the law will change soon - and Estonia, where a number of sectors are still exempted from 100 per cent foreign investment. See *Eastern Europe Finance*, 2 June 1992, p. 6.

139/ See "The Republic of Lithuania - A Guide to the New East", in *Euromoney*, supplement, (February 1992), p. 31.

140/ See Bundeswirtschaftskammer, *HA-Länderblatt - Litauen*, Vienna, 5 March 1992, p. 11.

141/ See "Litauen novelliert sein Investitionsgesetz", in *Nachrichten für Außenhandel*, (4 June 1992), p. 5., as well as *Eastern Europe Finance*, 2 June 1992, p. 7.

142/ See "Emanzipation der Wirtschaft in Litauen", in *Neue Zürcher Zeitung*, 18 March 1992, p. 16.

143/ See *Eastern Europe Finance*, 2 June 1992, p. 6.

144/ See *Eastern Europe Finance*, 2 June 1992, p. 7.

145/ See *Eastern Europe Finance*, 2 June 1992, p. 7.

146/ See Bundeswirtschaftskammer, *HA-Länderblatt - Litauen*, Vienna, 5 March 1992, p. 11.

147/ See *Soviet Business Law Report, Text of Lithuanian Law on Foreign Investment*, (July 1991) p. 93, Art. 15.

148/ See Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, Vilnius 1992, p. 30.

149/ See Lithuanian Information Institute of the Government of the Republic of Lithuania, *Lithuania Survey*, A Businessman's Guide, (Vilnius 1992), pp. 41-42.

150/ See Lithuanian Information Institute of the Government of the Republic of Lithuania, *Lithuania Survey*, 3rd edition, A businessman's guide, Vilnius 1992, p. 32.

151/ See Carney, James, "The Baltics - A painful freedom - three fledging States are discovering that gaining Independence was the easy part: the path to prosperity is much more painful", in *Time*, (10 February 1992), p. 17.

152/ See Lithuanian Information Institute of the Government of the Republic of Lithuania - *Lithuania Survey*, (Vilnius 1992), pp. 31-32.

153/ See IMF, *Lithuania Economic Review*, (Washington, April 1992), p. 9.

154/ See Ickes, Barry and Ryterman, Randi, "Putting Entrepreneurs First in the Eastern Bloc, Credit for Small Firms, not Dinosaurs", in *Orbis*, Summer 1992, p. 333.

III. STRUCTURE AND PERFORMANCE OF INDUSTRY

A. INDUSTRY AT INDEPENDENCE[1/]

At Independence Lithuania inherited an industrial sector which was largely built to serve the requirements of the former USSR. Within the division of labour in the former USSR, Lithuania was given the role of producing many of the high-technology products particularly for military needs. Around 600 "all union enterprises" were built in Lithuania for the production of sophisticated electrical, electronic, chemical, and knowledge-intensive products, with guaranteed sales in and raw material supplies from the former USSR. Most of the enterprises were built at a scale much too large for Lithuania's domestic economy. However, unlike the other former Republics of the USSR the emphasis on heavy industry was far less pronounced, and Lithuania was able to develop light industries to a much greater extent than other former Republics of the USSR.

The structure of industry at Independence was characterized by almost equal preponderance of light and heavy industries (see Table III.1). In 1990 mechanical engineering and metal processing accounted for 26.6 per cent of industrial production, while that of light industry comprising textiles, clothing and leather, stood at 22 per cent. With 21 per cent of industrial output in 1990 the food-processing industry also stood as an equally important industry branch.

Within food processing the major products are meat, dairy, and fish processing. Sugar production also constitutes an important activity. Food-processing factories are found all over the country, but Klaipeda is the main location of the country's fishing industry. There are eight large meat processing and a number of small-scale enterprises in the country. Around 100 food-processing enterprises are affiliated to the Ministry of Agriculture. Most of these enterprises are engaged in milk processing (41 enterprises) and meat processing (13 enterprises). The country imports two-thirds of its raw materials for sugar production and all raw materials for oil, cocoa and tobacco processing. Significant quantity of animal feed is also imported. In the wake of a dramatic fall in the imports of animal feed due to foreign exchange constraints, the output of milk and meat products declined drastically in recent years.

At present textiles, clothing and leather products together account for around one-fourth of industrial output and 20 per cent of industrial employment. There are 106 enterprises producing cotton, linen, silk, woollen textiles, socks, and a variety of textile and footwear products. The light industry branch depends heavily on imported raw materials. Around 90 per cent of imported raw materials for the country's light industry are utilized by the cotton and woollen branches.

The machine building and metal working industry is the most important branch of Lithuania's industry. In 1992 there were 53 enterprises in the industry, most of which (roughly 60 per cent) were engaged in machine tool making and the fabrication and repair of agricultural machinery and equipment. Most of the enterprises in machine building and metal working units were built in the period 1945-1965. Compared with western standards much of the technology used in the industry is obsolete and production operations are inefficient.

Building materials accounted for 5 per cent of industrial output in 1990. The industry comprises mainly one large-scale cement factory with a capacity of 3.6 million tonnes and two clay factories with a joint capacity to produce 1.2 million tonnes of bricks. The quality of products, particularly cement, is quite good but production is highly energy intensive and is a major source of pollution. The industry, which mainly caters for the domestic market, is currently being handicapped by erratic fuel supplies from the Russian Federation and other republics of the CIS. The industry caters mainly for the domestic market.

Lithuania's chemical industry, including oil possessing, accounted for 3.6 per cent of industrial production in 1990. The industry turns out a wide rage of products, such as nitric and phosphoric mineral fertilizers, sulphuric, nitric and phosphoric acids, synthetics, washing detergents, dyes, paints and household chemicals. The industry suffers from irregular supply and soaring prices of raw materials. Much of the environmental problems in the country's chemical industry are due to old, worn-out machinery and inefficient production processes.

Table III.1. Structure of industrial production, 1990 and 1991
(Percentage)

Industry branch	1990	1991
Mechanical and electrical engineering	26.6	18.3
Textile, clothing and leather	21.9	21.3
Food processing	21.0	31.5
Timber, wood processing, pulp and paper	5.2	5.8
Building materials	4.9	5.2
Electric power	4.6	3.1
Chemical and oil processing	3.6	3.0
Basic fuel	3.2	3.6
Iron and steel	0.4	0.3
Other	8.6	7.9
Total	100	100

Source: Department of Statistics.

Lithuania's timber, wood processing, pulp and paper industries accounted for 5.2 per cent of industrial production in 1990. At present, the country's pulp and paper capacity is estimated at 267,000 tonnes per annum. While Lithuania is a net exporter of paper and board, it still has to import large quantities of consumer grade paper products. There are two paper mills, and two paper board mills. There is also a Lithuanian-United States joint venture engaged in the production of paper and paper board. The industry is no exception to the general wave of industrial deceleration resulting from decreasing availability of raw materials especially from the Russian Federation.

Despite a relatively low level of technology compared to western standards, the electronics industry in Lithuania is relatively well developed. Around 74 per cent of the industry's output was exported to the former USSR. Most enterprises are large scale, and designed for mass production. The industry produces a wide range of products such as audio-visual equipment, TV sets and tuners, office information systems and other informational equipment, electronic measuring devices, components, etc. The country is endeavouring to capitalize on its long experience especially in the production of TV sets and electric meters in which Lithuania still enjoys a virtual monopoly in the Baltic region. However, a higher level of technological sophistication will need to be achieved through joint ventures with major players of the industry on the world market.

The iron and steel and non-ferrous metal industries that form the core of the heavy industry are hardly developed in Lithuania. Within the division of labour in the former USSR, Lithuania was not assigned a role to concentrate on metallurgy, nor did the country had the natural resource base to develop metallurgical industries.

Physical volumes of output presented in Table III.2 show a dramatic fall in the production of almost all categories during 1990-1992. Apart from disruption of raw material supplies and soaring costs of production, the present microeconomic inefficiencies on the supply side are due to the use of highly energy- and material-intensive, environmentally unsound and out-moded technology. Further, lack of investment to upgrade the capital stock, and lack of expertise in marketing and western accounting practices appropriate for the transition to a market economy hamper industrial progress. The problem of irregular raw material supplies from hitherto established sources is exacerbated by soaring prices and frequent disruption of barter trade agreements which are necessitated by the acute shortage of hard currencies in the Baltic region, the Russian Federation and in other countries of the CIS.

A number of high-technology companies hitherto attuned to the military needs of the former USSR no longer have the same strategic importance. Some of the country's large enterprises are also likely to lose their monopoly status in the Baltic region when competitive pressures are created through industrial restructuring and privatization.

Fig. III.A. Structure of industrial production, 1970-1992, selected years

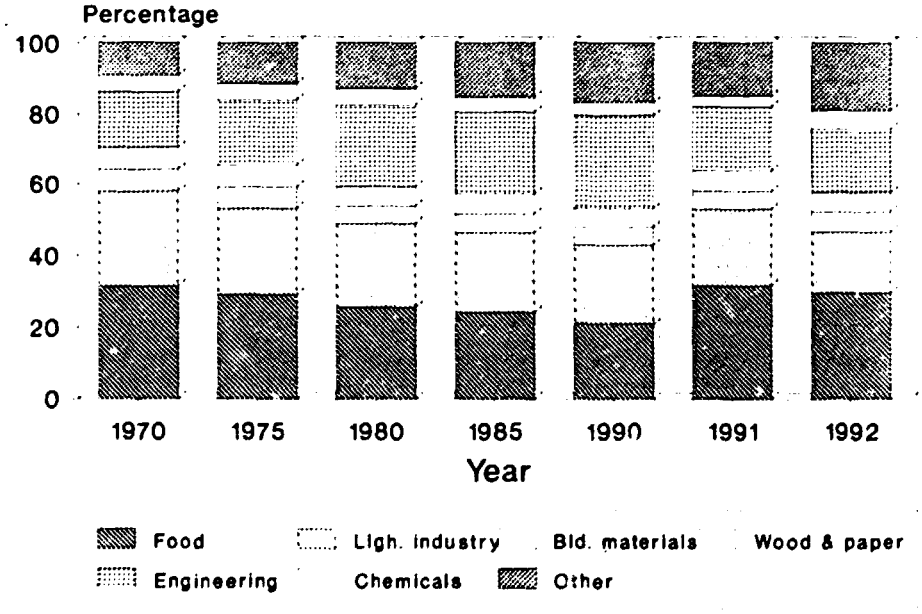
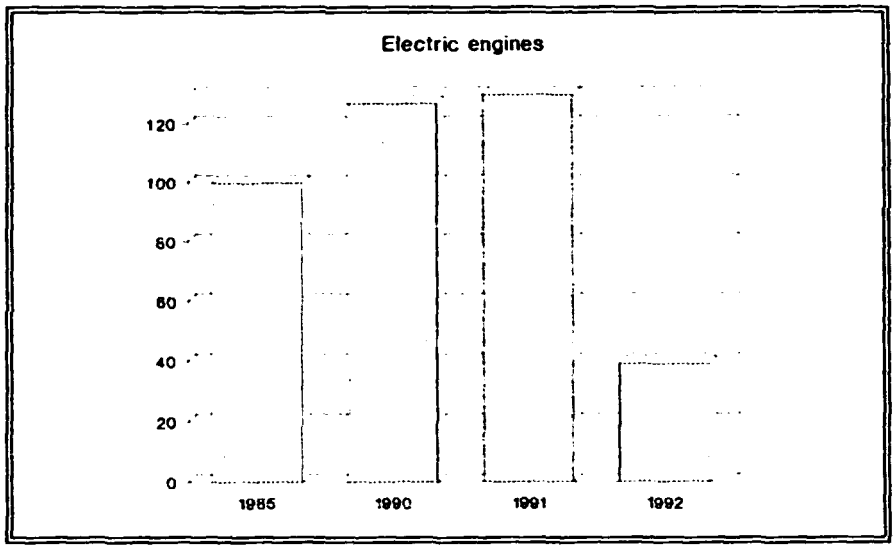
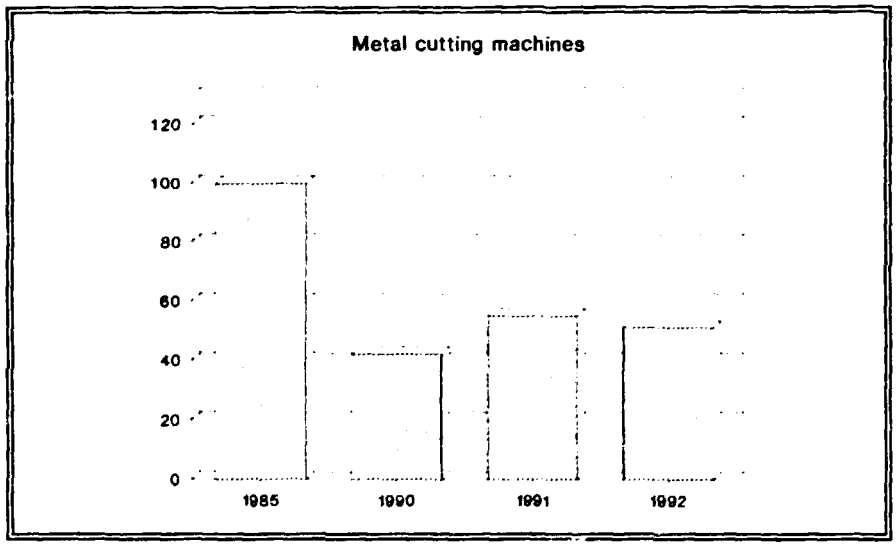
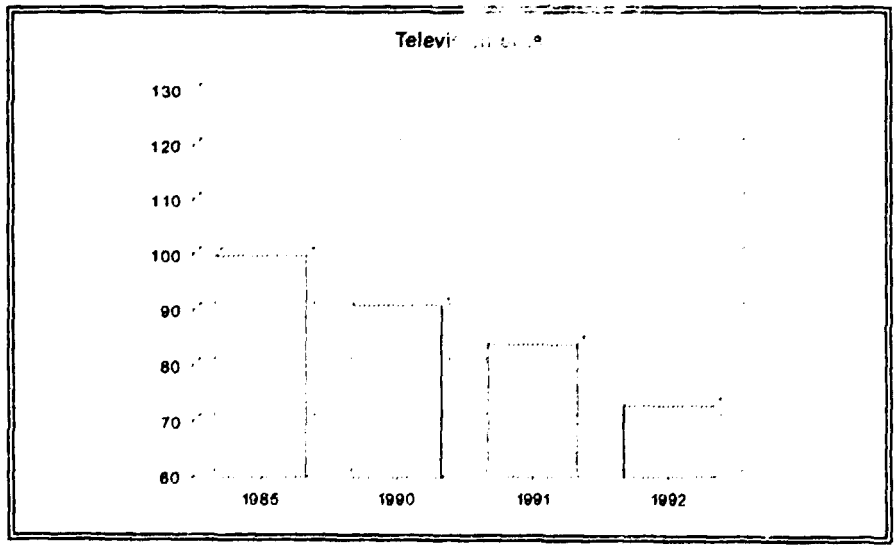
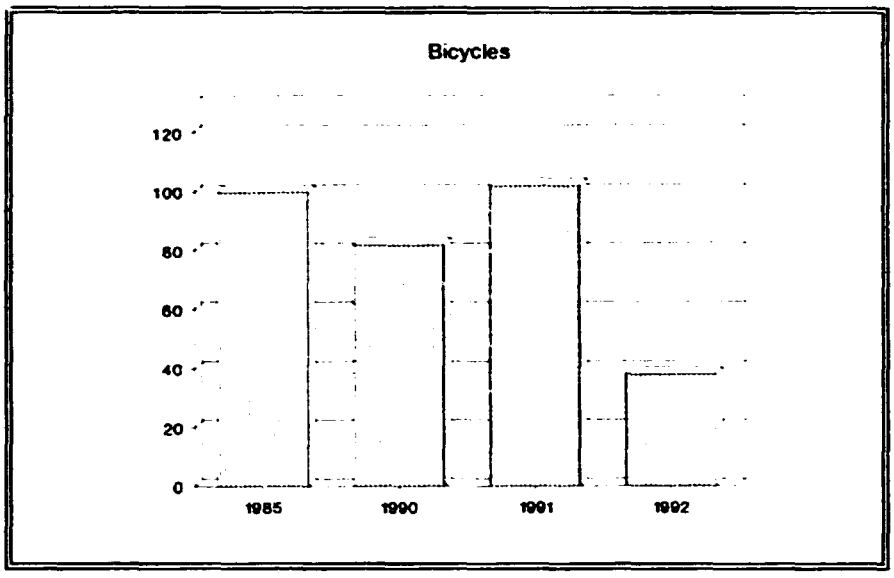


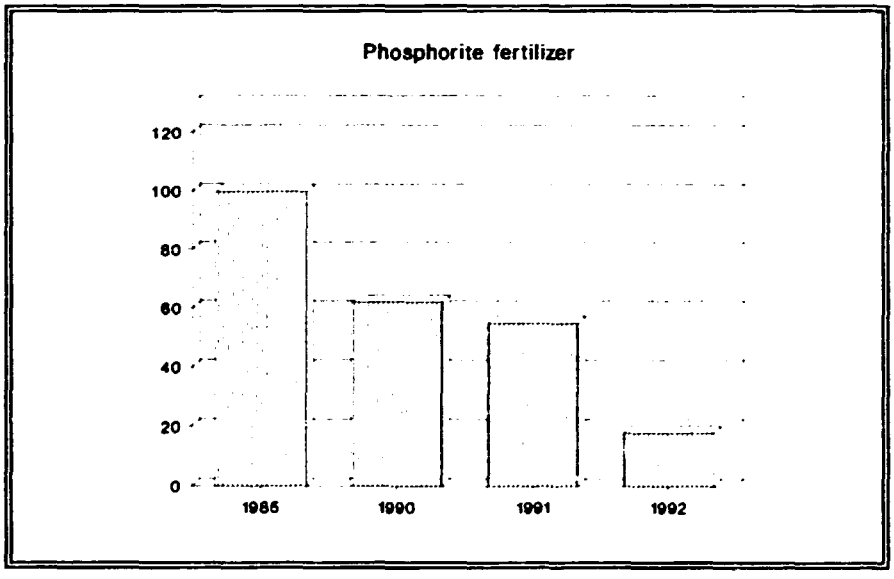
Fig. III.B. Indices of physical volume of output, selected industrial products, 1985-1992, (1985 = 100)

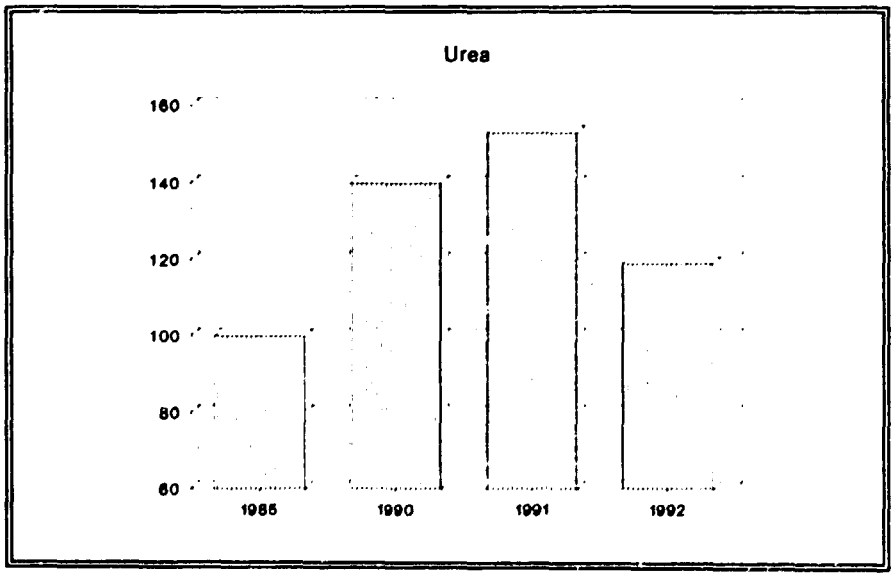


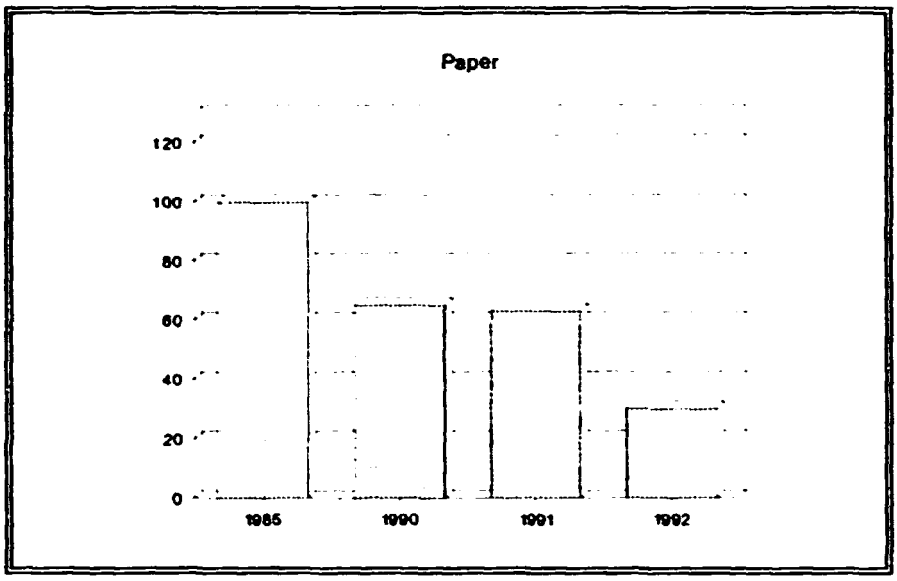


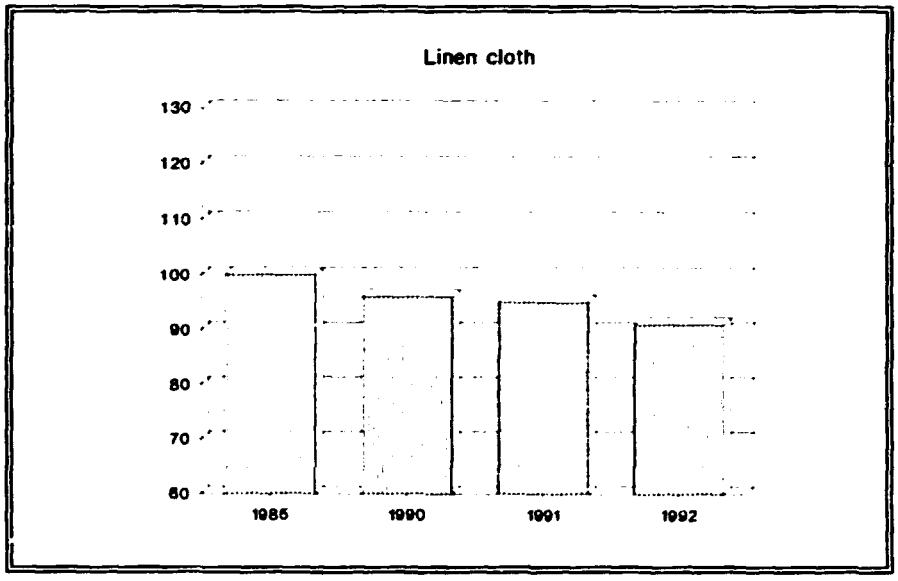


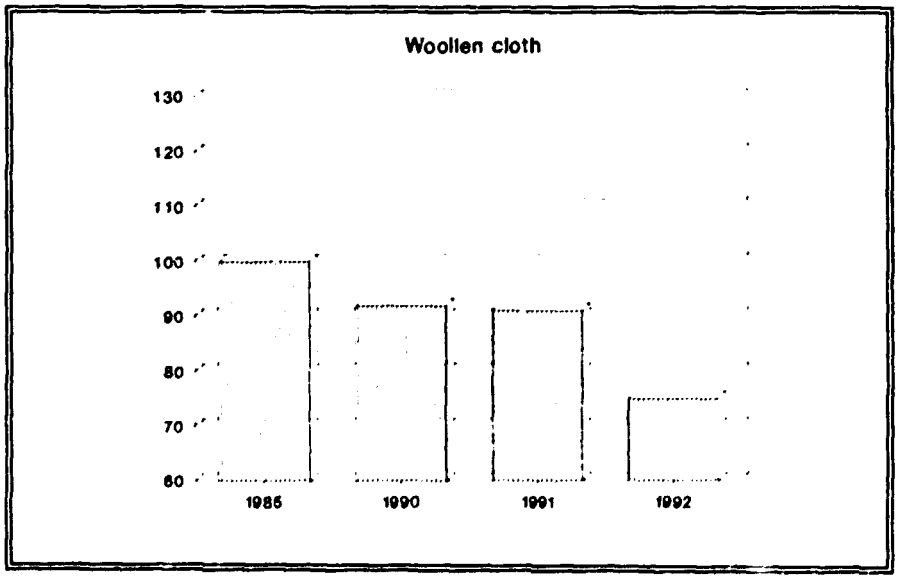

Bicycles
120
100
80
60
40
20
0
1985
1990
1991
1992

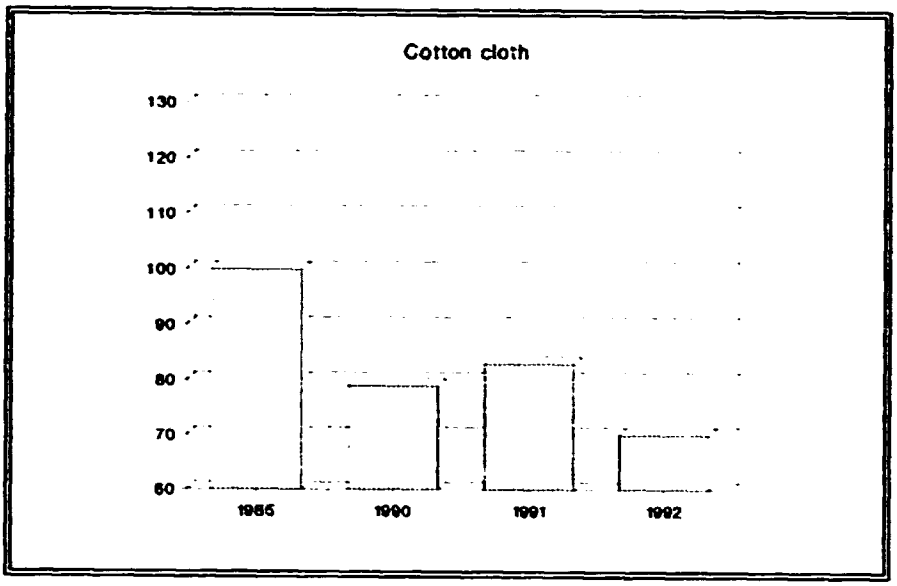

Phosphorite fertilizer
120
100
80
60
40
20
0
1985
1990
1991
1992

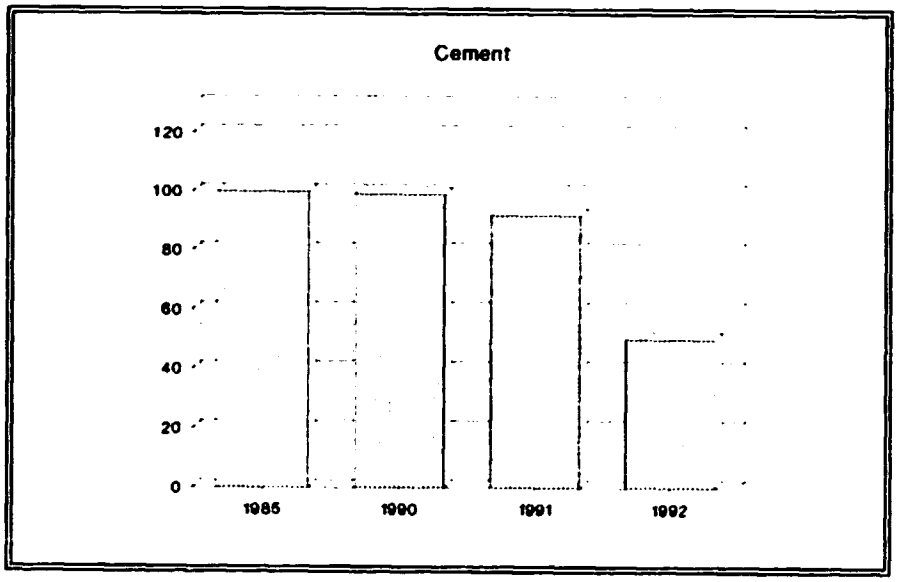

Urea
160
140
120
100
80
60
1985
1990
1991
1992


Paper
120
100
80
60
40
20
0
1985
1990
1991
1992


Linen cloth
130
120
110
100
90
80
70
60
1985
1990
1991
1992


Woollen cloth
130
120
110
100
90
80
70
60
1985
1990
1991
1992


Cotton cloth
130
120
110
100
90
80
70
60
1985
1990
1991
1992


Cement
120
100
80
60
40
20
0
1985
1990
1991
1992

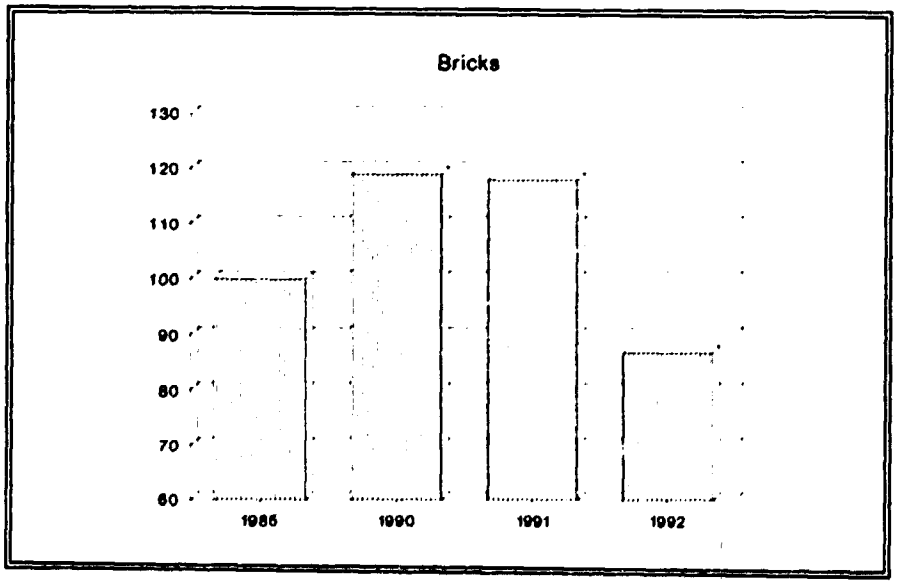

Bricks
130
120
110
100
90
80
70
60
1985
1990
1991
1992

Table III.2. Production of selected industrial products, 1980-1992, selected years

Product	Units of measure	1980	1985	1990	1991	1992[a/]
Electric engines	Thousand units	5,107.0	6,220.7	7,886.4	8,102.8	2,466.0
Galvanic elements	Thousand units	211,735.0	253,449.0	293,100.0	232,700.0	65,000.0
Metal cutting machines	Units	24,800.0	20,182.0	8,556.0	11,062.0	10,324.0
Compressors	Thousand units	1,042.2	1,127.5	1,261.9	1,027.2	1,000.0
Kinescopes for television sets	Thousand units	1,400.0	1,429.2	1,453.0	1,476.0	1,015.0
Electric meter	Thousand units	3,221.0	3,301.5	3,230.4	2,592.5	1,796.0
Drills	Thousand roubles				65,413.0	310.0
						mln.tal.
Refrigerators	Thousand units	296.4	310.?	263.4	264.6	160.0
Bicycles	Thousand units	435.0	462.0	380.6	391.4	180.0
Television sets	Thousand units	437.9	609.5	558.2	516.2	450.5
Synthetic ammonium hydrate	Thousand tonnes	584.1	653.2	568.4	619.6	320.0
Synthetic tar	Thousand tonnes	69.1	79.8	88.8	94.9	66.0
Methanol	Thousand tonnes	92.1	103.2	91.2	99.6	56.0
Phosphorite fertilizer	Thousand tonnes	247.2	270.2	168.4	149.2	50.0
Ammonium saltpetre	Thousand tonnes	299.3	445.8	447.9	471.3	312.0
Urea	Thousand tonnes	144.1	177.7	248.0	271.8	212.0
Wooden package	Thousand cubic metres			116.9	67.7	73.4
Paper	Thousand tonnes	107.9	120.3	78.2	76.1	37.9
Filter material for cigarettes	Thousand tonnes	5.4	6.0	5.7	1.35	2.4
Furniture	Million roubles	132.1	194.6	580.9	617.9	4,362.0
Linen cloth	Thousand metres	20,390.0	21,090.0	20,269.0	20,093.0	19,200.0
Woollen cloth	Thousand metres	14,770.0	14,880.0	13,724.0	13,644.0	11,300.0
Cotton cloth	Thousand metres	99,580.0	115,403.0	92,154.0	96,900.0	81,500.0
Silk cloth	Thousand metres	36,470.0	37,320.0	36,120.0	30,972.0	23,700.0
Carpets	Thousand square metres	5,421.0	6,735.0	6,551.0	2,732.0	2,700.0
Bed linen (bed sheets)	Thousand units			475.0	483.0	200.0
Various stockings	Thousand pairs	90,600.0	99,283.0	82,134.0	81,219.0	67,700.0
Knitted gloves	Thousand pairs		13,016.0	12,380.0	12,025.0	6,558.0
Leather footwear	Thousand pairs	10,300.0	10,729.0	11,658.0	11,154.0	2,400.0
Rubber shoes	Thousand pairs	8,700.0	9,867.0	10,590.0	7,623.0	3,290.0
Cement	Thousand tonnes	3,373.0	3,383.1	3,359.0	3,125.5	1,700.0
Construction bricks	Million pieces	1,032.8	917.2	1,098.1	1,085.5	800.0
Corrugated asbestos	Million pieces	103.5	106.1	114.2	113.7	83.0
Reefing felt	Thousand square metres	44,200.0	45,632.0	31,256.0	35,684.0	17,000.0
Ceramic floor tiles	Thousand square metres	315.4	550.0	537.8	505.2	200.0

Source: Department of Statistics.

a/ Estimate

B. INDUSTRIAL PERFORMANCE

The roots of industrial inefficiency can be found in the lack of incentives for cost efficiency under the command economy which determined the pace and pattern of industrial development for decades. Until the end of 1989, around 80-90 per cent of industrial output was produced by enterprises which were subject to administrative controls from Moscow. This meant that what was produced, how much of it, where the raw materials came from, to which users the output was delivered, what prices were to be charged for both inputs and output, etc., were all decided in Moscow. The industrial system was thus constrained by its inflexibility to react towards changing demand and its inability to diversify to meet consumer needs. An over-emphasis on quantitative targets with neglect of cost and quality worked as long as highly subsidized raw materials were easily available with ready markets for products. Quantitative indicators were considered to be the basic criterion of any economic activity. The prices of metal constructions were determined on the basis of weight without due consideration for quality, with the result that most metal-working machines were heavier and far more bulky than similar western machines.

The tendency towards the construction of new plants without due consideration for the upgrading and rehabilitation of existing ones resulted in the accumulation of obsolete capital stock in a large number of enterprises which were kept in tact for decades. Since the mid-1970s there was a growing concern among former USSR planners about the massive investments failing to yield anticipated results. However, it was not before 1986 that the emphasis on investment really started to change. During the Twelfth Plan period (1986-1990) efforts were taken to replace obsolete equipment in order to raise the technological level of industrial enterprises. Available data for the whole former USSR indicated that hardly 3 per cent of the existing machines and industrial equipment was renewed every year in the 1980s. It largely reflected the circumstances in which these enterprises operated, ascribing the state of affairs to the lack of competitive pressures for efficiency improvements.

Despite a good scientific base and human resource potential of the former USSR industrial production in general lacked technological sophistication due largely to the absence of a creative climate and private initiative towards efficient utilization of vast scientific and industrial potential. Management initiatives were stifled by the lack of autonomy for decision making at the enterprise level and little incentives to improve operational efficiency. Even the concept by the former USSR of cost accounting, as opposed to the western concept, was merely a routine exercise rather than serving as a critical measure of operational efficiency or as a key factor in production planning and marketing.

The material intensity of production can be gauged from the share of net output, which is tantamount to value added, in gross output. According to UNIDO estimates, the overall share of net output in gross industrial output increased in the late 1980s from 22 per cent to 25 per cent. Given the fact that prices did not reflect scarcity values in a highly distorted system, one needs to be careful in interpreting this trend. The most significant increases were found in oil products, electricity and chemicals (including rubber). Building materials also followed this general trend. In the field of machinery, equipment and metal works the ratio declined despite an array of subsidies granted to these industries. A significant increase in the share of MVA in gross output in some segments of manufacturing did not necessarily imply a fall in the cost of raw materials resulting from falling material intensity of production, rather it was largely due to the supply of raw materials at highly subsidized administrative prices while output prices were slowly allowed to increase. The high energy intensity of Lithuanian industry in general and of particular subsectors in heavy industry are major obstacles for the country to achieve international competitiveness, especially if supplies of oil from Lithuania's predominant suppliers, the Russian Federation and other countries of the CIS, continue to be disrupted. A major task for the industry is to reduce energy consumption in enterprises by adopting modern technology and production processes.

Indices of labour productivity (1985 = 100) suggest that labour productivity in Lithuania grew significantly in mechanical engineering and machines, electricity generation, chemicals, light industries, glass, china, pottery and building materials (see Table III.3). Excepting the fuel

industry, all major industrial branches recorded positive growth rates of labour efficiency in the late 1980s. Notwithstanding the fact that an increase in the output per worker is impressive across several segments of manufacturing, it is important to note that industrial employment fell at an average annual rate of 7 per cent during 1986-1990. Given the high level of disguised unemployment in a number of industry branches, an increase in output per worker must have been caused more by falling level of employment than by significant increase in output particularly in the late 1980s.

Table III.3. Indices of labour productivity, by subsector, 1986-1990, (1985=100)

	1986	1987	1988	1989	1990	Average annual growth 1986-1990
All industries	104	109	116	123	124	4.4
Electricity production	103	108	120	133	131	5.5
Fuel industry	106	113	121	119	90	-2.1
Chemical and petrochemical	109	113	120	119	124	4.4
Mechanical engineering and machines	107	113	125	140	149	8.3
Wood industry, cellulose and paper	102	106	113	115	115	2.8
Building materials	103	108	113	119	119	3.5
Glass, china, pottery	102	105	113	124	123	4.2
Light industry	103	107	113	117	124	4.4
Food industry	106	110	115	117	111	2.1

Source: Lithuanian Department of Statistics, *Lithuania's Yearbook 1990*, Vilnius 1991, p. 160.

An increase in the share of wages and salaries over the years (see Table III.4) was largely due to overmanning and did not necessarily reflect the efficient employment creating capacity of enterprises or a significant increase in the wages of workers. Within industry, the largest increases of wages and salaries in gross output over the 1985-1990 period were found in pottery, china and earthenware, chemical industry, to be followed by wood and cork, furniture and paper, food, beverages and tobacco, as well as textiles, garments and leather. Non-metallic mineral products as well as metal products, machinery, equipment and basic metal industries on the other hand showed declining ratios of wages and salaries in gross output, implying the capital intensity of these industry branches. However, these industry branches did suffer from overmanning as they retained above average shares of salaries and wages in gross output over the years.

Table III.4. Share of wages and salaries in gross output, 1985-1990
(Percentage)

	1985	1986	1987	1988	1989	1990	Percentage increase
Food, beverages, tobacco	5.1	5.2	5.2	5.3	5.5	6.1	19.6
Textiles, wearing apparel and leather	9.8	9.7	9.7	9.4	10.1	11.5	17.4
Wood and cork products, furniture, paper, printing and publishing	17.2	16.6	16.9	17.3	18.1	20.6	19.8
Chemical industries	10.3	10.1	10.0	10.3	11.1	13.3	29.1
Pottery, china earthenware, glass and glass products	24.1	24.3	26.1	25.2	32.8	35.7	48.1
Non-metallic mineral products	17.9	18.0	17.7	18.2	18.9	17.2	-3.9
Metal products, machinery, equipment and basic metal industries	18.9	18.3	17.7	17.6	17.0	18.5	-2.1
Other	23.5	22.9	21.1	18.5	15.3	17.1	-27.2
Total manufacturing	**12.2**	**12.1**	**12.0**	**12.1**	**12.1**	**13.4**	**9.8**

Source: UNIDO, REG database 1992.

C. INDUSTRIAL EMPLOYMENT

The industrial sector of Lithuania employs about 30 per cent of the workforce. Within industry, the largest number of persons are employed in the mechanical engineering and metal processing subsector, followed by light industry and food-processing industry. Whereas the mechanical engineering and metal processing subsector contributes around 27 per cent of industrial output, it employs 38 per cent of the industrial workforce. Food industry, absorbs 12 per cent of the workforce and contributes 21 per cent to total industrial output. Concomitant with the limited structural change in industrial output, the structure of industrial employment did not undergo any significant change over the years (see Table III.5).

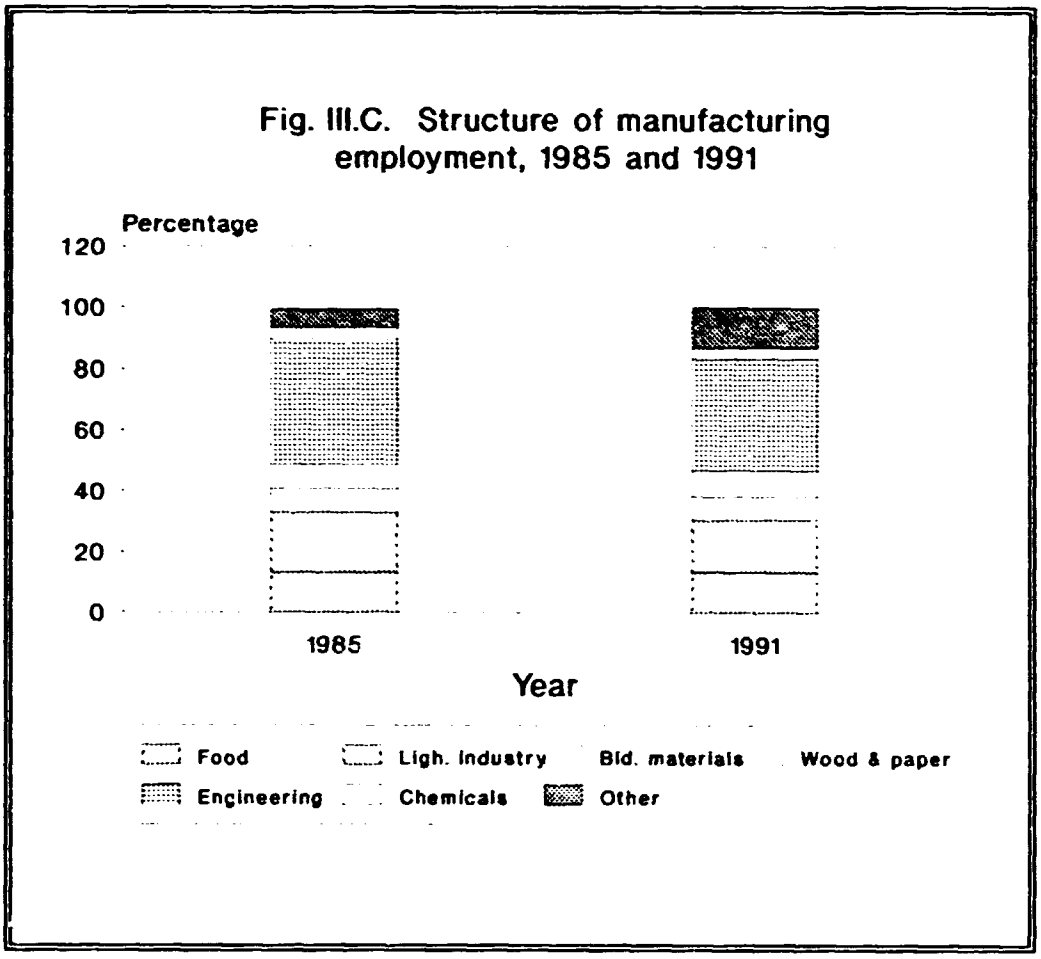
Table III.5. Structure of manufacturing employment, 1985-1991
(Thousand persons)

	1985	1986	1987	1988	1989	1990	1991
Food beverages, tobacco	64.2	63.9	62.4	61.0	61.8	64.3	56.0
Textiles, wearing apparel, leather	103.1	103.1	103.2	99.0	97.4	94.5	80.0
Wood and cork products, furniture, paper, printing and publishing	41.9	42.3	42.6	42.3	41.4	39.6	39.3
Chemical industries	19.4	19.3	19.1	18.6	18.2	17.4	17.4
Pottery, china earthenware, glass and glass products	2.1	2.1	2.2	2.2	3.6	3.4	3.3
Non-metallic minerals	40.7	41.0	40.6	40.3	38.8	37.1	5.6
Metal products, machinery equipment and basic metal industries	199.7	203.1	204.7	201.1	193.2	183.0	168.1
Miscellaneous manufacturing	31.3	32.1	32.9	33.0	29.4	27.3	56.7

Source: Lithuanian Department of Statistics, *Lithuania's Yearbook 1990*, Vilnius 1991, p. 135

The pace of enterprise restructuring with a focus on the promotion of small-scale industries will be crucial in increasing the ability of the industrial sector to generate employment opportunities. According to rough estimates, of the 105,000 to 140,000 persons who were in need of assistance in 1991, around 19,000 persons could be offered retraining and 10,000 to 17,000 persons could be absorbed in public relief works, implying that 80,000 to 111,000 were still unemployed and in need of unemployment benefits.[2/]

It is widely recognized that human resources constitute an important determinant of industrial competitiveness. Wages in Lithuania are relatively lower than in western Europe which could be seen as an advantage. Given the fast technological development required in all industrial activities for Lithuanian industry to be internationally competitive, associated skills need to be constantly upgraded. Despite a large pool of manpower with vocational skills and basic scientific and technological knowledge, the lack of proficiency in management, product development, financing, marketing, corporate business strategy, international trade, etc., probably constitute the most serious impediment to industrial development. While the country has embarked on an ambitious industrial development programme and is initiating tremendous efforts to promote restructuring, it still lacks the necessary entrepreneurship and human resources for the successful management and implementation of the industrial restructuring process. The advancement of proper human resources for industrial development is thus crucial for managing the transition to a market economy.



D. INVESTMENT PATTERN

The industrial sector in Lithuania accounted for only one-fourth of total fixed investment in the 1980s. By 1990, the ratio declined even further to around one-fifth of total fixed investment. In the pattern of industrial investment priority was accorded to food processing, light industry, building materials, mechanical engineering, electricity generation and the petro-chemical industries in the late 1980s (see Table III.6).

Following the general priorities of the Twelfth Plan (1986-1990) as in many other parts of the former USSR, the overall emphasis on capital investment shifted away from constructing new factories towards replacing obsolete equipment and raising the technological level of former USSR industry.[3/] Thus, the share of equipment and stock in total capital investment increased in the second half of the 1980s, while expenditure on building and mounting work lost some of its previous importance. Within industry branches the importance of machinery and equipment in total capital investment was quite high. Especially food industry, light industry and mechanical engineering had about 60 per cent of investment directed to machinery and equipment. A more detailed break down of capital investment is presented in Table III.7.

Table III.6. Capital investment in industrial subsectors, 1981-1990
(Million roubles in comparable prices)

Period	1981-1985	1986-1990	Change	Value of output 1990
Capital investment into industry	3,039	4,380		13,549
Of which in percentage:				
Electricity production	14.5	15.6	1.1	4.6
Oil and gas industry	6.6	6.3	-0.3	3.2
Ferrous metal industry	0.2	0.3	0.1	..
Chemical and petrochemical industry	4.6	4.9	0.3	3.6
Mechanical engineering and metal treatment	25.9	27.0	1.1	26.6
Timber, wood processing, cellulose and paper	3.1	3.2	0.1	5.2
Building materials	5.6	6.9	1.3	4.9
Light industry	8.6	10.3	1.7	21.9
Food industry	10.7	13.2	2.5	21.0
Microbiological industry	0.7	0.9	0.2	..
Glass, china and pottery industry	0.2	0.1	-0.1	0.3
Other	19.3	11.3		8.7

Source: Lithuanian Department of Statistics, *Lithuanian Yearbook 1990*, (Vilnius 1991) p. 217 and p. 157.

Table III.7. Structure of capital investment in industry, 1990
(Percentage)

	Machinery and equipment	Buildings	Outfit	Means of transport	Other
All industries	48.9	27.9	7.7	2.1	1.4
Electricity production	38.9	22.5	6.1	0.4	0.2
Oil and gas industry	38.7	13.1	28.6	1.2	0.2
Chemical and petrochemical industry	45.7	29.6	10.6	2.0	0.9
Mechanical engineering and machine industry	59.3	28.7	4.9	2.3	3.1
Timber, wood processing, cellulose and paper	43.5	37.5	7.9	4.7	1.4
Glass, china and pottery industry	34.4	39.7	16.0	4.0	1.3
Building materials	38.7	46.8	3.2	3.8	3.0
Light industry	57.9	32.7	2.7	2.3	2.4
Food industry	61.9	24.9	7.4	3.1	0.8
Other	33.4	50.6	7.9	2.3	1.0

Source: Lithuanian Department of Statistics, *Lithuanian Yearbook 1990*, (Vilnius 1991) p. 162.

Investment in equipment, tools and inventory played an increasingly important role in Lithuania. The overall share of this type of investment increased from 31 per cent in the period 1976-1980 to 37 per cent of total investment in the 1986-1990 period. Especially in the late 1980s (1986-1990) growth rates of investment in equipment, tools and inventory of Lithuania have been significantly higher than growth rates in other Baltic States.

Foreign direct investment (FDI) could play a pivotal role in the industrial development of Lithuania in as much as it can provide the country with urgently needed technology, capital, management, equipment, know-how and skills. However, attracting FDI is now a highly competitive global activity. Lithuania, therefore, has to compete not only with its neighbouring Baltic countries but also with the emerging countries of central and eastern Europe, the Russian Federation, other countries of the CIS and a host of potentially attractive locations in developing countries, especially in East Asia.

Generally three motives can influence the decision to invest in the Baltic countries: (a) to penetrate domestic markets; (b) to establish a manufacturing base for selling to the former CMEA countries, especially to the Russian Federation and other countries of the CIS; and (c) to set up a production base for exporting to western countries. With the collapse of the CMEA and the change to settlements in hard currencies the traditional market relations are being swiftly eroded and hard currency requirements seem to set constraints on trade among the Baltic States, the CIS and a number of countries in central and eastern Europe. The huge markets in the Russian Federation and the CIS still appear an attraction, but sales to western countries are deemed essential in order to earn more hard currency required for financing imports of essential inputs from western countries as well as the Russian Federation and the CIS.

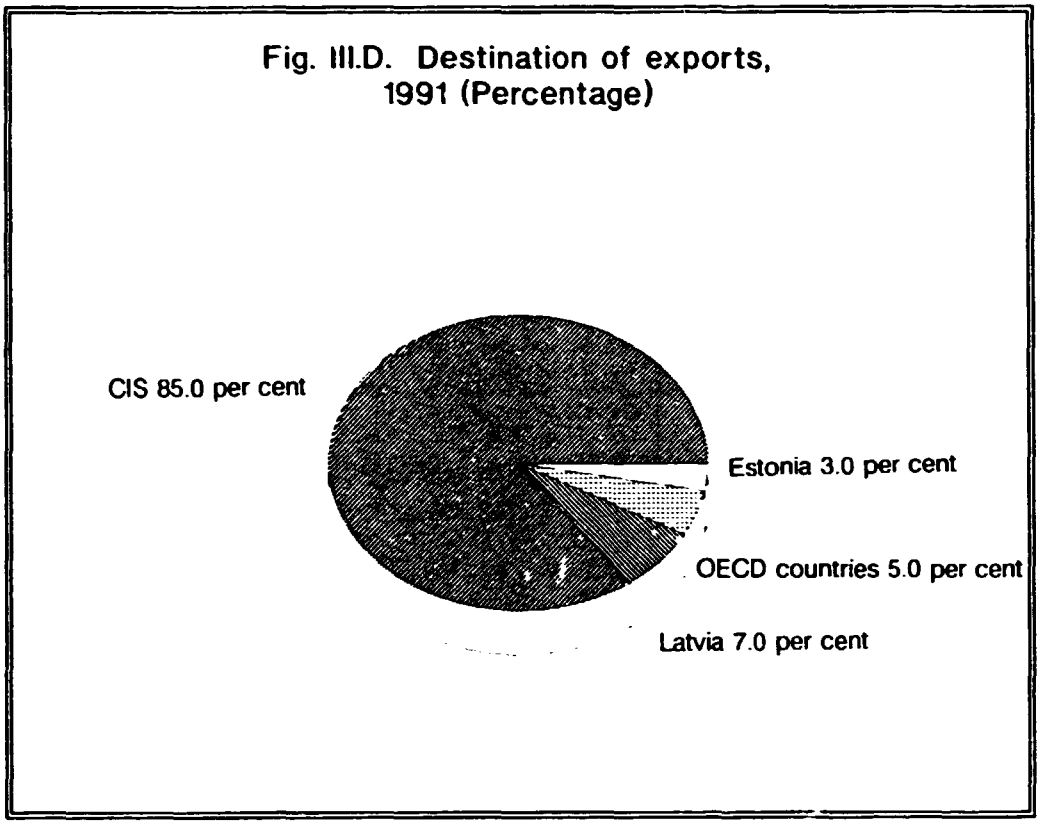
Between 1 January 1989 and 4 June 1992, a total of Rb 400 million of statutory capital for 1,317 projects have been registered in Lithuania. Of these projects, 1,106 have been joint ventures with a total statutory capital of Rb 360 million and Rb 40 million have been divided among 211 foreign-owned enterprises. As has been the experience of FDI in the central and east European countries in general, most FDI projects in Lithuania are small - average foreign investment per project has been only approximately Rb 300,000 and most of them are in the area of trade. Recent government estimates prepared for the IMF show the cumulative total of non-resident registered investments up to 30 March 1992 at round Rb 308 million in 935 projects. This implies a very low figure of Rb 330,000 per project. Available information suggests that as of April 1992, the Russian Federation was Lithuania's largest joint venture partner, followed by Poland, Germany, and the United States. But in terms of number, not size of capital invested, most of Lithuania's joint venture partners have been from the United States, followed by Sweden, Poland, Norway, UK and Germany. Thus, although investments from the West appear to be increasing, they still remain small, on average.

A stable and well functioning, economic environment is essential for attracting FDI. Investors need the re-assurance that likely investments will be adequately protected by a sufficiently comprehensive and cohesive legal framework. Lithuania has made impressive progress in drafting a large number of laws pertaining to privatization, foreign investment, intellectual property rights and bankruptcy. However, the Foreign Investment Law seems to be restrictive in a number of areas. The Law does not at present allow forms of FDI other than joint ventures and 100 per cent foreign ownership of enterprises. Other forms of contractual arrangements for international sourcing should be considered. Currently foreigners, foreign firms and joint ventures are permitted to have a maximum 99 year lease of land but they are not allowed to buy land. Foreign ownership of land may be considered for explicit business purposes. The foreign incentive system thus needs a re-examination of certain crucial issues that might restrict the flow of foreign investment into Lithuania.

At present, small-scale industries play only a very minor role. Past plans and policies obviously were directed primarily towards the establishment and expansion of large public industries and industrial complexes. In the current economic transformation process, one of the structural weaknesses of the industrial sector is being rectified to some extent by the establishment of small-scale enterprises.

E. INDUSTRIAL EXPORTS AND IMPORTS

Industrial products accounted for 96 per cent of total trade (exports and imports) during 1987-1990. The high export orientation, i.e., the very high share of exports in industrial output, of industry branches oriented towards the traditional markets was largely due to the role assigned to Lithuania within the division of labour in the former USSR and CMEA markets. In a number of industry branches the share of exports in output to established markets in the region was significantly high. In 1990, around 93 per cent of industrial exports were destined to the former USSR.



In trade with the Republics of the former USSR it is interesting to note that for both imports and exports the importance of the industrial sector was declining over the period 1987-1990, although still remaining very high. According to IMF statistics, Lithuania managed to run, for the first time, a positive trade balance with the rest of the former USSR in 1989. In 1990, not only the overall trade balance, but also the industrial trade balance improved and the same was true for 1991.

Within industry the three most important subsectors for exports to the former USSR have been engineering, machinery and metal working, followed by light industry and food processing. Engineering, machinery and metal working are also prominent on the import profile, followed by oil and gas, chemicals and products of light industry. For exports outside the former USSR, the oil and gas industry used to be the prime export industry, followed by engineering, machinery, metal working and food industry.

For years Lithuania tended to show a trade deficit in all sectors, with the exception of oil, gas, timber, wood processing, and cellulose and paper (see Table III. 8). The most important sectoral trade deficits were in the field of light industry, followed by mechanical engineering and machines, as well as the food industry.

In the structure of trade with the former USSR, Lithuania showed a large trade surplus in the field of light industry and food industry, followed by electricity generation, and timber, wood processing, and cellulose and paper (see Table III.9). Import cover ratios, i.e., the extent to which exports cover imports, indicate a special strength vis-à-vis the former USSR in the fields of food industry, light industry, electricity generation and timber, wood processing, cellulose and paper. In food industry, Lithuania exported more than three times as much as it imported from the former USSR, and for products of light industry, the ratio was above two. Below average (and less than 1), although on a rising trend, were mechanical engineering and machinery. It is important to note

that trade balance in each product category does not necessarily reflect the degree of comparative advantage. A highly import intensive segment of manufacturing may suffer a trade deficit and still retain its comparative advantage due to a number of factors. Trade surplus or deficit across industry branches may also depend on the level of intra-industry trade. Nonetheless, in general one can assume a certain positive correlation between sub-sectoral efficiency and high import cover ratios.

Table III.8. Structure of foreign trade with countries outside the former Soviet Union, 1987-1991
(Million roubles)

	Average 1987-1990	1987	1988	1989	1990	1991
Total exports	**474.8**	**483**	**527**	**475**	**414**	**622**
Industry	471.0	482	526	468	408	568
Electricity production	-	-	-	-	-	-
Oil and gas industry	158.0	217	179	163	73	129
Coal industry	-	-	-	-	-	-
Other fuel industry	2.0	2	1	2	3	28
Ferrous metal industry	2.8	3	3	4	1	1
Chemical and petrochemical industry	15.0	11	11	22	16	77
Mechanical engineering and machine industry	138.0	116	142	118	175	124
Timber, wood processing, cellulose and paper	30.5	27	23	39	33	85
Building materials	6.0	5	7	6	6	5
Light industry	25.8	22	18	31	32	18
Food industry	92.0	77	142	82	67	96
Other	1.3	2	-	1	2	5
Total imports	**1,384.3**	**1,109**	**1,249**	**1,563**	**1,616**	**853**
Industry	1,208.5	976	1,047	1,313	1,498	660
Electricity production	-	-	-	-	-	-
Oil and gas industry	1.0	1	1	1	1	-
Coal industry	18.0	36	36	-	-	-
Other fuel industry	-	-	-	-	-	-
Ferrous metal industry	22.3	29	24	22	14	1
Chemical and petrochemical industry	107.5	78	70	137	145	126
Mechanical engineering and machine industry	383.3	300	362	372	499	100
Timber, wood processing, cellulose and paper	15.8	16	19	15	13	23
Building materials	11.5	8	10	14	14	2
Light industry	364.3	293	266	406	492	252
Food industry	268.3	203	250	336	284	148
Other	16.8	12	9	10	36	8

Source: IMF, *Lithuania, Economic Review*, Washington, April 1992, p. 68.

Table III.9. Structure of foreign trade with Republics of the Soviet Union, 1987-1991
(Million roubles)

	Average 1987-1990	1987	1988	1989	1990	1991
Total exports	**5,810.8**	**5,387**	**5,431**	**5,850**	**5,575**	**11,678**
Industry	5,655.3	5,278	5,317	5,553	6,369	11,638
Electricity production	178.5	149	164	201	200	478
Oil and gas industry	471.3	267	307	322	389	433
Coal industry	-	-	-	-	-	-
Other fuel industry	.3	-	-	-	-	-
Ferrous metal industry	.3	29	30	29	21	117
Chemical and petrochemical indus'	371.0	348	359	407	919	456
Mechanical engineering and mach' industry	1,795.3	1,735	1,765	1,849	1,832	2,333
Timber, wood processing, cellulose and paper	237.3	235	244	238	232	423
Building materials	78.5	74	72	73	95	289
Light industry	1,429.3	1,392	1,398	1,446	1,481	3,333
Food industry	931.3	998	921	927	879	3,626
Other	135.5	51	60	161	270	161
Total imports	**6,089.3**	**5,860**	**6,239**	**5,789**	**6,509**	**7,876**
Industry	6,010.5	5,765	6,154	5,724	6,391	7,581
Electricity production	95.8	100	91	93	99	108
Oil and gas industry	1,177.0	1,017	1,047	1,009	1,635	1,289
Coal industry	20.5	16	19	30	17	64
Other fuel industry	2.0	4	4	-	-	-
Ferrous metal industry	333.3	346	370	311	306	579
Chemical and petrochemical industry	726.5	690	767	714	735	770
Mechanical engineering and machine industry	2,055.8	2,038	2,168	2,120	1,897	1,868
Timber, wood processing, cellulose and paper	196.0	210	218	195	161	342
Building materials	77.5	86	89	81	54	127
Light industry	693.8	681	783	647	664	1,277
Food industry	264.3	341	301	164	251	781
Other	368.3	248	301	360	572	476

Source: IMF, *Lithuania, Economic Review*, Washington, April 1992, p. 68.

A number of steps have already been taken to liberalize foreign exchange and to establish bilateral trade links. Lithuania has already signed trade agreements with Austria, Norway and Sweden as well as cooperation and trade agreements with the European Community. Lithuania recognizes that the Russian Federation and other countries of the CIS continue to remain its major trading partners and, therefore, due importance is attached to improving trade relations with these countries. The Baltic States have proposed trade arrangements with the CIS on a nondiscriminating basis and have already formed a Baltic Customs Union. The government is endeavouring to remove interstate trade barriers and promote direct trading between enterprises, significantly reducing government involvement in trade relations.

Because of its dominant position, Lithuania's trading relations with the Russian Federation warrant special mention. In March 1992, Lithuania signed a new trade and co-operation agreement with the Russian Federation. This agreement was to clear customs barriers erected by the Russian Federation since December 1991 in the aftermath of the breakup of the former USSR. The Russian Federation levied export quotas and taxes on Lithuanian products, causing a considerable financial burden. For example, these Russian Federation export taxes have meant that the same raw materials, inputs and components cost, on average, 2-3 times more in Lithuania than in the Russian Federation. In April 1992, Lithuania signed a counter trade and clearing agreement with the Russian Federation. Under this agreement, deliveries of energy from the Russian Federation

were to be exchanged for Lithuanian foodstuffs. In contrast to a similar arrangement the Russian Federation has made with Estonia, the agreement with Lithuania allows a far greater range of counter-deliveries in exchange for energy supplies. In principle this agreement increases Lithuania's attractiveness as an export gateway to the huge Russian Federation market. But there were reports of frequent violations of counter trade agreements. The government accepted the idea of creating a special commodity exchange for counter trade deals.

Lithuania concluded a trade agreement with EFTA at the end of 1991. In the same year the United States signed a comprehensive bilateral trade and investment agreement with the country. Under its Generalized System of Preferences (GSP) scheme, the United States allows Lithuanian exports tariff-free access to United States markets. The United States is also in the process of granting Lithuania MFN status. In May 1992, Lithuania signed a free trade agreement with Latvia and Estonia. The aim is to establish a common market in the foreseeable future. This would create a market of some 8 million people.

As to export prospects, the promising key subsectors identified by the government include textiles, garments, leather, chemicals, machinery and engineering and electronics. Most key subsectors are unlikely in their present condition to be able to penetrate western markets. All, except the linen textiles and leather industry, rely on imported raw materials from the Russian Federation and other CIS countries. The level of technology used in the electronics industry and particularly the computer industry, though advanced by the standards of the former USSR, is in many cases not comparable to western standards. It is difficult to see, without significant injection of capital investment and new technology, how Lithuania's electronics industry could now compete successfully in the fierce competitive environment of the international electronics market. This also applies to those industries serving the military industrial complex with their modern technology. Joint ventures and subcontracting agreements with EC, Asian and western enterprises may be the best way of penetrating western markets.

In addition Lithuania now faces competition in the Russian Federation and the other markets of the CIS. These markets are increasingly being supplied by western and Asian competitors as well. This does not augur well for Lithuania's current monopoly position in former USSR markets, i.e., in television sets, electronic goods and computers. It could be only a matter of few years before the Russian Federation finds alternative cheaper, probably western or Asian suppliers. The same applies to Lithuania's textile exports to the Russian Federation.

Lithuania may need to diversify its export base away from traditional markets and explore new markets with its close regional neighbours, including the Scandinavian countries. Lithuania could also concentrate on less energy- and material-intensive products , upgrade technology and then launch a more realistic attempt to penetrate western markets. Simultaneously Lithuania may explore market possibilities in the developing countries - an option which does not, up till now, seem to have been seriously considered. The success of whatever the orientation chosen for Lithuania's future trade depends crucially on the establishment of less energy- and material-intensive industries based largely on the country's traditional skills which were hitherto used, inter alia, for production of products for military needs.

F. INDUSTRIAL LOCATION

There are four major economic regions in Lithuania. Eastern Lithuania occupying almost 30 per cent of the total area, encompassing the capital Vilnius, is characterized by a diversified and rapidly growing industry, primarily metalworking and mechanical engineering, wood working and some branches of light industry.

With more than one-fourth of the Republic's territory, the southern part of central Lithuania contains more than half the Republic's developed water power resources. Metalworking, mechanical-engineering, and food-processing industries predominate. Kaunas, Alytus and Kapsukas are the main centres here.

Sprawling over the northern portion of the middle Lithuanian lowland and the eastern slopes of the Zemaiciu Hills, northern Lithuania occupies almost 30 per cent of the Republic and is noted for its fertile soils and its dolomite gypsum, and limestone reserves. Industry, however is not very well developed in this area.

Encompassing the remaining 15 per cent of the Republic, western Lithuania lies along the Baltic sea shores and has a distinctive maritime quality. Shipbuilding, ship repairing, fish processing, and oil refining are the main industries, with Klaipėda, Telšiai, Plungė and Mažeikiai being the main centres. The transportation network includes a natural gas pipeline that carries gas from Ukraine and an oil pipeline that carries crude from western Siberian oil fields to the refinery at Mažeikiai.[4/]

With the opening up of Lithuania towards the West in general and towards the Nordic countries in particular, the area around the harbour of Klaipėda (Memel) should have the potential to develop into a dynamic industrial centre of Lithuania and perhaps in the Baltic region.

G. ENVIRONMENTAL ISSUES

Decades of disregard for ecological compliance has resulted in environmental degradation and created a threat to sustainable development. As major pollutants have reached critical levels, the current phase of industrial deceleration in terms of a drastic fall in output turned out by environmentally unfriendly methods of production is perhaps a desirable development from the ecological point of view. In regenerating the country's industrial sector, the government is determined to tackle the acute problems of environmental pollution. Much of the environmental problems are cross-border in nature involving Kaliningrad, Belarus and Lithuania.

According to a complex atmospheric pollution index calculated for major cities, air in the city of Šiauliai is most heavily polluted,[5/] followed by Kaunas, Klaipėda, Vilnius, Jonava and Kėdainiai. Around 1 million tonnes of hazardous substances are emitted into the atmosphere, 60 per cent of which are emitted by automobiles and 40 per cent by other sources.

Among industrial branches construction material production, oil processing and chemical production emit the greatest amount of pollutants into the atmosphere. According to rough estimates, the Akmene cement factory produces 3.4 million tonnes of cement annually and emits around 62,000 tonnes of pollutants. In addition to carbon dioxide, nitrogen oxide and sulphur dioxide, it also discharges phenol, krylol and acetone. Due to lack of reliable treatment, almost all pollutants are emitted directly into the atmosphere. In 1990 chemical and fertilizer industries emitted 4,600 tonnes of carbon oxides, 2,000 tonnes of nitrogen oxides and 1,800 tonnes of sulphur anhydrides.

Due to excessive water use and lack of waste water treatment plants, substantial amounts of water are contaminated. In 1990, the discharge of waste water from industries and municipal sewage systems amounted to 4,040 million cubic metres, of which 446 million cubic metres was contaminated. Whereas small towns and cities are equipped with waste water treatment plants, Vilnius and Kaunas, Lithuania's two largest cities, account for approximately 50 per cent of pollutants discharged into water bodies. Only 58 per cent of all water treatment facilities operated effectively in 1990.

The government has declared several areas and industries as ecologically sensitive areas, with a view to monitoring their compliance with new environmental standards, stipulating a ceiling on permissible emissions. In January 1992, the Lithuanian Parliament enacted a law on the Protection of the Environment complying with the environmental norms of international agreements. The law specifically addresses the need to implement two regulatory mechanisms: i) the Environmental Impact Assessment principle; and ii) the "polluter pays" principle. Specific areas of concern include: protected territories, waste management, protection of forests,

Fig. III.E. Emissions into the atmosphere, 1990

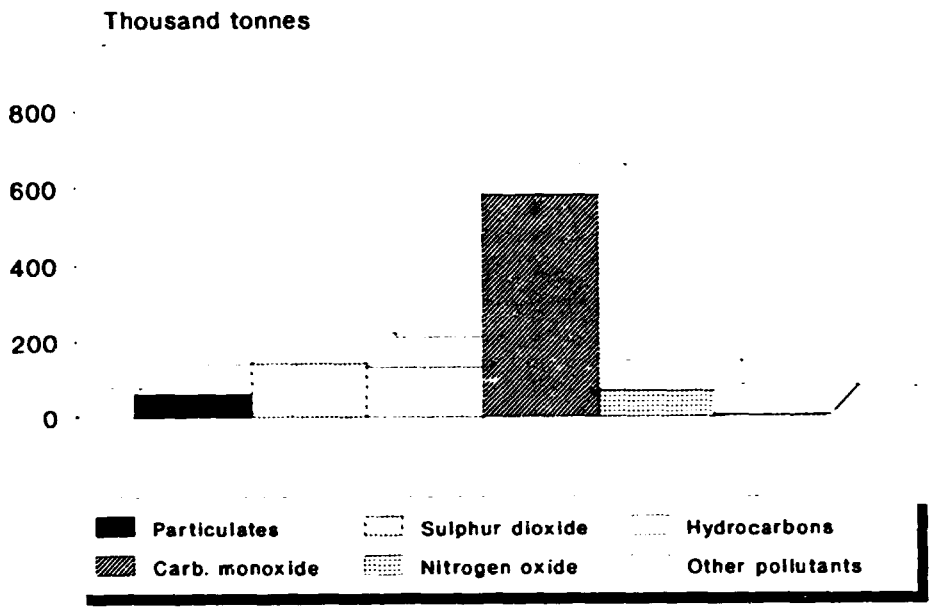
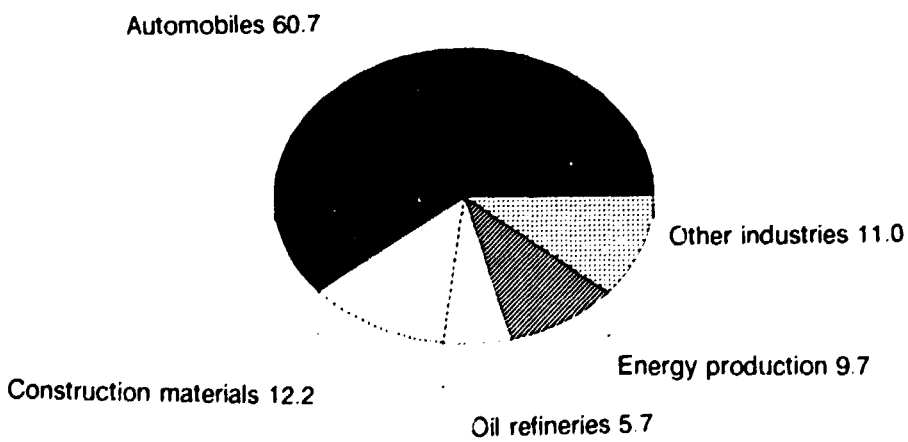


Fig. III.F. Sources of atmospheric emissions, 1990 (Percentage)



safeguarding biological diversity, protection and use of soil, protection of air, water resources, and coastal areas as well as specific measures to avoid contamination of the Baltic Sea. The emerging environmental policy norms are guided by the principles and standards observed in similar areas by the member states of the Nordic Council and the European Community. With a view to ensuring environmentally-friendly development, the Environmental Protection Department (EPD) has been established as an institution regulating the environmental administration. Every economic unit intending to engage in economic activities shall prepare and submit to EPD documentation on the conceivable impact of its actions on environment. The EPD's approval of the impact study is a prerequisite for obtaining business licences from municipal authorities.

As the institutions and mechanisms for monitoring environmental protection undergo much needed changes, independent Lithuania looks upon ecological monitoring as a multi-faceted undertaking which encompasses not only the systematic observations but includes mechanisms for predicting future developments. The most important task is to create environmental awareness. Public knowledge and awareness should become an integral part of any new mechanism developed for environmental protection.

The accent on an environmentally-friendly industrialization process could significantly enhance industrial performance and efficiency. There has been an increasing awareness of the potential of low- and non-waste technologies which are ecologically sound and technologically advanced. These devices encompass clean technologies, waste recycling, residue utilization and resource recovery. With the aid of these technologies the pathway to produce the same product or an alternative product - which serves the same purpose - may be significantly altered so as to use less or non-hazardous feed stocks. This may even reduce the material and energy intensity of products, significantly upgrading the efficiency of the production process and products. Undoubtedly low- and non-waste technology will become an increasingly important strategy for industrial development in Lithuania if industry is to be internationally competitive.

H. INDUSTRIAL CHALLENGES AND OPPORTUNITIES

In the process of transformation from a centrally planned towards a market economy the Lithuanian industrial sector is facing four major challenges which will need to be addressed by the government within the context of industrial restructuring.

- A reassessment of raw material supply situation by emphasizing the utilization of alternative, especially domestic raw material sources, and more efficient utilization of such resources in the production process.

- New market orientation for exports and imports based on Lithuania's comparative advantages involving new and hitherto unknown market conditions in highly competitive market conditions.

- More efficient management at the enterprise level with emphasis on cost efficiency and competition, reduced energy-intensity and raw material use, technological upgrading through new equipment, processes and products and specialization through restructuring larger enterprises into smaller units.

- New industrial policy and institutional environment within the context of a changing role of government and new policy environment involving privatization, price liberalization, macroeconomic stabilization (reduced inflation and interest rates), the development of a well functioning credit market, supporting services, the promotion of a suitable institutional framework for industrial development, and the development of human resources for a new industrial orientation.

Opportunities stemming from the aforementioned challenges may affect growing and declining industries in a number of ways:

- Domestic demand oriented industries could be expanded through emphasis on small- and medium-scale enterprise development, catering for mainly industrial consumer goods (food processing, electrical consumer goods, household equipment, etc.) and for domestic intermediate demand.

- Domestic resource based and supporting industries could be expanded especially in regard to agro-industry, bio-technology, forest-based industries, building materials, furniture, wood packaging, agricultural machinery, equipment and tools.

- Export-oriented industries have a good potential in the medium term in the field of textiles and clothing, electrical consumer goods, electrical toys, televisions and electronics. Lithuania's strategic location as a transit country can be explored particularly for oil, gas, and marine industries. These industries would need technological upgrading, supported by subcontracting arrangements, and export promotion support measures.

- Former military industries mainly the field of electronics could be converted into electronic consumer goods industries and into industries producing highly specialized electrical equipment within the framework of a niche strategy primarily for exports.

- Large-scale enterprises such as artificial fibres, pre-fabricated housing currently facing serious problems would need to restructure their operations in line with market forces with emphasis on the scaling down of operations, the restructuring into smaller units with specialization on appropriate products, or the outright writing-off of non-performing assets.

Industrial restructuring thus entails, *inter alia*, outright closure of unviable enterprises. Many industries need support for restructuring their operations through appropriate institutional support especially for rehabilitation, technology acquisition, adaption and development, equipment, credit, investment promotion, subcontracting arrangements and training. New forms of industrial cooperation in this context could be facilitated by the government, multilateral and bilateral donors and enterprise to enterprise cooperation. In this context the rationale of import substitution and export promotion would need to be analysed.

In the face of the virtual collapse of the industrial system in a market economy, the problem is to regenerate the industrial sector with inadequate essential ingredients such as capital and a wide range of physical and institutional infrastructure. The problem is further circumscribed by the limited size of Lithuania's domestic market which may preclude the production of many industrial products at large-scale enterprises in the absence of export orientation.

The initial phase of industrial rejuvenation may contain little domestic value added because of high level of imported intermediate goods, components and foreign capital. The modalities for ensuring regular supply of raw materials from traditional sources will need to be worked out, while the outdated capital stock will have to be replaced by imports from western countries. Export markets may be the only way out for increasing the rate of utilization of a possible over-capacity which the limited domestic market cannot absorb.

The prospect for penetrating export markets, especially markets in industrialized countries, seems limited in the foreseeable future. The markets in the industrialized world for labour-intensive manufactures are already dominated by a number of newly industrializing and developing countries. The problem of market penetration is thus a key issue for the Lithuanian industrial sector. The support of foreign investments is of crucial importance in view of the fact that such investment could bring not only capital, technology, and management, but also marketing, and knowledge of international markets. International subcontracting is another possibility which may be pursued.

A successful export drive requires simultaneous attempts to penetrate new markets and strengthen trade links with the traditional markets in central and eastern Europe. The re-emergence of traditional markets as promising export destinations may occur in the long run. The future orientation of the industrialization process in Lithuania may largely be determined by the changing pattern of trade links in the region.

The challenge of overall economic transformation and of industrial restructuring in Lithuania is a complex one. To be carried through successfully, it requires far-reaching changes in traditional attitudes and entrepreneurial behaviour, drastic policy reforms, subsector restructuring programmes, comprehensive privatization efforts, the restructuring and modernization of enterprises, technology and skill upgrading as well as retraining in various categories of technical, managerial and administrative staff. Whereas timing the sequence and setting the speed of reforms will need to be linked in a consistent way, there is indeed little automaticity in the process. There is clearly a critical need for international assistance to support the Government of Lithuania in its attempt to re-build and transform its industrial economy into a market-based competitive system.

I. THE ROLE OF INTERNATIONAL COOPERATION

Lithuania appears to be receiving offers of assistance from multilateral organizations, bilateral donors and private consultancy firms. The EC has offered technical assistance to the elaboration of legislative and regulatory framework for the development of market-based competitive conditions and for attracting foreign direct investment. Given the dearth of lawyers in Lithuania with requisite qualifications and experience to draft economic legislation in support of the reform process and also due to the fact that crucial legislative norms will need to be clearly defined, this assistance is particularly appropriate. The EC assistance is intended to develop a more consistent and comprehensive legal and regulatory framework compatible with the those prevailing in EC member countries in order to facilitate future trade and business relations with the EC.

The EC is also rendering assistance under its PHARE programme. This programme aims to provide assistance under the broad categories of restructuring, privatization and advisory services for small- and medium-scale enterprise development and investment promotion. The 1992 PHARE programme allocated ECU 38.9 million of which ECU 9.5 million was earmarked for private sector development with ECU 3 million for a pilot privatization scheme, ECU 5 million for small- and medium-scale enterprises, and the remainder for investment promotion. The EC also intends to set-up and fund a "one-stop office" for investment promotion in Vilnius. In addition, under the PHARE programme, the EC is co-financing a study to assess the economic environment for foreign direct investment in Lithuania.

The World Bank's proposed assistance is in the context of structural measures, especially for the implementation of a Rehabilitation Loan and the government's economic reform programme. The assistance include: privatization through hard currency sales ($1-3 million); improved methods of state enterprise management ($0.5-1 million); advisory service to the Competition Agency ($0.5-1 million); restructuring of the commercial banking system ($1-1.5 million); improved methods of social protection ($400,000); and assistance for improving the Social Safety Net in the context of the Reform Programme. The World Bank is also providing advisory services to assess the environment for FDI in Lithuania.

Several Nordic countries seem to have extended offer of assistance in investment promotion, environmental matters and in the area of energy and transport, particularly as regards the ports and harbours. The Swedish government is offering assistance to create a business centre in Vilnius. The Danish Chamber of Commerce is providing training to the Klaipeda Chamber of Commerce. In March 1992, the leaders of Norway, Sweden, Finland, Denmark and Iceland in the context of Nordic Council agreed that the Nordic Investment Bank would provide ECU 100 million, in cooperation with the European Bank for Reconstruction and Development, to support

the development of private enterprises in Lithuania, Latvia and Estonia. It is also foreseen that smaller independent investment banks will ultimately be set up in each country. In Lithuania, the Lithuanian Investment Bank, has already been set-up with the Nordic Bank as a major shareholder.

Major elements of the Nordic Baltic Inve tment Programme include: loans and guarantees (ECU 30 million) for project investments administered by the Nordic Investment Bank; fund for loans, guarantees and risk capital (ECU 30 million) administered by the European Bank for Reconstruction and Development; ECU 5 million for full-scale technical assistance to the Estonian Investment Bank, the Latvian Investment Corporation and the Lithuanian Investment Bank; ECU 5 million for technical assistance for pre-feasibility and feasibility studies to promote co-operation at enterprise level between the Nordic and Baltic countries concerning investment projects; and ECU 5 million for technical assistance in the Baltic countries for preparation of specific investment projects.

The Government of Denmark has set up a special investment fund for eastern Europe (IØ Fonden), in order to promote business and joint ventures with Danish enterprises. The Baltic States have also been included in Danish support measures to eastern Europe since February 1990. A total of Cr 8 million have been approved for projects in all three Baltic States to facilitate the economic reform process towards a market economy. Further, a total of Cr 18.5 million have been approved, or are being considered, to improve the environment in these countries.

There is English language training being provided by the British Council. The UK, under its Know-How Fund, is providing assistance through small-scale projects in the areas of privatization, banking, accounting and energy. Support is also being given to the Ministry of Foreign Affairs and for the establishment of a physical commodities exchange. Other forms of assistance include training to Lithuanian Lawyers, advice on insurance regulations, training Parliamentary librarians, etc. The United States is providing assistance in the fields of banking, environmental improvement, reform of the macroeconomic framework and customs procedures. France is assisting with a training programme for statisticians, civil servants, and farmers. Finland is providing assistance to the construction industry, the capital and money markets, engineering in general and the maintenance of agricultural machinery in particular. Canada is providing management, entrepreneurship and marketing training. Sweden is active in improving the security of Lithuania's nuclear power plant.

The external technical cooperation input flows into crucial areas are encouraging. However, some special areas need a greater focus. Much of the large-scale industry is in critical condition. A key task, therefore, is industrial restructuring. Lithuania now faces a daunting task of restructuring its industry to meet the aforementioned emerging challenges and to seize new opportunities. The restructuring process will be needed at three levels, the overall industry and institutional level; the industry branch level; and the enterprise level.

At the overall industry and subsectoral levels, there is a need for analyses of structural weaknesses and strengths in order to conceive appropriate policy and support programmes. At the enterprise level, especially large-scale enterprises, major efforts are required to adjust to the new emerging market conditions. These efforts need to be directed to management, organization, marketing, cost accountancy and financial control, technical and technological matters concerned with product adaptation, development and production processes, access to finance for foreign exchange acquisition and importation of essential inputs, specific training requirements, general human resource development, and other specific enterprise requirements. Priority will need to be accorded to establishing and encouraging venture capital.

There is a particular need t foster the process of privatization. Because of inadequate preparation of enterprises in terms of a valuation of assets and formulation of future plans and prospects, the privatization process has so far made limited inroads into large-scale industrial enterprises. The failure of almost 50 per cent of privatized small businesses (most of them are sole-traders and small enterprises mostly in the service sector) within 6 months of privatization

lends credence to the need for substantial preparatory work for the privatization process. Technical cooperation inputs will need to be directed to adequate preparation of enterprises for successfully launching their privatization plans.

A key issue to be addressed in Lithuania's transition to a competitive market-based economy is that of environmental pollution. The major source of pollution in Lithuania is due to manufacturing industry operating without adequate environmental controls and discharging untreated waste water. In addition, industrial waste and municipal solid waste is often disposed inadequately. There is also a problem of contamination of ground water due to over-intensive use of pesticides and fertilizers. Water pollution in rivers, lakes, and the Baltic sea is an acute environmental problem. Lithuania needs a great deal of external assistance to introduce new and cleaner technologies, processes, and protective devices, as well as to significantly reduce cross-border pollution.

NOTES TO CHAPTER III

1/ The information and analyses contained in Chapter III are based largely on UNIDO Mission Report on Lithuania entitled "*A Programme of Assistance to the Republic of Lithuania*", (4 December 1992).

2/ Brian van Arkadie and Mats Karlsson, *Economic Survey of the Baltic States*, (Great Britain, 1992), p. 231.

3/ See World Bank, IMF, EBRD, OECD, "*A Study on the Soviet Economy*", Washington, February 1991, p. 206.

4/ Lithuania, in *The New Encyclopedia Britannica*, 1990, p. 1059.

5/ Details pertaining the magnitude of industrial pollution contained in this section draws on *Lithuania National Report: United Nations Conference on Environmental Development* (Vilnius 1992).

IV. INDUSTRY BRANCH PROFILES: RETROSPECTS AND PROSPECTS

A. FOOD PROCESSING: REVEALING AN APPETITE FOR EFFICIENCY

The resource base

The traditional importance of agriculture in Lithuania is still maintained in terms of its significant contribution to employment and GDP, and of the substantial raw material base the sector offers for food processing. Of the country's total area of 6.5 million hectares, 3.5 million hectares are used for agricultural purposes. Arable land encompasses 2.3 million hectares. The principal agricultural activity relates to the production of livestock breeding. Around 50 per cent of crop production is made up of fodder crops, comprising mainly grain and leguminous crops. The remainder consists largely of potatoes and vegetables. More than two-thirds of the country's farm land is used for the cultivation of fodder crops in order to support the dominant livestock production.

The country's agricultural base could have been significantly enhanced but for forced collectivization which abolished 115,500 single-family farms. The first phase of a land reform programme, initiated in 1991, envisaged restitution of land to former owners and sale of land to those willing to establish farms. It is believed that the changing ownership pattern of land will initially enable individual farmers to produce 70 per cent of the country's total milk production, 53 per cent of meat production, 37 per cent of eggs, 54 per cent of grain, around 89 per cent of potatoes, and 80 per cent of vegetables, fruit and berries by the early 1993. However, the initial impact of agricultural reforms seems to be far short of expectations. Since machinery remaining on collective farms is not suitable for use on smaller farms, farmers are faced with the shortage of appropriate agricultural machinery.

The raw material resource base for food processing in Lithuania can be gauged from data pertaining to crop production and number of cattle and poultry presented in Table IV.1. There has been an increase in the grain production over the years, rising from 2.4 million tonnes in 1985 to 3.3 million tonnes in 1991. Average yield per hectare is estimated at 3.1 tonnes. On an average around 1.3 million tonnes of grain per annum had to be imported in order to meet the domestic demand. Of the total crop land use cereals account for 49 per cent, followed by forage plants (42.2 per cent), potatoes (5.1 per cent), sugar beets (1.4 per cent), vegetables (0.7 per cent) and other crops (0.6 per cent). The production of potatoes fell drastically during 1985-1991, while vegetables grown on the open land recorded a significant increase, particularly in 1991.

A significant fall in the number of cattle and pigs in recent years was mainly due to the shortage of livestock feed imported from the former USSR. Inadequate supply of feeds affected productivity particularly in collective farms. The live weight of livestock and milk production fell in recent years. The country imports substantial quantity of semi-processed raw material for sugar manufacturing and almost all raw materials for the production of vegetable oil, cacao and tobacco. Most of the packaging materials are also imported.

In the fishing industry, the total catch of the Lithuanian fishing fleet in the seas and open Atlantic and Pacific Oceans stood at 326,000 tonnes of fish in 1990. In the Baltic Sea fishing areas, Lithuanian's total catch was around 18,000 tonnes in 1990. In the same year around 210,000 tonnes of fish food-stuffs were turned out by fish-processing vessels and plants. Around 55 per cent of the total catch of the Lithuanian fishing fleet is caught in the economic zones of foreign countries such as Angola, Argentina, Canada, Guinea-Bissau, Mauritania, Nicaragua, Norway, Senegal, Sierra Leone and the United States.

Lithuania has 4,000 lakes covering 93,850 hectares. Commercial fishery is widely spread in the Curonian Lagoon, lakes, reservoirs and rivers. The total fishing area of inland waters encompasses approximately 82,000 hectares, including 161 lakes and reservoirs (26,500 hectares) which are used for intensive fishery. Twenty fish farms (ponds) produced 9,000 tonnes of fish in 1990.

Table IV.1. Raw material base for food products, 1985-1991, selected years

	1985	1989	1990	1991
Grain (Thousand tonnes)	2,461.3	3,272.0	3,265.1	3,347.5
Potatoes (Thousand tonnes)	1,850.8	1,926.6	1,573.3	1,508.3
Vegetables (open land crops) (Thousand tonnes)	330.9	325.7	295.0	380.9
Sugar beet (Thousand tonnes)	937.7	1,075.0	912.4	811.2
Flax (Thousand tonnes)	14.0	15.1	10.1	13.1
Cattle (Thousand heads)	2,512	2,422	2,321	2,196
Pigs (Thousand heads)	2,709	2,730	2,435	2,179
Sheep and goats (Thousand heads)	102	64	61	64
Poultry (Thousand heads)	16,589	17,986	16,815	16,994
Cattle and poultry live weight (Thousand tonnes)	..	769.2	761.0	651.4
Milk (Thousand tonnes)	..	3,234.9	3,157.0	2,915.6
Eggs (Million units)	..	1,330.7	1,272.6	1,234.7

Source: Ministry of Economics.

Emerging trends

The 1991 grain production of 3,347,500 tonnes represented a 11.3 per cent increase over the average annual production during 1986-1990. Despite a significant increase in grain production over the years, Lithuania had to import substantial quantities of grains from western countries and the CIS in order to meet the shortfall in domestic supply. A drastic fall in the storage of grain for 1992 was expected to cause shortages in the supply of both grains for human consumption and feeds for livestock.

Food production in Lithuania is highly diversified (see Table IV.2). Physical volumes of output turned out by food-processing industries show the general wave of deceleration in 1991 across almost all segments of food manufacturing. Falling levels of output in meat and milk-based products was ascribed largely to a significant fall in productivity. The average yield of milk per cow in 1991 was estimated to have fallen by around 7 per cent. There are indications that the falling levels of output will continue through to 1993.

Table IV.2. Production of food products, 1985-1991, selected years

	1985	1989	1990	1991
Meat (Thousand tonnes)	369.9	447.0	431.5	345.8
Sausages (Thousand tonnes)	68.2	75.7	76.2	70.6
Semi-manufactured meat products (Thousand tonnes)	46.9	54.4	54.6	41.3
Rich cheese (Thousand tonnes)	22.6	26.7	26.3	24.5
Butter (Thousand tonnes)	71.8	77.5	73.9	67.2
Skim milk products (Thousand tonnes)	730.0	814.0	831.0	722.8
Fish and sea products (Thousand tonnes)	458.5	417.9	352.5	312.5
Granulated sugar (Thousand tonnes)	221.8	238.6	158.6	155.0
Confectionary products (Thousand tonnes)	79.2	91.4	75.1	65.9
Tinned meat (Million units)	27.3	45.3	44.1	41.3
Tinned fish (Million units)	96.3	85.3	81.0	66.3
Tinned vegetables (except juice and tinned tomatoes) (Million units)	46.5	51.1	50.7	59.2
Tinned tomatoes (juice, paste, porridge, sauce) (Million units)	10.4	10.9	6.9	5.9
Tinned fruits (Million units)	68.5	80.3	65.4	75.4
Tinned milk (Million units)	67.2	96.8	89.3	77.5
Bread and cake products (Thousand tonnes)	-	339.8	331.4	318.2
Barley (Thousand tonnes)	51.4	59.0	60.0	40.7
Vodka and liqueur products (Million decilitres)	4,225	3,299	2,943	3,678
Beer (Million decilitres)	15,457	16,031	15,017	14,005
Non-alcoholic beverages (Million decilitres)	6,300	11,900	10,500	8,833

Source: Ministry of Economics.

The sugar industry in Lithuania turned out 150,500 tonnes of granulated sugar in 1991, of which 76,500 tonnes were made from sugar beet and 74,000 tonnes from imported raw materials. Sugar production in 1991 was significantly less than the production in the preceding year. Such a drastic fall in sugar production in 1991 was caused by a dramatic reduction in the imports of raw materials. Given the compelling need to pay hard currency for imports, the possibilities of a significant increase in imports in the foreseeable future are limited. Concomitant with the fall in sugar production the production of confectionery products, barley, bread and cake products also fell significantly.

At present the food industry is dominated by the production of meat, dairy and fish production. Meat factories are located at the town of Alytus, Kaunas, Klaipėda, Panevėžys, Šiauliai, Tauragė, Utena and Vilnius. Dairy enterprises are located at Kaunas, Klaipėda, Panevėžys, Šiauliai and Vilnius. Klaipėda is the centre of the country's fishing industry.

There are eight large meat processing factories and a number of small meat processing enterprises. Around 100 food industry enterprises are affiliated to the Lithuanian Ministry of Agriculture: 41 milk processing and 13 meat processing enterprises, 7 fruit and vegetable canneries, 6 bakeries, etc. Besides national Lithuanian dishes - skilandis (the belly of a pig stuffed with minced meat) and vedarai (a kind of blood sausage) - the pasteurized preserves, prepared meat foods and other products are made.

Difficulties in raw material supplies and decreased demand resulted largely from a significant increase in prices. This in turn affected the production level and the product range. The production of meat and milk products, confectionery products, bottle oil, mineral water, soft drinks and soap fell significantly, while the production of bread, alcohol, canned fruit and vegetables remained subdued in 1991. The relatively better performance of enterprises using local raw materials was revealed by positive growth rates recorded by vinegar, starch and fruit juice products in 1991.

Lithuanian large-scale fish industry is concentrated in Klaipėda, the only ice-free and commercial port of Lithuania. All fishing, transport and auxiliary fleet comprising more than 200 vessels are accommodated here. The coastal fish-processing plants and vessels of Lithuania turn out over 210,000 tonnes of fish food stuffs and other sea products (except canned fish) per annum, including 17,000 tonnes of fresh fish, 112,000 tonnes of frozen fish, 16,000 tonnes of salted fish, 11,000 tonnes of smoked fish and 3,000 tonnes of fish culinary products

The trade profile of the food industry (exports and imports) is presented in Table IV.3, with details pertaining to the destination of exports and origin of imports. The food export profile is dominated by meat and dairy products still destined mainly to the CIS. Substantial quantities of milk powder, representing 80 per cent of total exports, were exported to other countries in 1991. Lithuania in turn imported a number of food products from the CIS and other countries.

Lithuania exported 876 tonnes of fresh frozen meat to the CIS, and imported 671 tonnes of fresh frozen meat from the CIS in 1991. The level of intra-industry trade in this category was thus as high as 86 per cent. This implies that Lithuania exports significant quantities of selected meat and imports a variety of other forms of fresh meat from the CIS. The food import profile was dominated by grain products in 1991, but the country exported a variety of processed grain products in the same year. Lithuania depends on the CIS for 87 per cent of edible oil imports, the remainder originating in other countries.

Selected food exports to the CIS have recently been targeted for counter trade in exchange for oil and gas. But barter trade agreements were frequently invalidated. The Russian Federation is reported to have insisted on hard currency payments for oil and gas imports. Barter trade seems to be a realistic option open to both Lithuania and the Russian Federation as both countries face severe pressure on their scarce reserves of hard currencies. If counter trade agreements continue to be uncertain, Lithuania will have to seek market outlets elsewhere, at least until developments in the CIS stabilize. This is indeed a formidable challenge. Given the fact that Lithuanian food products currently do not comply with EC standards, there is a need to change production and product technologies in order to successfully penetrate western markets. Meanwhile some of the other former CMEA countries in central and eastern Europe are increasingly picking up the new facets of efficiency in food manufacturing. Penetrating even these markets is therefore a difficult task for Lithuania. Significant restructuring, rationalization and modernization of enterprises, with a view to enhancing efficiency and meeting the international quality standards in food manufacturing is a major task ahead for Lithuania. The following selected enterprise profiles depict the plight of the food industry in Lithuania.

Fig. IV.A. Production of selected food products, 1991 and 1992

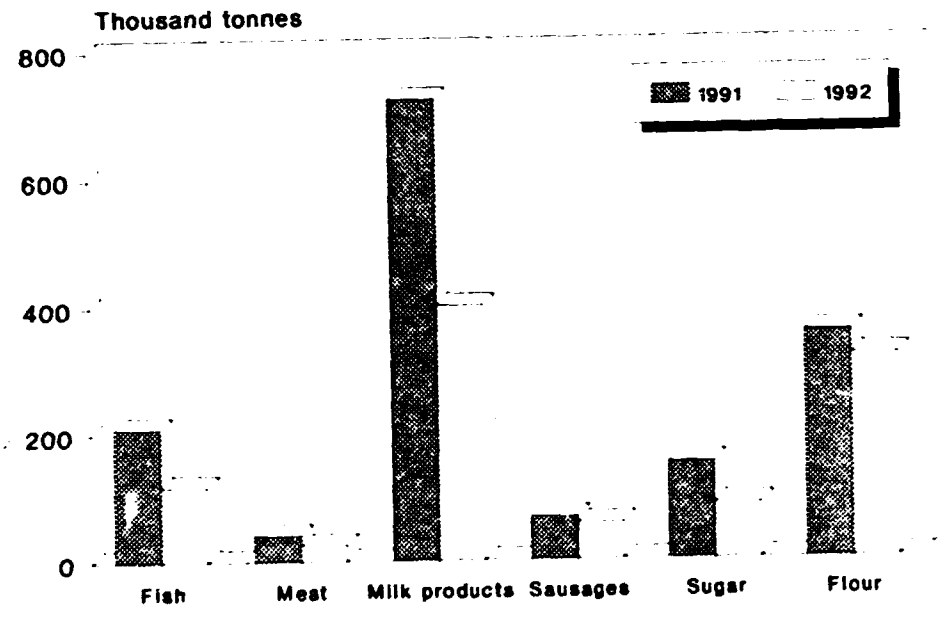


Table IV.3. Export and import of food products, 1991

	Export			Import		
	Total	CIS countries	Other countries	Total	CIS countries	Other countries
Meat (including sub-products of category 1) (Thousand tonnes)	55.0	55.0	-	-	-	-
Fresh frozen meat (Tonnes)	876.0	876.0	-	671.0	671.0	-
Poultry (Thousand tonnes)	3.2	3.2	-	-	-	-
Fresh beef without bones (Thousand tonnes)	36.7	-	-	36.7	-	-
Fresh rabbit meat (Tonnes)	26.2	-	26.2	-	-	-
Fresh roe-venison (Tonnes)	93.6	-	93.6	-	-	-
Doe-venison (Tonnes)	122.0	-	122.0	-	-	-
Elk meat (Tonnes)	251.0	-	251.0	-	-	-
Sausages (Tonnes)	6,035.2	6,035	0.2	481.9	0.9	481
Other smoked meat products (Tonnes)	1.7	1.7	-	-	-	-
Tinned meat (Thousand tins)	18,063	18,063	-	4.0	4.0	-
Lard (Tonnes)	9,130	9,130	-	19.8	19.8	-
Milk and dairy products, calculated as milk (Thousand tonnes)	989	989	-	-	-	-
Including:						
Butter (Tonnes)	50,133	49,713	420	-	-	-
Rich cheese (Tonnes)	15,597	15,597	-	-	-	-
Milk powder (Tonnes)	4,738	960	3,778	-	-	-
Milk sugar (Tonnes)	500	-	500	-	-	-
Tinned milk (Thousand tins)	36,709	35,958	751	-	-	-
Eggs (Thousand units)	1,212	1,212	-	650.2	650.2	-
Margarine products (Tonnes)	-	-	-	7,378	7,378	-
Oil (Tonnes)	3.7	3.7	-	2,829.5	2,449	380.5
Grain (Thousand tonnes)	24.9	24.8	0.1	663.2	109.6	553.6
Meal (Tonnes)	21,114	21,114	-	23,354	21,979	1,375
Barley (Tonnes) including rice barley	5,992	5,992	-	15,254	12,983	2,271
Rice barley (Tonnes)	-	-	-	2,271	-	2,271
Macaroni (Tonnes)	471	471	-	-	-	-
Bread and cake products (Tonnes)	1.2	1.2	-	-	-	-
Combined forage and albumen additions (Tonnes)	17,222	17,222	-	10,654	10,654	-
Granulated sugar (Tonnes)	617.2	617.2	-	985.5	805.4	153.1
Semi-manufactured sugar (Tonnes)	-	-	-	65,864.0	65,864.0	-
Natural honey (Tonnes)	6.3	6.3	-	159.7	159.7	-
Confectionary products (Tonnes)	10,174	10,174	-	404.9	322.9	75.0
Potatoes (Tonnes)	6,707	6,707	-	558	558	-
Vegetables (Tonnes)	11,341	11,340	1.0	7,800	7,800	-
Tinned vegetables (Thousand tins)	9,557	9,557	-	3,443	3,443	-
Fruits, berries, including grapes (Tonnes)	7,143	7,143	-	6,473.5	6,207	266.5
Citric fruits (Tonnes)	35.2	35.2	-	1,409	1,409	-
Dried fruits (Tonnes)	28.9	28.9	-	871.5	871.5	-
Tinned fruits (Thousand tins)	1,202	1,202	-	15,360	15,360	-
Salt (Thousand tonnes)	-	-	-	426.8	426.8	-
Coffee beans (Tonnes)	3.8	3.8	-	976.1	927.1	49.0
Ground coffee (Tonnes)	1.7	1.7	-	94.2	94.2	-
Cocoa beans (Tonnes)	-	-	-	161.8	-	161.8
Tea leaves (Tonnes)	37.4	37.4	-	1,007.8	964.5	43.3
Tobacco (Tonnes)	70.0	70.0	-	6,913.3	5,438.3	1,475.0
Tobacco products (Million units)	2,203.6	2,203.6	-	69.4	69.4	-
Vodka and liqueur products (Thousand decilitres)	0.6	0.6	-	19.6	19.6	-
Beer (Thousand decilitres)	104.7	81.7	23.0	30.7	30.7	-
Champagne (Thousand bottles)	495.0	-	495.0	-	-	-
Non-alcoholic beverages (Thousand decilitres)	150.4	13.9	136.5	519.7	519.7	-
Sheep skins (Thousand units)	40.0	-	40.0	-	-	-
Cattle hides (Thousand units)	76.3	-	76.3	-	-	-
Premixes (Tonnes)	34,810	34,810	-	24.0	24.0	-

Source: Ministry of Economics.

SELECTED ENTERPRISE PROFILES

Vilnius State Milk Plant Location: Vilnius

i) **Sources of raw materials**
The main raw materials, milk and sugar, are obtained from domestic sources. In 1991 the factory purchased 104,000 tonnes of milk from 16 farms in the vicinity of Vilnius. The factory has no shortage of raw materials.

ii) **Production in 1991**

Major products	Production (Tonnes)
Unskimmed milk	121,000
Skimmed milk	3,600
Ice-cream	4,000

iii) **Capacity utilization in 1991:** 70 per cent

iv) **Restructuring needs:**
The dairy processing segment has long been equipped with machinery manufactured in Lithuania, the former USSR and the former German Democratic Republic. Since 1991 the factory has been using equipment imported from Finland and Sweden. Modern packaging equipment was installed in 1991, capable of turning out 200 tonnes of milk per day. An ice cream production segment is equipped with machinery imported from Denmark and the Netherlands seven years ago.

The processing and packaging segments use relatively modern machinery. Recently the factory entered into a joint venture with a Swedish enterprise for building a factory for sophisticated glass bottle production. Serious environmental problems stem from the virtual absence of equipment for the treatment of waste water and lack of provision for cleaning milk vehicles.

State Vegetable Oil and Fat Enterprise Location: Vilnius

i) **Sources of raw materials**
The major raw material (sunflower) is imported from the Russian Federation, Ukraine and central Asia. Milk powder, eggs and sugar are obtained from domestic sources. Efforts are under way to grow rape in order to reduce the factory's heavy import dependence. The enterprise has a monopoly in the production of vegetable oil in Lithuania. The factory also produces mayonnaise, fat, and soap as by-products.

ii) **Production in 1991**

Major products	Production (Tonnes)
Mayonnaise	3,330
Vegetable oil	3,148

iii) **Capacity utilization in 1991:** 40 per cent

iv) **Restructuring needs:**
Low rate of capacity utilization is due to the acute shortage of raw materials. The enterprise envisaged counter trade arrangements with major suppliers in order to ensure regular supply of raw materials, but in vain. There is an urgent need to ensure adequate supplies of raw materials. The entire capital stock of the factory originates from the Russian Federation. As part of the modernization exercise, the factory intends to commission western equipment designed to turn

out vegetable oil from rape. At present the factory discharges partially cleaned waste water into the city sewers, but its level of compliance is far below the environmental norms.

Kaunas State Confectionery Factory Location: Kaunas

i) **Sources of raw materials:**
The main raw materials sugar (40 per cent), cacao (14 per cent) nuts, agar and pectin (30 per cent) are imported mostly from western countries. The manufacturing of boxed and loose candy, mainly chocolate, is the principal line of production. Import of sugar from Cuba ceased. The factory is currently facing constraints in importing raw materials due to shortage of hard currency.

ii) **Production in 1991:**

Major products	Production (Tonnes)
Sugar products	14,783
Flour products	3,549

iii) **Capacity utilization in 1991:**
Sugar products: 68 per cent
Flour products: 98 per cent

iv) **Restructuring needs:**
Around 60 per cent of the capital stock was purchased from western countries, the remainder having originated from the former USSR. The equipment is fairly good because it is of the 1980s vintage. However, it is only semi-automated. In the sphere of rationalization the factory should keep abreast of modern equipment in order to significantly enhance efficiency and productivity. Barter agreements are being vigorously pursued in order to ensure adequate supply of sugar for the production of chocolate, marmalade-toffee, dragee and biscuits. The factory does not seem to face any major pollution problems.

Pavenčiai State Sugar Factory Location: Pavenčhiai

i) **Sources of raw materials:**
Until 1991 the factory processed semi-processed sugar imported from Cuba. Sugar beet is delivered by farmers living around the town of Pavenčiai and fuel is delivered from the oil refinery Mažeikiai. With a view to obtaining semi-manufactured sugar a barter agreement has been concluded with a French enterprise.

ii) **Production in 1991**

Major products	Production (Tonnes)
Sugar from sugar beet	20,500
Sugar from semi-manufactured sugar	12,000
Molasses	14,400

iii) **Restructuring needs:**
With minor reconstruction of the factory it is possible to increase the production capacity from the current level of 2,100 tonnes per day to 3,000 tonnes per day during the sugar beet season covering 117 days. The factory has a biological waste water treatment to remove nitrates from the water. With adequate supply of raw materials and modernization the production of sugar and by-products can be significantly enhanced.

Šiauliai State Fish Processing Enterprise Location: Šiauliai

i) **Sources of raw materials:**
Raw materials for higher degree of fish processing are sourced entirely from domestic sources. Erratic supply of raw materials from these sources however often disturb production lines.

ii) **Production in 1991:**

Major products	Production (Tonnes)
Hot smoked fish	659
Culinary	35
Salted fish	221
Cold smoked fish	78

iii) **Capacity utilization in 1991:** 43.3 per cent

iv) **Restructuring needs:**
The substantially high level of idle capacity in the factory is due to irregular raw material supplies and insufficient demand for semi-processed products. The factory's narrow line of production technology is incapable of processing varieties of products. The factory lacks proper filters for controlling the smoke emanating from the production process. The age of capital equipment engaged in frying, smoking and marinating lines are only four years old. Hence technical modernization and rationalization of production process seem to be less important than ensuring regular supply of raw materials and creating an efficient marketing network. In order to expand the spectrum of production in the future the factory could enter into joint ventures. This may pave the way for producing fish products of special preparation to suit market niches.

"Vilnius Duona" Baked Goods Plant Location: Vilnius

i) **Sources of raw materials:**
The principal raw materials are flour, milk and salt. Raw materials are supplied largely by local sources. Corn and sugar are imported. Special types of wheat is also met by imports. Cocoa and additives are imported for confectionery needs.

ii) **Production in 1991:**

Major products	Production (Million tonnes)
Bread and buns	72
Confectionery products	4
Maccaroni	7

iii) **Capacity utilization in 1991:**
Bread and buns: 71.1 per cent
Baked goods: 41.8 per cent
Maccaroni: 92.3 per cent

iv) **Restructuring needs:**
The enterprise faces shortages of spare parts and foreign exchange for importing essential raw materials. Production equipment for manufacturing bread and buns does not meet modern requirements. The enterprise has virtually no facility and materials for packaging its products. Pollution problems arise due to the utilization of burnt quicksilver lamps. The enterprise lacks proper facilities for cleaning effluent. Rehabilitation initiatives should be focused on installing advanced technologies and automated lines of production and packaging facilities

for ready-made products. A new production line for 50 tonnes of bread per day is being constructed. The required investment for the new bakery is estimated at $3 million.

State Meat Factory Location: Vilnius

i) **Sources of raw materials:**
The factory slaughters 700 pigs and 375 cows per day. Poultry and turkey are also collected from local sources. Declining domestic production and imports of animal feed has recently affected both the quality and quantity of raw material supplies.

ii) **Production:**
Around 50 per cent of installed capacity remains idle due to lack of demand. Unavailability of raw materials has also affected production

iii) **Restructuring needs:**
The factory needs a thorough overhauling of the production equipment and radical restructuring. The capital stock is almost completely worn out and cutting and packing methods are primitive. Hygienic standards fail to comply with ecological norms. To meet EC food-processing standards, the factory will have to be completely rehabilitated. Preliminary estimate of the rehabilitation cost stands at $22 million. Negotiations with Canadian companies are under way.

Food Products Plant Location: Vilnius

i) **Sources of raw materials:**
The principal raw materials include all types of berries and cucumbers, apples, plums, different types of juice and varieties of wild berries used for the production of marmalade and jam. While all these raw materials are obtained from local sources, almost all packaging materials, tomato paste and additives are imported. In total only 20 per cent of the raw material needs is met by imports.

ii) **Production:**
The factory turns out 4,000 tonnes of canned food per year. Its production comprises mainly processed food and vegetables. Annual output value stands at Rb 140 million. The factory produces 80 varieties of canned food products.

iii) **Restructuring needs:**
Soaring costs of production do not seem to affect production in the face of a strong demand for products. However, the major constraint is the unavailability of packaging materials. The cost of rehabilitating the glass bottle production segment in two phases with modern equipment is estimated at $10 million. The current technology from the former USSR and eastern Europe is out of date. The factory is in an urgent need of rehabilitation in order to upgrade quality and sharpen its competitiveness.

Constraints and prospects

The declining farm output and livestock production may possibly be arrested in the foreseeable future in the face of a significant increase in the number of private farms. It was estimated that 300,000-330,000 hectares, representing 8.6-9.4 per cent of the country's farming land, would be allotted to private farmers by the end of 1992. However, the proportion of private farms in the country's total food production is currently estimated at 1-2 per cent. New schemes are needed

to create an array of incentives to private farmers. These farmers will need to be provided with essential agricultural services and an appropriate institutional framework in order to enable them to significantly enhance agricultural productivity.

The country has the potential to increase the production of flax fibre from 13.1 million tonnes in 1991 to 30 million tonnes by the end of this decade. In the face of a significant increase in the number of grain farmers the supply of animal feed (especially fodder) is expected to increase, leading to a revival in the production of meat and milk and in breeding of livestock. The production of vegetables and fruit is likely to be organized with a view to meeting the needs of the local population. Lithuania relies on international agreements on fishing quotas in economic zones of foreign countries. The development of pond-fishing, eel and trout culture in closed systems and rational use of natural water-pools for fishing are also envisaged.

Up to now the progress of privatization in the country's food industry seems to be short of expectations. By the early 1992 only 7 per cent of the Vilnius State Milk Plant was sold to employees, while the State Vegetable Oil and Fat Enterprise could sell only 4 per cent of its capital to employees. Sales of shares in none of the State enterprises seem to have exceeded 10 per cent of the capital. A better understanding of the concept and modalities of privatization is being attempted to be overcome through the media.

While the domestic market is limited, the traditional export markets for Lithuania's food products are entangled in a number of problems. Barter trade agreements are frequently discontinued due to the compelling need for hard currency payments. It is a formidable task for Lithuania to penetrate the highly sophisticated neighbouring Nordic countries. In rejuvenating the food industry Lithuania could endeavour to capture the world-wide "weight-loss niche", which has spurred new competition in producing low calorie food products. A leading product of Lithuania's dairy industry is cheese. The country could for instance try to capitalize on consumers' unprecedented demand for low-fat cheeses. It is important to create an appetite for advanced means of quality improvements. New packages and sugar-free flavours seem to constitute important determinants of competitiveness.

The viability of establishing a packaging industry in Lithuania will need to be examined. The Vilnius State-owned canning factory alone produces 3,000 tonnes of canned food per year. Its output comprises newly processed food and vegetables. The enterprise depends totally on imports for packaging materials. The domestic demand for its products continues to be strong even during the current phase of industrial deceleration. The factory's modest exports to west European countries virtually collapsed due largely to the acute shortage of imported packaging materials. The export potential for processed mushrooms is being constrained by the lack of equipment for drying and canning. With adequate storage facilities the factory will be able to process 500 tonnes of strawberries per year.

The emerging trends in the global food manufacturing in general and Europe in particular have implications for all eastern and central European countries which may in the long run become part of a wider European integration. A significant restructuring of the food industry may enable Lithuania to penetrate the traditional markets and re-establish them as a vast export destination for food products.

B. TEXTILES, CLOTHING AND LEATHER: CULTIVATING AN IMPROVED IMAGE

The resource base

The domestic raw material base for industrial production of textiles and clothing is insignificant. These manufacturing activities depend on imports to meet around 83 per cent of their raw material needs sourced from the CIS and other countries. About 90 per cent of imported raw materials is absorbed by the cotton, wool and knitting industries. The main local raw materials

are flax thread, short flax fibre and hide. Efforts are under way to increase the local supplies of flax fibre and hides.

Local raw materials are used largely (70-80 per cent) in the linen textile industry. At present 106 enterprises are engaged in the production of cotton, linen, silk, wool textiles, knitted goods, stocking and socks, various products of the sewing industry, footwear and other light industry products. The country's leather industry sources a substantial portion of its raw materials domestically. However, chemicals needed for processing are imported.

Emerging trends

Currently textile, clothing and leather industries together account for 23 per cent of industrial output and 20 per cent of industrial employment. Only a few segments of this light industry seem to have survived the general wave of deceleration and exposure to market forces in recent years. In 1991 the physical volume of output continued to rise in cotton fabrics, coats of all types, jackets, dresses of all types and trousers (see Table IV.4). In the same year, marginal declines were registered in the production of woollen fabrics, linen fabrics, knitwear and footwear. Products that suffered substantial declines in production in 1991 included silk fabrics, knitted underwear, suits and shirts. The above mixed production trends suggest that the general wave of industrial deceleration swept across quite a number of product areas although few products sustained positive growth rates.

Table IV.4. Physical volumes of textiles, clothing and leather products, 1970-1991, selected years

	1970	1975	1980	1985	1990	1991
Fabrics (Million square metres)	94.1	166.3	199.3	222.0	203.6	204.3
Cotton	30.1	88.4	106.2	121.3	98.5	106.1
Wool	14.8	17.7	21.5	21.7	21.7	21.5
Silk	27.1	33.5	39.3	40.5	40.0	34.5
Linen	20.0	22.4	26.3	28.5	28.1	27.1
Carpets and carpet covers (Thousand square metres)	957	1,367	5,421	6,736	6,551	2,739
Socks and stockings (Million pairs)	73.3	84.2	90.6	99.3	82.2	81.2
Knitted underwear (Million units)	43.3	43.2	45.5	45.4	40.9	36.8
Knitwear (Million units)	12.8	14.5	15.5	15.9	17.9	17.3
Footwear (rubber and felt exclu.) (Million pairs)	10.6	9.7	10.3	10.7	11.9	11.2
Clothes (less fur and leather):						
Coats of all types (Thousand units)	1,167	881	892	866	745	854
Jackets (working jackets included) (Thousand units)	..	512	669	763	880	1,080
Suits (Thousand units)	975	1,261	861	821	701	632
Dresses of all types (Thousand units)	1,959	1,906	1,851	2,480	2,353	2,513
Trousers (women inclu.)(Thousand units)	1,418	1,363	1,386	1,759	2,108	2,112
Shirts (boys incl.)(Thousand units)	2,219	2,065	2,440	2,729	2,745	2,630

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992)

An analysis of time series production data reveals that a significant increase in the production achieved in the 1970s was sustained until 1985 and the second half of the 1980s generally experienced subdued pace of expansion. The production of all kinds of fabrics rose from 94.1 million square metres in 1970 to 199.3 million square metres in 1980, while the 1991 level of output was only marginally higher at 204.3 million square metres. Following a steady increase since 1970 the production of carpets reached its peak in 1985 and declined thereafter. Despite an increase in the production of coats of all types in 1991, the level of output in that year was far below the output achieved in 1970.

Fig. IV.B. Production of selected textiles, 1991 and 1992

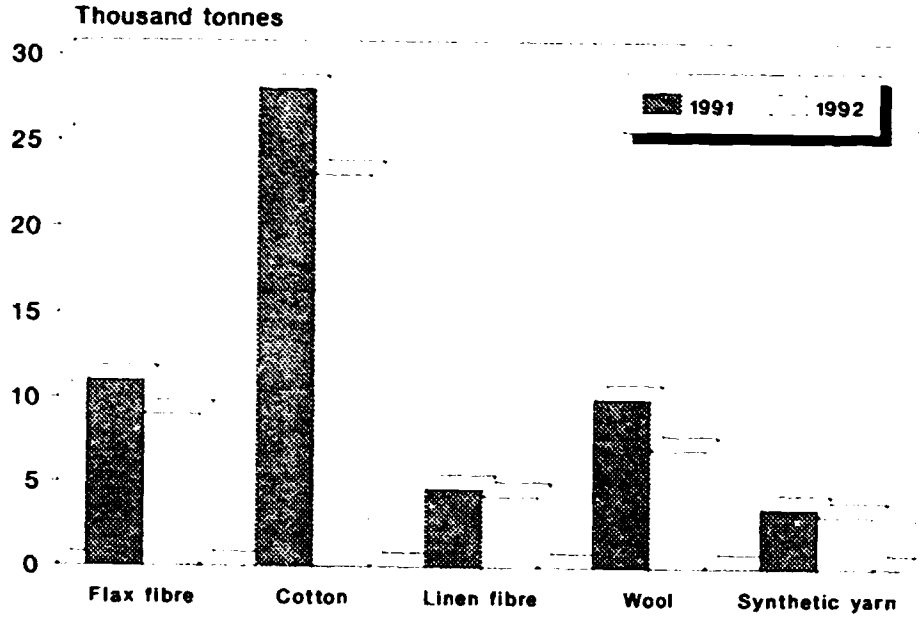
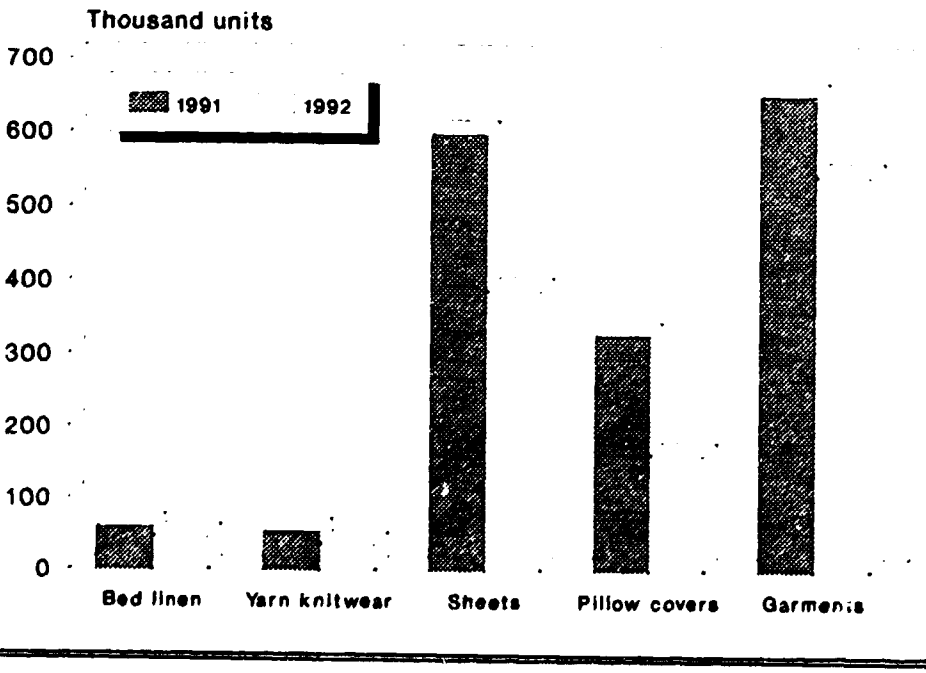


Fig. IV.C. Production of selected clothing items, 1991 and 1992



Lithuania's low cost advantage seems to be an attraction to firms which endeavour to seize cheap primarily labour-intensive production opportunities. The average expenditure on wages and salaries in current prices in textile, wearing apparel and leather industries in Lithuania rose from Rb 2,322 in 1985 to Rb 3,518 in 1990 against the average for total manufacturing from Rb 2,516 to Rb 3,647 during the same period. It should be noted that although the low labour cost is an advantage, determinants of competitiveness in these segments of manufacturing are changing. Enterprises will need to keep abreast of the changing non-price determinants of competitiveness in order to thrive in an extremely competitive world market.

SELECTED ENTERPRISE PROFILES

"Vilija" State Knitwear Enterprise Location: Vilnius

i) **Sources of raw materials:**
The main raw materials are wool and wool mixture delivered from Belarus, Kyrgyzstan, the Russian Federation and domestic sources. The enterprise faces scarcity of raw material supplies. Barter arrangements have reported been successfully concluded with the CIS and some western countries.

ii) **Production in 1991:**

Major product	Production (Tonnes)
Knitted overwear	1,375,000

iii) **Capacity utilization in 1991:** 81 per cent

iv) **Restructuring needs:**
The enterprise, founded in 1962, underwent reconstruction in 1987, the first stage of which continued until 1991. The second stage of reconstruction was expected to be completed by the end of 1992. Approximately 60 per cent of the new premises will be used for production purposes. A large number of knitting machines are in satisfactory condition. Around 50 per cent of the production equipment is of foreign origin, mostly from Germany, Italy and Japan. The enterprise has no environmental problems. The outdated segment of the knitting machinery needs replacement to achieve productivity and efficiency gains.

"Utenos Trikotažas" Knitwear Co. Location: Utena

i) **Sources of raw materials:**
The main raw materials are cotton, wool, rayon, polyester fibre and dyes. These are purchased largely from the CIS. Supplies of cotton yarn, imported dyes and other chemicals are irregular.

ii) **Production in 1991:**

Major products	Production
Knitwear products (Number of units)	17,600,000
Curtains and curtain fabrics (Square metres)	2,100,000

iii) **Capacity utilization in 1991:**
Knitwear products: 73 per cent
Curtains and curtain fabrics: 100 per cent

iv) **Restructuring needs:**
The enterprise's domestic and export sales were not affected by the transition to a market economy and by the changes in the CIS. The origins of production

equipment are the former Czechoslovakia, Germany, Italy, Japan, Switzerland and the former USSR. The enterprise's knitting segment is equipped with machinery imported from western Europe and Japan. Air pollution emanating from the factory and waste water generated seem to comply with environmental norms. Restructuring should focus on ensuring regular and adequate supply of raw materials. The enterprise's high level of capacity utilization speaks for its good performance.

Alytus Cotton Fabrics Factory Location: Alytus

i) **Sources of raw materials:**
The mill depends totally on the imports of cotton fibre and high modulus viscose and polyester fibre. While all imports of cotton fibre and high modulus viscose originate from the CIS, around 30 per cent of polyester fibre is imported from the CIS and the remainder from other countries.

ii) **Production in 1991:**

Major products	Production
Cotton fabrics (Thousand square metres)	90,005

iii) **Capacity utilization in 1991:** 100 per cent

iv) **Restructuring needs:**
The spinning, weaving and finishing segments are equipped with over 20-year old machinery. A major expansion of production was undertaken in 1989. Efforts are under way to rejuvenate the spinning factory. The printing and engraving parts of the finishing segment are also slated for reconstruction. Shortage of hard currency is a constraint on rationalization and modernization plans. Foreign partners from Germany, Holland and Italy are reported to have expressed interest in the restructuring of spinning and finishing factories. There is an urgent need to upgrade the skills of workers. Substantial external assistance is needed in sewage cleaning, hazardous waste processing and utilization. The company has employed a consultant from Canada for designing a new management strategy and identifying alternative options. Recently the company established a new production line for ready-made products. In the colouring segment the company is seeking foreign partners.

"Linu Audiniai" Flax Processing Plant Location: Plungė

i) **Sources of raw materials:**
Domestic sources meet around 80 per cent of the raw materials needs of long fibre, short fibre and cotton yarn. The remaining 20 per cent of the imports comprises chemical fibres imported largely from the CIS.

ii) **Production in 1991:**

Major products	Production
Linen fabrics (Million metres)	7.8
Linen yarns (Million square metres)	8.8
Non-woven (Million metres)	1.2

iii) **Capacity utilization in 1991:** 86 per cent

iv) **Restructuring needs:**
The enterprise's obsolete capital stock will need to be replaced by modern equipment. Shortage of chemicals often disturbs production. Dearth of hard

currency is a major constraint inhibiting rationalization and modernization initiatives.

State Footwear Enterprise "Viktorija" Location: Vilnius

i) **Sources of raw materials:**
Around 73 per cent of raw material needs are met by domestic sources, of which leather for footwear upper part accounts for 66 per cent, rigid leather 2 per cent, textile material 1 per cent and other 4 per cent. Major raw material imports comprise synthetic leather, textile material, polyurethane and other materials.

ii) **Production in 1991:**

Major product	Production
Footwear (Thousand pairs)	3,436

iii) **Capacity utilization in 1991:** 78.9 per cent

iv) **Restructuring needs:**
Around 30 per cent of the capital stock is obsolete. The factory most urgently needs modernization in terms of new production equipment and sophisticated techniques of production to keep pace with the changing facets of footwear production. Financial constraints and shortage of raw materials also impede the performance of the enterprise.

"Dainava" Clothing Factory Location: Alytus

i) **Sources of raw materials:**
Around 70 per cent of the raw materials is obtained from local sources.

ii) **Production**
Ready-made clothes produced in designs supplied by foreign partners are popular. Around 30 per cent of the factory's production is exported. The capacity utilization is quite high.

iii) **Restructuring needs:**
The factory is in fairly good shape and products are capable of competing with east Asian textile products on the world market. Around 80 per cent of the company's capital was privatized by August 1992. In 1990 the company modernized much of its capital stock with the aid of machinery imported from Germany and equipment from Japan. The factory sets a good example for successful export orientation during the transition to a market economy. One-third of the employees are working for exports to Denmark, Germany and Sweden.

Constraints and prospects

The textile and clothing industry in Lithuania seems to have the potential to thrive in the sombre industrial climate. With significant restructuring the industry could emerge as a promising product area on the export front. It is contended that the industry can easily survive in a market economy and successfully compete even with east Asian textile exporters.

The technology used in most knitting enterprises is fairly modern. However, rationalization of the production process is said to be needed in order to achieve short runs of differentiated products against mass production of standard items. The quality of knitting threads is far below the quality

prescriptions of foreign firms. In order to significantly enhance the sewing techniques to reach western standards this segment of Lithuania's clothing industry will have to achieve a higher degree of technical progress and significantly increase the quality of all means of sewing.

Footwear enterprises manufacture a wide range of seasonal footwear. Acute shortage of imported chemicals used for processing skin and hide adversely affects the quality of leather products. Rapid restructuring of the footwear industry is needed in order to turn out relatively cheap, attractive and better-quality products capable of penetrating external markets. At present footwear is hardly exported.

Selected enterprise profiles suggest that capacity utilization is fairly high in textiles, clothing and leather processing. However, the traditional pattern of production, conforming to the quality requirements of the domestic market and to the needs of the division of labour within the former CMEA countries, is a constraint on "quick response" to market environment. Thus the need to modernize the obsolete capital stock is severely felt. This, in turn, raises the question of financing the modernization process. The country's light industry is expected to attract a number of foreign investors for joint ventures. But the progress in privatization in terms of selling the shares to workers is so far limited to an average of 25 per cent of the industry's equity. This implies that a major option is to look for more foreign participation in corporate equity and joint ventures.

C. FORESTRY AND PRIMARY WOOD PROCESSING: UPGRADING THE CAPITAL STOCK

The resource base[1/]

According to the latest inventory (1988) the forest area encompasses 1,823,000 hectares. The area under regeneration on the State forest makes up 3 per cent or around 42,000 hectares of the State forest area. Pine forests dominate in southern and eastern Lithuania whereas spruce and hardwood stands are most common in the rest of the country. Different scenarios of future harvesting possibilities are presented in Annex A-10.

SELECTED ENTERPRISE PROFILES

"Liepsna" Match Factory Location: Kaunas

i) **Sources of raw materials:**
The main raw material timber (20 per cent), paper (10 per cent) and pasteboard (9.5 per cent) are available locally. Some chemicals used for match production are imported mainly from the CIS. The principal lines of production are matches packed into wood boxes. Around 72 per cent of raw materials requirements are met by domestic supplies.

ii) **Production in 1991:**

Major products	Production
Match boxes (Thousand conventional boxes, one conventional box contains 50,000 matches)	200

iii) **Capacity utilization in 1991:** Match production 100 per cent

iv) **Restructuring needs:**
About 70 per cent of the capital stocks is almost impossible to maintain because of the extreme obsolescence. The factory produces the products that are of high importance in terms of local demand. The machinery is currently run even to the point of complete collapse. Rehabilitation initiatives should be focused on installing modern machinery.

State Furniture Factory Location: Panevėžys

i) **Sources of raw materials:**
Wood particle boards and other wood materials are sourced from local sources. The factory extensively uses polished glass imported from the CIS and other Republics as a constituent part of furniture products. There are persistent shortages and irregularities.

ii) **Production in 1991:**

Major products	Production
Furniture glass (Thousand square metres)	174.0
Furniture (Million roubles)	19.8
Normal glass (Million roubles)	1.0

iii) **Capacity utilization in 1991:** 93.4 per cent

iv) **Restructuring needs:**
The production equipment is 8-12 years old. These are mainly wood board finishing and glass grinding/polishing machines. Restructuring efforts should alleviate the shortage of finance, replace obsolete technology and facilitate market access. Representatives of the factory visited different countries for assessment of market potential: Russian Federation, Uzbekistan and Belgium. Current financial difficulties are worsened by banks inefficiency, unsolved professional training needs, law quality raw materials and urgency of quality upgrading in the framework of export promotion efforts.

"Miškas" State Furniture Factory Location: Marijampolė

i) **Sources of raw materials:**
About 86 per cent of the raw materials is obtained from local suppliers.

ii) **Production in 1991:**
Different types of furniture are produced for local as well as destined to foreign markets (up to 15-20 per cent export).

iii) **Capacity utilization in 1992:** 100 per cent

iv) **Restructuring needs:**
The enterprise was completely re-equipped 20 years ago. It faces difficulties in raw material supplies, which are locally made semi-finished furniture parts. Modern technologies are needed. Market access is also considered as essential element of ongoing restructuring efforts.

Pilot Housing Construction Plant Location: Alytus

i) **Sources of raw materials:**
The main raw materials are sawn wood, wood products and mineral wool which are available locally. Production of wooden houses is rather material-intensive and constitute up to 80 per cent of production cost. Soaring production cost, particularly the rising cost of wood, made it impossible for the enterprise to maintain the price of products within affordable limits.

ii) **Production in 1991:**

Major products	Production (Units)
Pre-fabricated wooden houses	226

iii) **Capacity utilization in 1991:** 12 per cent

iv) **Restructuring needs:**
The enterprise was established 16 years ago with the help of western contractors and technology with fairly modern equipment and relevant products. At present the enterprise faces economic and financial crisis. Because of inflated prices of raw materials no new requests for production of houses are forthcoming. The process of privatization has already led to splitting of original production complex into five smaller units and wood processing facilities are separated from others into a separate entity. A major restructuring of production is now shaping up; among products recently introduced are different wood housing elements. The enterprise is looking forward to introduce subcontracting services for foreign partners, based on specific orders. There is a hope that locally available raw materials together with fairly modern equipment would attract the attention of potential foreign partners.

D. PULP AND PAPER: TOWARDS REJUVENATION

The resource base

Lithuania is endowed with 1.8 million hectares of forests. In the dense forest area in the south-eastern part of the country forests encompass around 45 per cent of the land area. Yet domestic supply of raw materials for pulp and paper production is inadequate and a substantial portion of the raw material needs is met by imports. The principal raw materials for paper and board production are bleached sulphate and sulphite pulp, unbleached sulphite pulp, stone roundwood and waste paper. The bleached sulphite and sulphite pulps are imported mostly from the CIS, mainly the Russian Federation. The unbleached sulphite pulp is produced locally at the Klaipėda Board Mill.

There has been a significant fall in the imports of pulp from the Russian Federation in 1991. Lithuanian mills are compelled to look for other suppliers from other Republics of the former USSR. Imports of pulp from western countries is too expensive. It is therefore important to find a stable, reasonably priced fibre raw material supply sources in the short and medium term.

Lithuania's current waste paper recycling capacity is around 80,000 tonnes per year. Despite difficulties in the procurement of waste paper, there seems to be a strong tendency to increase the country's waste paper recycling capacity. As the domestic supply of waste paper is insufficient, it is imported from Latvia, Estonia, Kaliningrad and Belarus.

Emerging trends

The paper and paper production capacity is currently estimated at 267,000 tonnes per annum. While Lithuania is a net exporter of paper and board, substantial quantities of consumer grade paper products are imported. The country's pulp and paper industry comprises two paper mills, and two paper board mills. In addition to these the Lithuanian-United States joint venture Grigiškės produces both paper and paper board.

A significant fall in the production of paper and paper board in 1991 (see Table IV.5) was largely due to creative destruction. Several segments of production equipped with outdated technology have been temporarily shut down in view of immediate plans to modernize the production process. Soaring cost of inadequate imports also affected production in recent years.

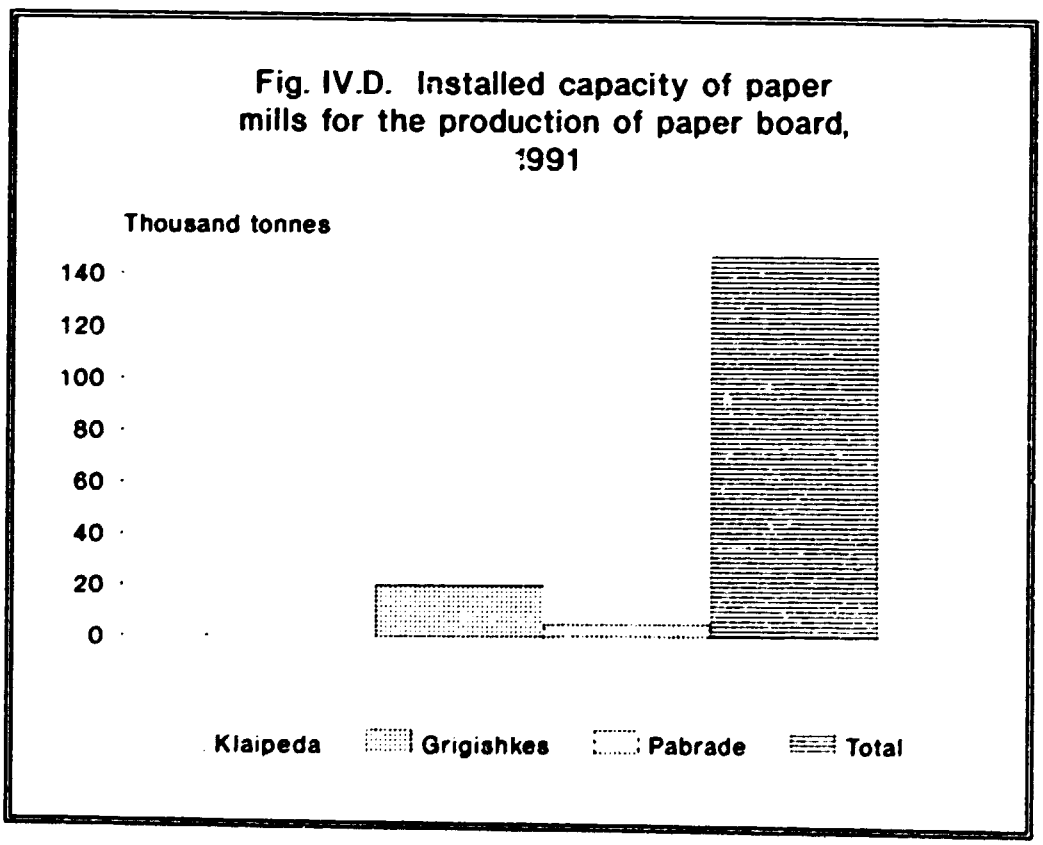
Table IV.5. Production of paper and paper board, 1970-1991, selected years

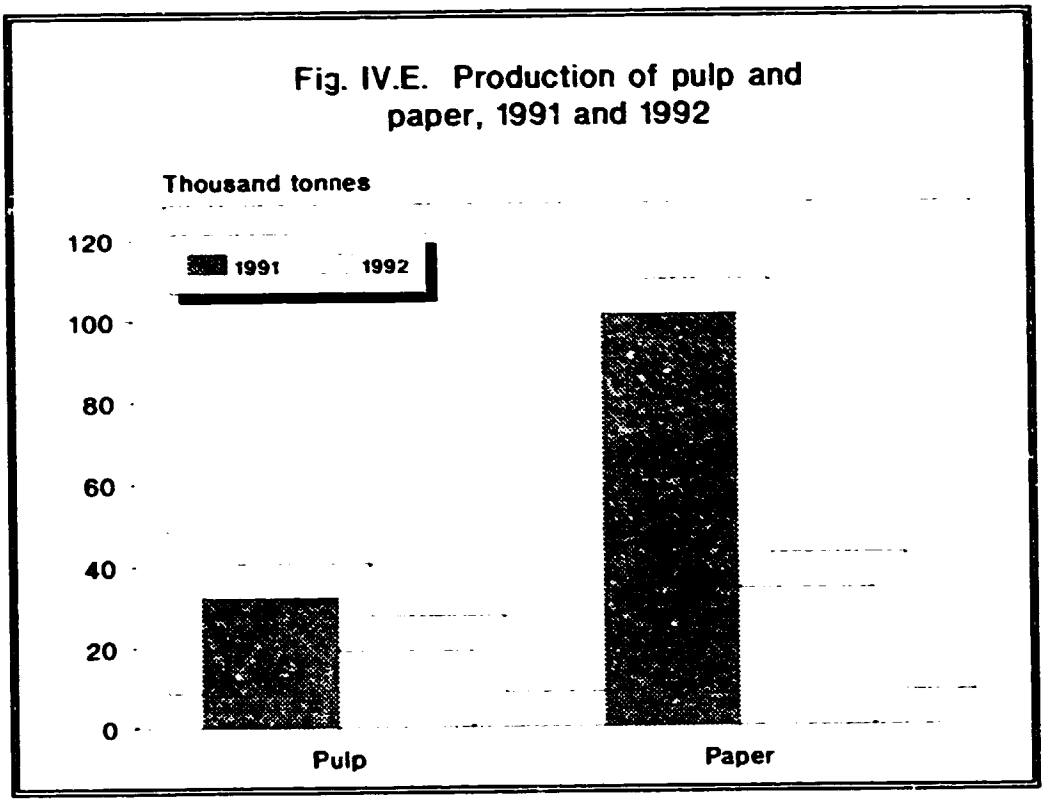
	1970	1975	1980	1985	1990	1991
Particle board (Thousand cubic metres)	55.6	107.1	138.8	140.3	177.3	163.9
Fibre board (Thousand square metres)	7,523	17,804	27,086	26,933	26,078	24,815
Paper (Thousand tonnes)	102.1	119.4	107.9	120.3	100.7	101.2
Paper board (Thousand tonnes)	50.8	120.8	127.5	145.2	116.9	113.3

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).

Despite a drastic decline in output there is an exportable surplus in the production of paper board. The domestic production of writing, printing and copy paper is just sufficient to meet the current domestic demand. As mentioned earlier, other grades of paper are imported. At present there is no domestic production of newsprint.

At optimal level of capacity utilization the paper and paper board industry will be capable of turning out 72.2 kilogrammes *per capita* of paper and paper board. The current *per capita* consumption is around 42 kilogrammes, implying the country's net exporter status. However, in order to significantly reduce imports of consumer grade papers, the current structure of production will need to be significantly changed to suit the pattern of paper consumption in Lithuania. To this end, a high degree of selectivity is called for in the sphere of modernization and future expansion plans.





SELECTED ENTERPRISE PROFILES[1/]

Kaunas Paper Mill Location: Kaunas

i) **Sources of raw materials:**
The mill totally depends on imports of pulp raw material from the Russian Federation. Import prices seem to have approached world market prices in recent years, but there is no major problem in the availability of pulp. Recently the mill started to use locally available waste paper. In 1991 it utilized around 2,000 tonnes of waste paper.

ii) **Production in 1991:**

Major products	Production
Writing paper (Tonnes)	28,000
Copy paper (Tonnes)	14,684
Printing paper (Tonnes)	3,501
Wrapping paper (Tonnes)	1,535
Photoconductive paper (Thousand square metres)	11,475
Polyvinylidene-coated paper (Thousand square metres)	18,454
Magnetographic paper (Thousand square metres)	2,544
Dielectric paper (Thousand square metres)	5,280
Cement hardening-retardant (Thousand square metres)	852
Photocopy paper (Thousand square metres)	51
School notebooks (Pieces/thousand packages)	65,017
Correcting paper (Pieces/thousand packages)	231
Thick notebooks (Pieces/thousand packages)	16,007
Post paper (Pieces/thousand packages)	51
Writing paper for consumer use (Pieces/thousand packages)	1,420
Note pads (Pieces/thousand packages)	146
Small notebooks (Pieces/thousand packages)	200

Calendar notebooks (Pieces/thousand packages)	39
Sets for handicraft (Pieces/thousand packages)	2
Ledger notebooks (Pieces/thousand packages)	220
Package paper (Pieces/thousand packages)	46

iii) **Capacity utilization in 1991:** 31 per cent

iv) **Rehabilitation needs:**
The mill is currently affected by the loss of the CIS market which absorbed 85 per cent of production until 1990. Efforts are being made to penetrate west European markets. Exports are also destined to former Czechoslovakia, Viet Nam and other Asian countries. One of the major problems relates to a drastic fall in the demand for photoconductive paper. The copiers which used such paper are obsolete. The mill envisages overhauling of the production process. The installation of a process control system to monitor weight, moisture and ash content of paper is being planned. The results of last runs with Rank Xerox for manufacturing paper for Xerox copying seems to be satisfactory. A de-inking plant for recycled paper is included in the future development plans. There are also plans to buy a licence or know-how for the manufacture of thermofax paper and carbonless copy paper for which the CIS offers a ready market. The company needs $15.3 billion for restructuring.

Lithuanian-United States Joint Venture "Grigiškės" Location: West of Vilnius

i) **Sources of raw materials:**
The enterprise uses roundwood and chemical pulp as fibre raw materials for paper production. Sawnwood or pulp raw material is purchased in Lithuania and chemical pulp is imported. The enterprise also uses around 28,000 tonnes of waste paper annually for paper board production. Waste paper is sourced locally and partly imported from Latvia.

ii) **Production in 1991:**

Major products	Production
Packing paper (Tonnes)	14,588
Cellucotton, type B (Tonnes)	1,797
Crepe paper for packing purposes (Tonnes)	1,921
Sanitary base paper (Tonnes)	5,247
Filter for cellulose acetate solutions (Tonnes)	437
Industrial board type B (Tonnes)	13,219
Industrial board type W (Tonnes)	2,883
Hardboard type T (Thousand square metres)	15,600
Painted hardboard type A (Thousand square metres)	4,593
Single layer for tobacco filters (Tonnes)	3,920
Corrugated board boxes (Square metres)	3,701
Corrugated board type D (Square metres)	3,920
Toilet paper (Thousand rolls)	26,234

iii) **Restructuring needs:**
Rejuvenating the production apparatus is an immediate need. The machinery in the roundwood mill is economically inefficient and ecologically unsound. The treatment capacity for 28,000 tonnes per year of waste paper will need to be doubled. One production line for hard board production is of 1960 vintage and the second line of production was installed in 1971. The enterprise endeavours to replace the three small tissue machines and board machines by a new machine, with a view to enhancing the annual production to 50,000 tonnes of all sanitary and medical tissue papers. The enterprise will have to install a new

toilet paper line and napkin production line. New project ideas in the sphere of rehabilitation include the production of absorbing boards for hospitals to be used in beds under the bed-sheets. The company is also planning to rebuild one hardboard line in order to increase the installed capacity by 4 million square metres per annum. There has been growing pressure on the mill to comply with environmental norms in effluent treatment. The present mechanical treatment will have to undergo biological treatment at least for the effluent of the hardboard mill.

Naujuju Verkiu State Paper Mill Location: Vilnius

i) **Sources of raw materials:**
The mill uses bleached and unbleached chemical pulp, waste paper, and to a certain extent roundwood as raw materials for the production of a variety of papers used mainly in industrial production.

ii) **Production in 1991:**

Major products	Production (Tonnes)
Packing paper for light industry production	5,623
Packing paper 85 g/square metre	1,003
Magazine paper 52 g/square metre	3,806
2-layer crepe base paper 60 g/square metre	2,309
Metal wrapping base paper 120 g/square metre	59
Electric isolation crepe paper 130 g/square metre	92
Medical crepe paper 55 g/square metre	138
Crepe paper for bookbinderies 90 g/square metre	35
Base paper for cigarette filter paper 35 g/square metre	161
Base paper for coating 45 g/square metre	345

iii) **Restructuring needs:**
The three paper machines are small, old and worn out. Skill levels of 93 per cent of the workforce is low and the educational level of 52 per cent of the workforce is below secondary education. The mill organizes training programmes for workers in order to upgrade their skills. With a view to installing the production capacity of printing paper of 10,000 tonnes per year the mill plans to introduce a waste paper treatment system. Lack of finance is a major constraint. The capital investment cost of installing machinery to produce 10,000 tonnes per year of printing paper with a furnish of 80 per cent secondary fibre and 20 per cent of virgin pulp is estimated at around $2 million. The machinery can be obtained from Cellwood Machinery in Sweden.

Klaipėda Cardboard Factory Location: Klaipėda

i) **Sources of raw materials:**
The production of matchbox board and folding boxboard is based on unbleached sulphite pulp, leached sulphate pulp and stone roundwood. Unbleached sulphite and stone roundwood are manufactured at the mill. Softwood is imported mostly from the Russian Federation and hardwood is sourced locally. Lack of procurement channels for wood supply is a persisting problem causing irregular supply of raw materials.

ii) **Production in 1991:**

Major products	Production (Tonnes)
Paper	4,903
Board, total	92,457

Of which:	
Boxboard Grade B	4,959
Boxboard Grade V	1,395
Matchbox inner layer	13,839
Matchbox outer layer	44,755
Coated chipboard	14,870
Uncoated chipboard	12,471
Roof board	168
Sulphite board (cooked)	32,837
Roundwood	25,240
Fodder yeast	2,376
Lignosulphonate concentrate	16,518

iii) **Restructuring needs:**
The mill intends to close down the obsolete sulphite pulp mill and possibly rebuild the roundwood mill. By rebuilding the effluent treatment system the mill endeavours to achieve ecological compliance. The lines of production should be significantly rejuvenated in order to make the product competitive, profitable and environmentally friendly. The company is reported to have decided to conduct feasibility studies for restructuring.

Pabradė Cardboard Factory Location: Pabradė

i) **Sources of raw materials:**
Waste paper is the principal raw material used by the factory. On average the factory uses 5,000 tonnes of waste paper annually, around 50 per cent is imported from Latvia and the Russian Federation.

ii) **Production in 1991:**

Major products	Production (Tonnes)
Waterproof upholstery cover	4,207
Packing board	491

iii) **Restructuring needs:**
The factory sets a good example in the sphere of privatization. The privatization initiative started in mid-1991 and by March 1992 98.4 per cent of the share capital was privatized, with 350 shareholders. A fall in production in 1990 and 1991 was caused by a change from seven-day working week to five-day working week. Since 1991 the factory turns out additional products, such as board boxes and cases. Currently the reconstruction of one boiler for the use of natural gas is under way. The installation of a biological effluent treatment plant is also under implementation.

Constraints and prospects

A fundamental change in the one-sided orientation of the industry's production and trade with the CIS and other Republics has resulted in decreasing availability of raw materials at soaring prices. The situation is further exacerbated by a drastic fall in external demand. There is shortage of pulpwood and pulp in the Russian Federation, which is still the major external raw material supplier. This tends to affect the availability of raw materials for Lithuania.

Given the shortages of principal imported raw materials and the country's dependence on imports for a number of consumer grade papers, there is a need for a reassessment of the pattern of production and the industry's orientation. The basis of future production should largely be the domestic availability of raw materials and the pattern of production should increasingly be attuned

to the main grades that satisfy domestic demand and carry a competitive edge to external markets. In order to ensure adequate supply of pulp, Lithuania may consider the establishment of a new chemical pulp mill. A modern kraft pulp mill with a production capacity of 250,000 tonnes to 300,000 tonnes per year would meet the domestic demand and have an exportable surplus.

According to a recent study,[3/] Europe will experience a roundwood deficit of 40-60 million cubic metres by the year 2010. Regional deficits in other parts of the world are also likely to occur. The growing accent on environmental aspects will also have its impact on the world's wood raw material supplies. According to the above-mentioned study, at present 79 per cent of European forests lie above the critical level for sulphur. The loss of potential harvest, caused by air pollutants in Europe, is estimated at 85 million cubic metres per year during the period 2000 and 2005. This estimate is based on individual countries' own estimates in Europe. The implications of wood-based fibre deficit for the pulp and paper industry may entail considerable changes in the structure of the industry, technology and fibre content of products.

Consumption of waste paper is likely to increase significantly in Lithuania. Emerging trends suggest that supplies of recycled fibre are likely to expand internationally.[4/] Waste paper collection for recycling is being stimulated by legislation in North America and Europe, where landfill capacity is becoming exhausted, adding to the need to extract and recycle this major ingredient of waste. One immediate short-term effect is over supply, with more waste produced than paper-makers in North America and Europe can handle. Pulp and paper mills in Lithuania have elaborated plans for rationalization of the production process, modernization of machinery and expansion of installed capacity. A major improvement of competitiveness could be achieved as a result of these developments.

E. BUILDING MATERIALS: FOCUS ON CEMENT

Raw material base

Large quarries of building materials are located in the vicinity of Vilnius, Petrašiunai, Kalnenai, Rizgonys. The building materials industry uses local raw materials such as clay, quartz sand, gravel and dolomite. The industry produces bricks, precast ferro-concrete structures, polystyrene dressing tiles, plastics building materials, silicate articles, window glass, etc. Lithuania has the biggest cement plant in the Baltic located at Akmenė with an annual installed capacity of 3.6 million tonnes of cement.

Emerging trends

Having remained stable at 3.4 million tonnes per annum in the 1980s the production of cement fell to 3.1 million tonnes in 1991 in the wake of a general deceleration of economic activity in Lithuania (see Table IV.6). The production of most building materials suffered serious setbacks in 1991 and 1992 with the exception of conventional bricks and conventional asbestos cement sheets sustained in 1991 the production level achieved in the preceding year.

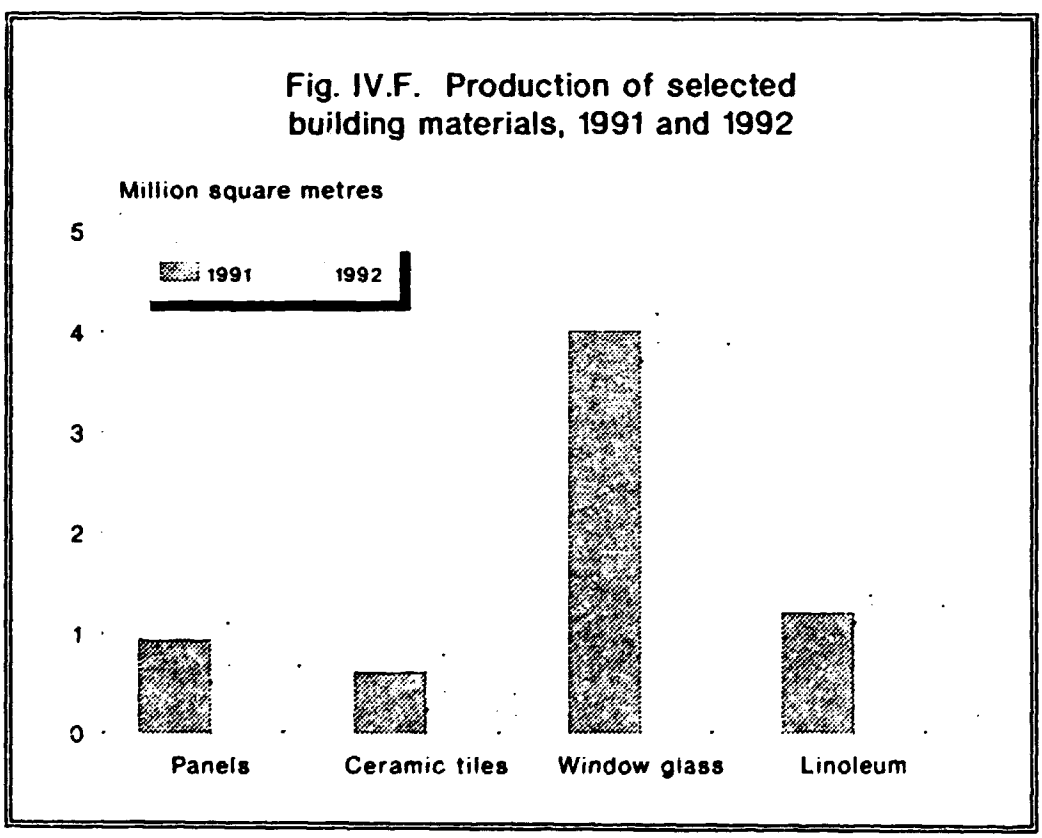
Severe hardships were caused by the acute shortage of energy and the soaring energy prices. The economic blockage of 1990 caused shortage of fuel and other production inputs.

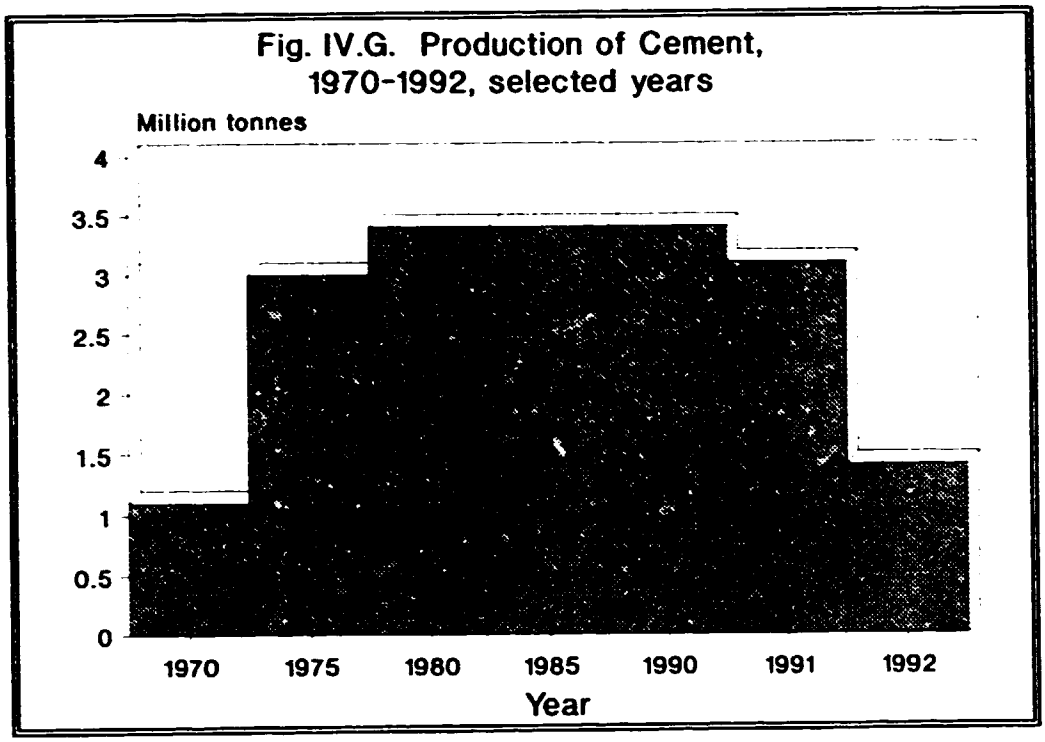
According to official estimates 75 per cent of the building materials industry's output was sold in the domestic market, 23 per cent was exported to the sub-regional markets and the remainder 2 per cent was exported to other countries. Principal exports include cement and cement products, glass products, hot water boilers and polymer products.

Table IV.6. Production of building materials, 1970-1991, selected years

	1970	1975	1980	1985	1990	1991
Cement (Million tonnes)	1.1	3.0	3.4	3.4	3.4	3.1
Bricks (Million units)	1,146	1,184	1,222	1,250	1,439	1,439
Of which: Building bricks (Million units)	1,044	1,059	1,033	1,028	1,100	1,087
Ferro-concrete products (Thousand cubic metres)	1,469	1,833	2,020	2,296	2,433	2,128
Asbestos-cement sheets (slate) (Million units)	101	107	104	106	114	114
Window glass (Thousand square metres)	4,143	3,228	3,992	4,021	3,300	4,044
Glass blocks (Thousand units)	5,500	7,273	5,985	7,001	4,691	4,198

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).





The highly energy-intensive cement industry emanates considerable atmospheric pollution in the form of particulates, currently estimated at 62,000 tonnes per year. Other segments of the building materials industry are also known for their inefficient pattern of energy consumption and ecologically unsound production process. There is an urgent need to revitalize the production pattern with a view to achieving energy efficiency and ecological compliance.

SELECTED ENTERPRISE PROFILES

State Works Akmenės Cementas Location: Akmenė

i) **Sources of raw materials:**
Limestone, clay, puzzolanic earth, phosphor-gypsum, sand and gravel are the principal non-energy raw materials. Around 97 per cent of non-energy raw materials for cement production is obtained from domestic sources.

ii) **Production in 1991:**

Major products	Production
Cement (Tonnes)	3,125,000
Asbestos cement corrugated sheets (Units)	69,501,000
Asbestos cement pipes (Kilometres)	1,885

iii) **Capacity utilization in 1991:**
Cement: 48 per cent
Asbestos sheets: 75 per cent
Cement pipes: 59 per cent

iv) **Restructuring needs:**
The high level of excess capacity is due to a drastic fall in domestic demand resulting from a slowdown in construction activities. A fall in domestic demand is also ascribed to a significant increase in the prices of cement and related products. High material and energy intensity is the principal cause of inefficiency. In the pattern of energy consumption fuel accounts for 52.8 per cent, followed by gas (39.7 per cent) and electricity (7.5 per cent). While the

production process suffers from lack of refractory devices, the general level of technology is out of date. It is being envisaged to reconstruct a rotary kiln in order to reduce the use of heat from 1,550 kcal/kg clinker to 1,250 kcal/kg clinker, and to decrease the use of oil fuel to 20,000 tonnes per year. Efforts are also under way to modernize several segments of production with foreign participation. To this end, negotiations with the Swedish firm "Euroc Cement", the Belgian firm MOGOTO and the German firm ETERNIT are under way.

Vilnius First Reinforced Concrete Factory Location: Vilnius

i) **Sources of raw materials:**
The main raw materials are cement, metal and rustless materials. Cement is supplied by the Akmenė Cement Factory. Metal is imported from Ukraine.

ii) **Production in 1991:**

Major products	Production (Square metres)
Hollow slabs	140,000
Full slabs	1,200
Framework articles	2,000
Cable beams	2,000
Long products	1,000
Miscellaneous ferro-concrete products	8,000
Concrete products	21,000
Ready mixed products	43,000

iii) **Capacity utilization in 1991:** 70 per cent

iv) **Rehabilitation needs:**
A drastic fall in domestic demand led to a substantial fall in production in 1991. While the revival of domestic demand hinges on the revival of the construction sector, the factory's equipment of former USSR origin needs a thorough overhauling. Cement dust and welding smoke, ejected into the atmosphere, causes environmental problems.

Vilnius Sanitary Equipment Plant Location: Vilnius

i) **Sources of raw materials:**
Around 80 per cent of the inputs are imported. Metal pipes, cast iron and tin plate are the principal imports. Locally sourced production inputs are plastic materials used for sewerage, and fittings.

ii) **Production in 1991:**

Major products	Production (Thousand)
Pipe procurement parts	752
Plastic sewerage pipes	83
Cast iron sewerage pipes	2,120

iii) **Capacity utilization in 1991:** 31 per cent

iv) **Restructuring needs:**
Inadequate and irregular supply of materials for the production of cast iron sewerage, plastic sewerage and tin pipes are major causes of idle capacity. Soaring prices of materials and energy also affect the enterprise's production performance. Around 30 per cent of the capital stocks is more than 15 years old. Lack of finance is a major constraint inhibiting modernization initiatives.

State Glass Works Location: Panevėžys

i) **Sources of raw materials:**
Domestic raw material supplies account for 29 per cent. These include mainly quartz sand, limestone and polyvinyl-acetate. The factory imports dolomite, soda ash, feldspar, sodium sulphate, resin and glass threads mainly from the CIS.

ii) **Production in 1991:**

Major products	Production
Window glass (Thousand square metres)	4,044
Unpolished shop-window glass (Thousand square metres)	53
Furniture glass (Thousand square metres)	23
Glass blocks (Thousand conditional unit)	4,198
Facing glass tiles (Thousand square metres)	214
Glass fibre mat, VV-K (Thousand square metres)	18,583
Glass fibre mat, VV-AM (Thousand square metres)	9,635

iii) **Capacity utilization in 1991:**
Sheet glass: 100 per cent
Windscreen: 30 per cent

iv) **Rehabilitation needs:**
With the exception of the line of production for windscreen, constructed in 1992, the capital stock is very old. Most of the machinery was installed two decades ago. Instruments will have to be replaced for a rationalized production structure in order to significantly enhance efficiency. Efforts are under way to produce new products.

Daugeliu State Plant of Building Materials Location: Daigeliai

i) **Sources of raw materials:**
Clay, sand and sandy cement are local raw materials which meet 47 per cent of the plant's raw materials needs. Imported slate material and brass net account for the remainder 53 per cent of raw material utilized by the plant.

ii) **Production in 1991:**

Major products	Production
Wall panel material (M units)	120,000
Drainage pipes (km)	15,708
Cement sheets (M units)	43,000

iii) **Capacity utilization in 1991:**
Wall panel material: 82.1 per cent
Drainage pipes: 80 per cent
Arbocement sheets: 96.5 per cent

iv) **Restructuring needs:**
A significant increase in the cost of raw materials coupled with a substantial fall in the supply of imported raw materials affected the performance of the enterprise in recent years. The technology currently used is of former USSR origin. The enterprise endeavours to establish a joint venture with the Danish firm DANSK ETERNIT FABRIK A/S for the production of non-asbestos products.

Gargždai State - Building Materials Plant Location: Gargždai

i) **Sources of raw materials:**
Around 90 per cent of the raw material requirements are met by imports.

ii) Production
The company produces bricks, roofing materials, silicon, polystyrene and windows.

iii) **Rehabilitation needs:**
The company plans to rehabilitate the roofing material production segment with the assistance of SURGUTGAS from the Russian Federation at an estimated cost of $30 million. The energy intensity of production is very high. The company is looking for partners from west European countries for modernizing the company.

"Silikatas" Building Materials Co. Location: Vilnius

i) **Sources of raw materials:**
Lime for the production of silicon bricks is available locally. Other raw materials are imported. The company is looking for substitutes from local sources through the Institute of Thermo-Installation.

ii) **Production:**
The company produces silicon, bricks and minerals and wool for insolation.

iii) Restructuring needs
Efforts are under way to establish a new joint venture with Swedish and Finish partners. The factory needs substantial external assistance for improving the quality of its products.

Building Materials Plant Location: Švenčionėliai

i) **Sources of raw materials:**
All raw materials are available in Lithuania except gypsum which accounts for 1 per cent of total cost of production.

ii) **Production:**
The company produces ceramics, ceramic bricks, yellow bricks, red bricks and asbestos.

iii) **Restructuring needs:**
The problem of soaring energy cost is exacerbated by the high energy intensity of the production process. The main problem is related to the utilization of natural gas. In the face of soaring energy costs, the prices of products turned out to be prohibitive for local customers. The company expects some assistance from a Danish company whose joint venture may be considered for financing through the Danish Fund for Industrialization of Eastern Europe.

"Statybininkas" Mechanical Pilot Plant Location: Kaunas

i) **Sources of raw materials:**
All raw materials are imported. The company has no problem in getting regular supplies of raw materials.

ii) **Production:**
The company produces aluminium frames and materials for concrete walls.

iii) **Restructuring needs:**
The company's major problem is the inadequacy of financial resources for rehabilitation. The company also endeavour to enter into a joint venture with a company in St. Petersburg which will be beneficial from the raw materials supply point of view. The company is interested in installing technology from Germany and Italy for the production of frames. Negotiations have also been conducted for a licence technology with a company from the United States.

Alytus Pre-fabricated Houses Factory Location: Alytus

i) **Sources of raw materials:**
All raw material requirements are met by domestic sources, excepting chemicals.

ii) **Production:**
The company produces pre-fabricated houses, mineral wool for insulation, wood particle board, wooden construction parts, metal construction parts, etc. Mineral wool production is likely to cease because of rising cost of chemicals and other raw materials which will need to be imported from the Russian Federation.

iii) **Restructuring needs:**
Around 70 per cent of the installed capacity remains idle. Production lines were built during 1973-1975. The production line for wooden frames and similar products is currently using only 20 per cent of its installed capacity, while the sawmill segment is operating at 20-25 per cent of its installed capacity. The company is looking for foreign partners from western countries. The cost of rehabilitating the wood particle board segment is estimated at $2 million. The company needs radical restructuring for modernization and management assistance with emphasis on energy efficiency, product mix, quality of products and optimum scale of various production lines. A scaling down of unviable production lines should be considered.

Constraints and prospects

The current slowdown in the construction industry may prove to be a temporary phenomenon given the government's determination to implement infrastructural projects and to meet the growing demand for housing. However, the reorganization and revitalization of the country's building materials industry can yield results only when different segment of the industry adopt new production processes and improve production techniques.

A thorough overhauling of the production apparatus at the country's only cement factory is inevitable in order to reduce the fuel consumption per tonne of clinker produced, ensure longer kiln availability for increasing the overall productivity of the plant, and to reduce the specific energy consumption for cement. The rehabilitation exercise is forced to focus its attention on the above aspects particularly in view of the rising cost and shortage of energy.

Lithuania's cement industry can learn much from the modernization of the cement plant at Kjopsvik, Norway.[5/] The modernization process enables the factory to turn out better quality cement, cause less pollution and use less energy. While efficiency has been significantly enhanced, the factory now has a more flexible production pattern, capable of producing a wide range of products.

The Commission of the European Communities has planned a series of actions, under the EC-PHARE Programme, *inter alia*, for the dissemination of information and the transfer of technology towards a more rational use of energy in cement production.[6/] Lithuania's cement industry should do the needful to benefit from innovative technologies offered by advanced countries which enhance the efficiency of cement production.

F. CHEMICALS: TAPPING THE SUBREGIONAL MARKET POTENTIAL

The resource base

Lithuania's chemical industry depends heavily on imports for meeting its raw material needs. However, a substantial portion of the output is exported mainly to the CIS and to a certain extent also other countries. Around 60 per cent of mineral fertilizers is consumed in the domestic market. Domestic consumption of fibres and petrochemicals currently stands at 33 per cent and 20 per cent, respectively. Due to a narrow production range a variety of chemicals are being imported to meet the raw material requirements of industries.

Emerging trends

The origin of chemical industries in Lithuania dates back to the end of the 19th century when a small number of chemical factories produced mainly varnishes, dyes and paints, various salts, acids, medicines and cosmetics. The development of the chemical industry in Lithuania accelerated when the Vilnius "Plasta" Plastics Plant, Kaunas Synthetic Fibre Plant, Kedainiai Chemical Plant and Jonava "Azotas" Nitrogen Fertilizers Plant came on stream in the 1960s and 1970s.

At present Lithuania's chemical industry produces nitric and phosphoric mineral fertilizers, sulphuric, nitric and phosphoric acids, methanol, chemical fibres, synthetic resins, synthetic washing detergents, varnishes, dyes and paints, household chemicals, pharmaceuticals, etc. The country's largest petrochemical enterprise is the Kaunas Rubber Products factory.

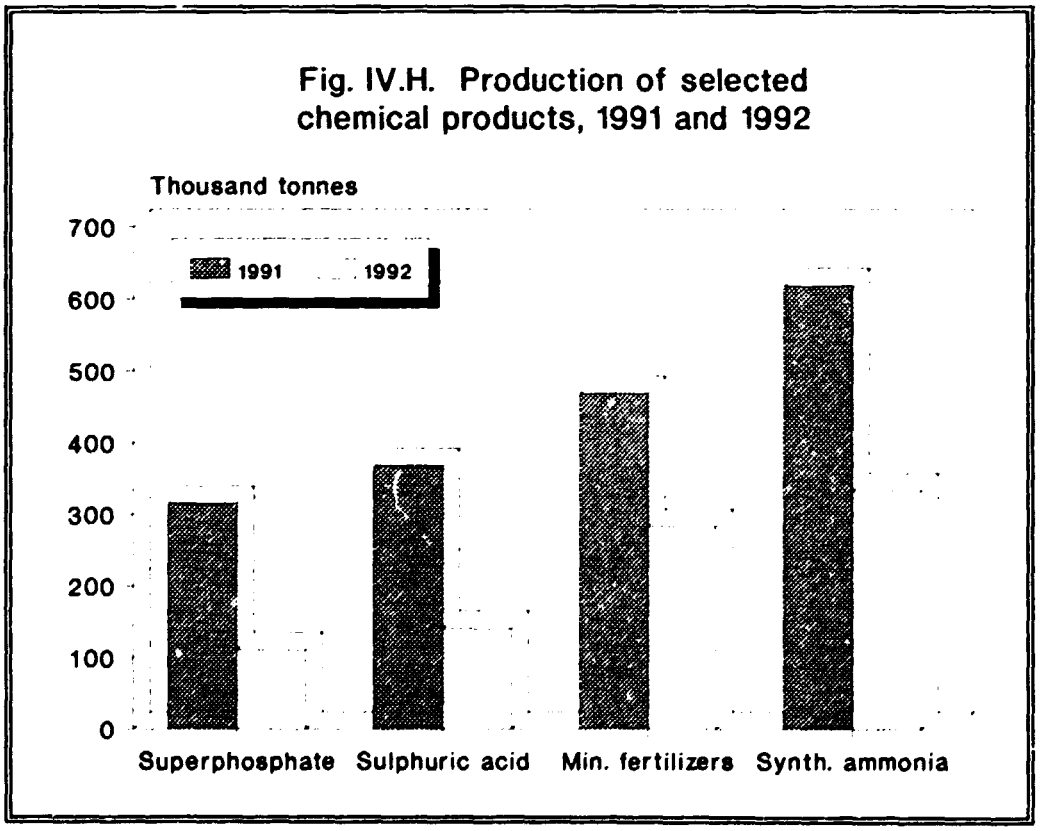
The production of fertilizers suffered sharp setbacks in 1990 and 1991. The 1991 level of output was far below 612,000 tonnes of fertilizer production achieved in 1980 (see Table IV.7). Similar production trends were recorded by sulphur acid monohydrate and linoleum. There had been a spurt in the production of plastic membrane over the years, but an increase in production could not be sustained in 1990 and 1991. The general wave of industrial deceleration also swept across the production of linoleum in 1991, which grew significantly until 1990. A striking feature of Table IV.7 is the data pertaining to tyre production, revealing the rapid increase from 75,400 tyres in 1970 to 268,000 tyres in 1990. These were tyres retreaded by applying new protectors, the production of which, however, fell rapidly in 1991.

While chemical production grew significantly until the late 1980s, chemical enterprises inflicted severe damage on the environment in Lithuania. They turned out to be major sources of air pollution after automobiles and energy production. Pollution emanating in the form of solid waste, particularly phosphor-gypsum, is estimated at several million tonnes. According to rough estimates, pollution emanating from a nitric fertilizer plant caused deforestation of 700 hectares of forest land.[7/] Much of the environmental problems stem from worn-out machinery and inefficient production process. In redefining the role of the chemical industry in the sphere of industrial restructuring, the accent is on environmentally friendly production processes.

Table IV.7. Production of fertilizers and petrochemicals, 1970-1991, selected years

	1970	1975	1980	1985	1990	1991
Fertilizers (with 100 per cent nutrients) (Thousand tonnes)	226	415	612	747	483	469
Sulphur acid monohydrate (Thousand tonnes)	312	449	427	440	412	368
Plastic membrane (Thousand tonnes)	2.3	5.8	11.3	16.7	15.0	11.6
Synthetic fibre and threads (Thousand tonnes)	13.8	13.7	15.6	13.8	11.3	6.1
Linoleum (Thousand square metres)	935	986	1,093	1,102	1,400	1,291
Tyres, retreaded by applying new protectors (Thousand units)	85.4	94.0	177.9	254.2	268.4	216.6

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).



The chemical industry accounts for 7 per cent of industrial production and five per cent of industrial employment. The biggest enterprise of the chemical industry in Lithuania is the Jonava State enterprise "Azotas" which produces nitrogen fertilizers, synthetic ammonia and technical methanol. Phosphoric fertilizers, sulphuric acid and phosphoric acid are produced by the Kėdainiai chemical plant. The largest plastic processing enterprise is the Vilnius State plant "Plasta". Household chemical preparations are produced by the household chemical firms in Kaunas, Alytus and Vilnius.

Until 1990 about 60 per cent of fertilizer production was used by the country's agricultural sector. In 1990-1992 production of fertilizers suffered a sharp set back due to the lack of supply of raw materials. In 1991-1992 the consumption of fertilizers in Lithuania also decreased partly due to the change in the land ownership pattern. However, exports of fertilizers to western countries increased.

Recovery in the production of chemical products hinges largely on the availability of imported raw materials as domestic raw material supplies account for only 10 per cent of the requirements. The different types of raw materials which are of crucial importance to different enterprises are as follows:

Natural gas - Jonava enterprise "Azotas";
Apatites, sulphur - Kėdainiai chemical plant;
Polyethylene, polystyrene - Vilnius plant "Plasta"; and
Freones, organic solvents, surfactants, aluminium - in the firms of household chemicals.

In the Kėdainiai chemical plant efforts are under way to substitute the new modern technologies for the technically backward production of superphosphate as well to change the assortment of fertilizers by more convenient and economically more efficient means. The reconstruction of this plant is important for the ecological situation in this region. The Jonava plant "Azotas" cooperates with the Canadian firm "Pecton", and enterprises of Latvia and the Russian Federation in setting up liquid fertilizer-carbamide ammonium saltpetre production lines. Efforts are under way to start lime-ammonium saltpetre production together with the Finish firm "Kamira". The joint venture with the Polish firm "Pollena" has been founded and the production of shampoos commenced recently.

The plant in Vilnius engaged in the production of household chemicals meets the entire domestic demand and exports its products to the CIS. Presently the production line for aerosol preparations is being reconstructed. The firm plans to turn out ecologically friendly washing materials.

Since the Vilnius plant "Plasta" has problems with supply of raw materials, the management has decided to reduce the production of pipes and films and to venture into the production of other products. The production line for plastics is being expanded in the plant.

Pharmaceutical industry

The range of medicines produced in Lithuania is small. Imported medical preparations account for about 90 per cent of domestic consumption. The local raw materials in the pharmaceutical industry meet around 50 per cent of the requirements and the remainder is imported mainly from the Russian Federation, Ukraine and other members of the CIS. There has been a significant decline in the imports of raw materials.

In value terms, the annual demand for medicines in Lithuania is estimated at about $376 million. The production process in pharmaceutical enterprises does not meet the international standards. The government has created an array of incentives to firms engaged in medicine preparations. This industry branch is being treated as one of the priority subsectors. Presently the draft development programme of the pharmaceutical industry is under preparation. The aim is to provide rational and effective ways to satisfy the growing domestic demand for medical and veterinary preparations.

Integration of pharmaceutical production into the world market is targeted by two stages:

1. The extension of nomenclature of widely used preparations, the increased sale of products in Lithuania, the simultaneous penetration of the market in the CIS and the reorganization of medicinal production according to international standards.

2. The production of new competitive preparations developed mostly in research and development organization of Lithuania with priorities accorded to new medical and veterinary preparations based on local raw materials, such as insulin and heparin preparations, and the production of medicinal herbs and related preparations.

SELECTED ENTERPRISE PROFILES

"Azotas" Chemical Fertilizer Co. Location: Jonava

i) **Sources of raw materials:**
Principal raw materials are monoetandlamin, salt, hydrogen peroxide, formic acid, natural gas, caustic soda, magnesite, vinylacetat, PVA alcohol and aluminium sulphate. Raw material needs are met almost by import, largely from the Russian Federation.

ii) **Production in 1991:**

Major products	Production (Thousand tonnes)
Ammonia	620
Urea	213
Ammonium nitrate	272
Urea formaldehyde resins	100
Methanol	44

iii) **Capacity utilization in 1991:** 66 per cent

iv) **Restructuring needs:**
The performance of the enterprise is affected by high cost of raw materials and marketing difficulties. A large part of the machinery was installed 20 years ago. In 1986 the production line for urea was expanded. The water cleaning plant remains unfinished. The enterprise has no environment-monitoring system. The most immediate needs of rehabilitation relate to technology upgrading, alternate sources of gas supply and rationalization of the logistics of export to the traditional markets.

Kėdainiai Chemical Plant Location: Kėdainiai

i) **Sources of raw materials:**
Around 86 per cent of the raw material needs is met by imports, which comprise largely rock phosphates, sulphur and to some extent aluminium hydroxide. Ammonia, lime and limestone are the principal domestic supplies of raw materials.

ii) **Production in 1991:**

Major products	Production (Thousand tonnes)
Sulphuric acid	368
Powder superphosphate	315
Granulated superphosphate	290
Aluminium fluoride	5
Mono-ammonium phosphate	174
Fertilizer blends (1990)	85

iii) **Capacity utilization in 1991:**
Phosphoric fertilizers: 81 per cent
Granulated superphosphate: 102 per cent
Mono-ammonium phosphate: 60 per cent
Aluminium fluoride: 46 per cent

iv) **Restructuring needs:**
Restructuring initiatives will need to focus on reducing the very high energy intensity of the production process, narrow assortment of fertilizer blends, inefficient packaging, storage and loading and on the high level of obsolescence in the enterprise's capital stock. The machinery for the production of granulated superphosphate is around 25 years old. The phosphoric acid, aluminium fluoride and sulphuric acid segments are equipped with fairly modern machinery. The enterprise needs more advanced control for pollution control. New methods of producing fertilizer blends, and efficient means of packaging are currently envisaged as the immediate restructuring needs.

"Plasta" Plastic Products Plant Location: Vilnius

i) **Sources of raw materials:**
Domestic source of raw materials account for only 3.5 per cent of the total raw materials processed by the enterprise. Major categories of raw materials are polyethylene, polystyrene and pressed powder. Around 70 per cent of raw material imports are from the Russian Federation and 6.5 per cent from the former CMEA. In 1991, 23.5 per cent of raw materials was imported from other countries.

ii) **Production in 1991:**

Major products	Production (Tonnes)
PE film and film products	11,398
PE pipes	3,223
Plastic products	5,112

iii) **Capacity utilization in 1991:** 33 per cent

iv) **Restructuring needs:**
This petrochemical enterprise is equipped with fairly modern extruders, punching presses, injection moulding and machines for the production of PE film. A major production expansion plan, started in 1988, is likely to be completed in 1993. Export demand seems to remain strong. The firm endeavour to establish joint ventures. New technology for reducing the material and energy intensity of production is eagerly sought.

"Lietuvos Buitine Chemija" Chemical Products Plant Location: Vilnius

i) **Sources of raw materials:**
Around 92 per cent of the raw material needs are met by imports. Major raw material imports include, among other things, aluminium, polyethylene and chemical materials. Domestic raw materials are carton, paper, pine-resin and wood cobs.

ii) **Production in 1991:**

Major products	Production
Detergent (Thousand tonnes)	12.7
Oil colours (Thousand tonnes)	1.2

Cleaning wax (Tonnes)	7.0
Shoe polish (Tonnes)	1.6
Car-cleaning materials (Thousand tonnes)	4.9
Shampoo (Million bottles)	6.7
Colophony turpentine (Thousand tonnes)	1.1

iii) **Capacity utilization in 1991:** 57 per cent

iv) **Restructuring needs:**
On an average around one-third of the installed capacity remains idle because of acute scarcity of raw materials. Much of the capital stock is obsolete and the production process is inefficient and polluting. Unsatisfactory packing is a constraint on market penetration. The most immediate need is to modernize the production lines for polymer, metal and aluminium bottles. The enterprise endeavours to set up joint ventures for the production of household chemicals, perfumery, cosmetics and package items. Efforts are under way to ensure regular supply of raw materials from the CIS, Estonia, Georgia and Latvia for the production of the above-mentioned products.

Kaunas Synthetic Fibre Factory Location: *Kaunas*

i) **Sources of raw materials:**
All raw materials are imported from the Russian Federation

ii) **Production:**
The factory produces artificial yarn, synthetics, thread, acidcylene and related products. Around 30 per cent of the production of artificial fibres is sold in the domestic market and 60 per cent exported to the CIS.

iii) **Capacity utilization in 1991:** 47 per cent

iv) **Restructuring needs:**
Unsettled credit due from importers in the Russian Federation is posing a problem to the company's ability to import raw materials. Energy intensity of production is very high. Energy and raw materials costs account for 37 per cent of production costs. The company is heavily indebted to the tune of R5 25 million. The enterprise is eagerly looking for foreign partners to establish production lines for weaving products and cigarette filters. The investment requirement is estimated at $31.5 million. Substantial external assistance is needed for product diversification. Around 80 per cent of the capital has been privatized. Without financial assistance the company is likely to go bankrupt.

Constraints and prospects

The highly import-dependent and export-oriented chemical industry in Lithuania faces severe challenges.[8/] It is being inflicted by the need to pay world market prices for oil and gas feedstocks. Soaring cost of production comes at a time when the world's leading chemical manufacturers find it hard to pass on the burden of rising cost of production to consumers because of weak demand.

According to the Ministry of Economy of the Russian Federation[9/] oil production would continue its downward spiral and the output of natural gas was forecast to be 5 billion cubic metres lower. In the first half of 1992 production of ammonia, sulphuric acid, caustic soda and soda ash fell significantly. Endowed with its vast natural resources the Russian Federation has plenty to offer in the long term. However, domestic production of petrochemicals, particularly

plastics, fibres, pharmaceuticals and specialities, are far short of the market demand of 290 million people in the Russian Federation and other members of the CIS. Western chemical producers seem to focus their attention on such a huge market potential.

The three Baltic States have downstream chemical industries. Together they turned out around $2 billion worth of chemical products in 1990. Chemical enterprises in the Baltic produce mainly plastic products, pharmaceuticals, rubber products, soaps, detergents, perfumes and cosmetics. They also produce bulk chemicals such as nitric and sulphuric inorganic acids, fertilizers, methanol and calcium carbide. Downstream chemical segments remain highly under-developed in the CIS where the chemical industry is largely based on bulk products. When economic recovery commences in the 1990s the new market environment may lead to a significant revival in the demand for consumer plastics, pharmaceuticals, soaps and detergents. These sectors were largely neglected in the past when the world-wide chemical industry was increasingly specializing in niche products.

In order to successfully penetrate the CIS market for niche products, the inefficient chemical industries producing unsophisticated products will need to be significantly restructured. Currently a number of enterprises find themselves in deep recession due to acute shortage of raw materials, ecologically unsound production processes and inefficient use of energy and raw materials. The closure of old plants that are obsolete, inefficient and polluting seems inevitable. A new wave of modernization should add substantial capacity in higher value-added products. Given the total dependency of Lithuanian chemical industry on imports of raw materials largely from the CIS, the success depends crucially on strengthening bilateral trade links with the CIS in order to sufficiently ensure the supply of raw materials.

G. MACHINE BUILDING AND METAL WORKING: THE QUEST FOR FUNDAMENTAL RESTRUCTURING

An overview

The machine building and metal working industries in Lithuania produce a wide range of metal products, agricultural implements, machinery, food processing equipment, machine tools, precision instruments, metal parts for household appliances, shipbuilding and maintenance equipment, bicycles and spare parts for cars. The technical and quality standards met the former USSR and east European standards and only a negligible proportion of production was therefore exported to other countries.

Of the 53 enterprises in this branch, 11 enterprises are engaged in the production of machine tools and 16 enterprises are engaged in the production of agricultural tools and machinery. Metal parts for household appliances are being produced by 7 enterprises. Four enterprises produce tractors, automobiles and bicycles while 3 enterprises are engaged in the production of food processing equipment. The country's machine building and metal working enterprises accounted for 25.7 per cent of industrial output in 1992.

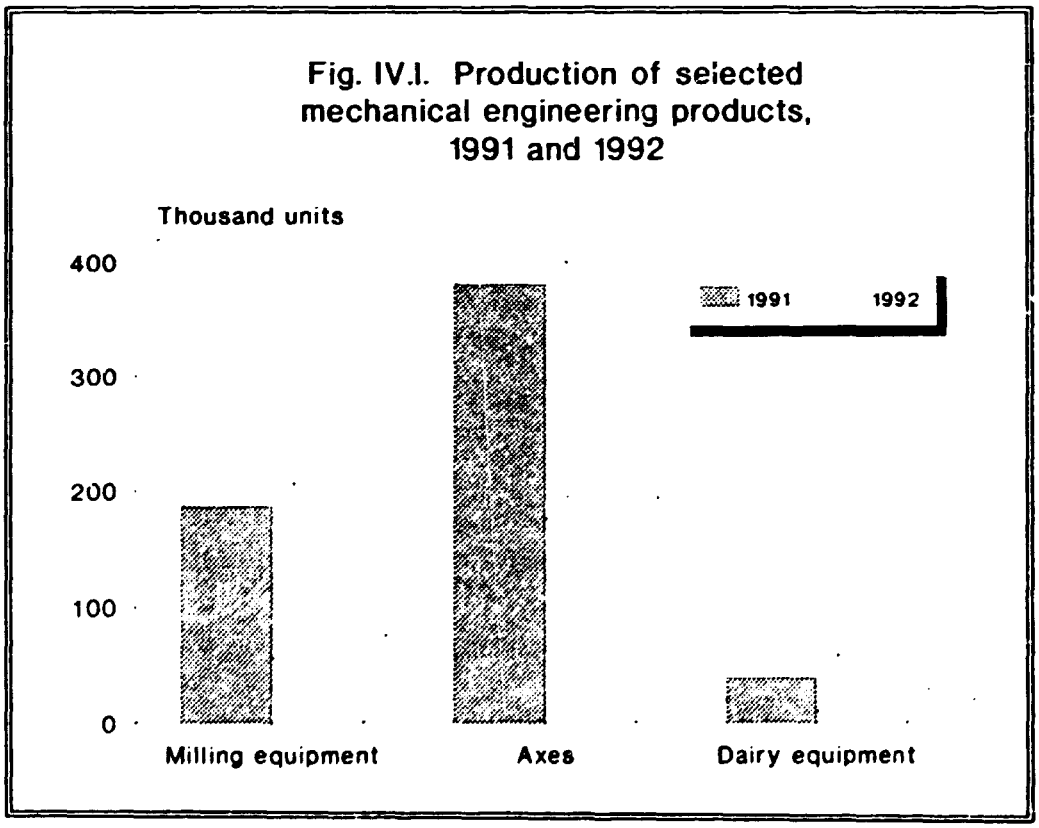
The establishment of one-fourth of the enterprises dates back to the early 1940s. Around 65 per cent of the enterprises came on stream during 1945 and 1965. Only ten per cent of the machine building and metalworking enterprises is equipped with machinery of the 1970s and 1980s vintage. For decades, around two-thirds of the enterprises were totally integrated into the former USSR and were attuned to satisfy this important market. In the wake of the virtual collapse of the system, there is hardly any demand for products produced according to the former USSR specifications. Almost all materials and inputs were imported from the former USSR. The cost of imported inputs rose from 23.6 per cent in 1990 to 54.4 per cent of total cost production in 1992. Failure to reorient production and sales led to the virtual collapse of the industry and adversely affected their ability to pay for electricity, gas and inputs. This in turn made a high proportion of the workforce redundant.

The good performance of mechanical engineering and metal processing in 1990 and 1991 was, *inter alia*, due to significant production increases in low-capacity electric engines for automation as well as "apparatus and automation equipment" (see Table IV.8). The production of electric meters fell back to pre-1975 levels. More traditional products such as metal cutting lathes or the whole range of "agricultural machines for livestock breeding and fodder products" where Lithuania traditionally had a relatively good position in the Baltic region, suffered negative growth rates in the 1980s, and the decline gained further momentum in the late 1980s. The production of machines for cattle breeding and food production declined by 12 per cent during 1985-1990. The production of metal cutting lathes even fell back to 30 per cent of its mid-1990 level. Negative growth rate in the late 1980s was also recorded in the production of heating boilers.

Table IV.8. Production of selected machine tools and machinery equipment, 1970-1991, selected years

	1970	1975	1980	1985	1990	1991
AC electric motors with rotation axis 63-355 mm (Thousand units)	307	510	552	444	415	331
Low capacity electric motors for automation and mechanization (Thousand units)	2,717	3,614	4,555	5,777	7,471	7,772
Electric welding (Thousand units)	73.6	79.7	67.6	71.8	77.9	75.3
Metal cutting machine tools (Thousand units)	22.8	30.1	32.4	28.3	8.6	10.9
Electric meters (Thousand units)	2,822	3,015	3,221	3,301	3,177	2,399
Grass metal production units	1,353	2,181	1,940	2,452	1,599	1,410
Heating boiler, MW	1,048	1,196	1,419	1,035	818	871

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).



SELECTED ENTERPRISE PROFILES

Vilnius "Komunaras" Machine Tool Factory Location: Vilnius

i) **Sources of inputs:**
Principal inputs are metal, electrical items, bearings, hydraulics and chemicals. The enterprise depends heavily on imports. Until 1990, 73 per cent of production inputs originated from the former USSR, while the remainder 27 per cent was imported from other countries.

ii) **Production in 1991:**

Major products	Production
Metal cutting machines (Units)	590
Milling machines (Units)	588
Drilling machines (Units)	2
Special purpose machines (Units)	30
Spare parts (Thousand roubles)	438

iii) **Capacity utilization in 1991:** 76 per cent

iv) **Restructuring needs:**
The enterprise, founded in 1904, was reconstructed in 1959 in order to establish a line for machine tool production. Around 43 per cent of the capital stock is over 20 years old. The cost of modernization is estimated at $4 million. Electricity is the only source of energy used and the energy intensity of the production process is very high. While the enterprise faces problems in the supply of inputs due to frequent violations of trade agreements, the insolvency of regular buyers of the enterprise's products has created severe marketing difficulties. The enterprise envisages to revitalize around 70 per cent of the installed machinery. Efforts are under way to expand the production line for high precision metalworking. Marketing information is pivotal for the firm's current plans to rehabilitate, reorient and diversify its production.

Puntukas Pilot Plant Location: Vilnius

i) **Sources of inputs:**
Metal, secondary cast iron, secondary aluminium and bronze and finishing parts are the major inputs. Domestic sources of inputs are used mainly for packaging purposes. Imports account for 63 per cent of total inputs used, of which over 86 per cent is imported from the CIS.

ii) **Production in 1991:**

Major products	Production
Foundry iron (Tonnes)	261
Non-ferrous casts (Tonnes)	30
Non-standardized technical equipment (Tonnes)	232
Spare parts (Thousand roubles)	295
Electronic thermo-regulators (Units)	1,450

iii) **Capacity utilization in 1991:** 100 per cent

iv) **Restructuring needs:**
The enterprise has a diversified production profile. In addition to machine tool and equipment production, the firm produces packaging materials and labels. The enterprise is reported to have evinced keen interest in entering into joint

ventures with foreign firms in metalworking, poligraphy and packaging production. Metalworking machines are 18 years old, while the casting machines are fairly modern.

"Pergale" Mechanical Products Co. Location: Kaunas

i) **Sources of inputs:**
Ferrous metals, non-ferrous metals, pipes and chemicals are the principal raw materials which were almost entirely met by imports from the former USSR.

ii) **Production in 1991:**

Major products	Production
Pitch control propellers (Units)	28
Transverse thrusters (Units)	67
Retracting thrusters (Units)	42
Gas-tight compressors (Units)	713
Springs (Thousand metres)	332
Water heaters (Units)	10,442
Water converters (Units)	5,674

iii) **Capacity utilization in 1991:** 67 per cent

iv) **Rehabilitation needs:**
The enterprise's capital stock for metal cutting is obsolete. A thorough restructuring of the enterprise is needed in view of the very high energy and material intensity of production. The rejuvenation exercise is likely to orient production towards the domestic market. The enterprise currently seeks foreign collaboration for producing a wide variety of products, ranging from farm equipment to consumer goods.

Machine Tool Plant "Žalgiris" Location: Vilnius

i) **Sources of inputs:**
Principal production inputs are steel and furnace materials. Around 98 per cent of the input needs are met by imports from the CIS.

ii) **Production in 1991:**

Major products	Production
Metalworking machines (Units)	1,201
Special milling machines (Units)	890
Milling machines (Units)	311
Machines with computer control (Units)	70
Mouldings (Units)	2,936

iii) **Capacity utilization in 1991:** 64.2 per cent

iv) **Restructuring needs:**
The very high level of excess capacity is due to the acute scarcity of imported inputs. One of the most urgent rehabilitation needs relates to the polluting foundry segment, particularly the gas cleaning equipment connected to the sewage system in Vilnius. The enterprise endeavours to penetrate the east European market with products produced in collaboration with firms from western countries.

Casting Mechanical Plant Location: Panevėžys

i) **Sources of inputs:**
Domestic sources of raw materials comprising mainly scrap of cast iron, sodium silicate account for around 8 per cent of the raw material needs of the enterprise. Principal imported inputs are pig iron, coke and bentonite. Around 20 per cent of bentonite imports originate from the former CMEA countries and all other imported inputs are sourced from the CIS.

ii) **Production in 1991**

Major products	Production
Castings for stove (Tonnes)	2,779
Shaped castings (Tonnes)	2,174
Valves (Units)	39,700

iii) **Capacity utilization in 1991:** 60 per cent

iv) **Restructuring needs:**
The segments of production that require immediate restructuring and modernization are automatic moulding line and equipment used for melting purposes. Ecological compliance is at stake due to inadequate means for handling hazardous waste materials. The enterprise endeavours to acquire modern technology for rationalizing the production. In the pattern of energy consumption coal accounts for 78.1 per cent of total energy consumption while electricity and fuel account for 19.9 per cent and 1.8 per cent, respectively. Energy intensity per unit of output is very high by international standards. Around 70 per cent of metal cutting and melting equipment is obsolete. Efforts are under way to acquire spare parts from the Danish firm DISA.

"Atrama" Mechanization Products Plant Location: *Kaunas*

i) **Sources of raw materials:**
The company depends heavily on the Russian Federation for raw material imports.

ii) **Production:**
The principal products are boilers, regulators and water meters. The domestic demand for the products remains strong. The production line for transport equipment remains idle for want of aluminium sheets.

iii) **Capacity utilization in 1991:** 40 per cent

iv) **Restructuring needs:**
The company is in a financial crisis with debts amounting to Rb 35 million. The immediate need is to restore financial flows. Production equipment is fairly good, but the company lacks electronic and automation capabilities. The company needs market information, management advice and institutional support, although it is generally well managed.

Constraints and prospects

Lithuania's machine building and metalworking industry is in deep recession due to the virtual collapse of the industry's one-sided orientation in production and trade with the former USSR. The crisis is exacerbated by the lack of domestic demand for products in the wake of industrial deceleration. A re-emergence of the machine building and metalworking industry as a supporting industry hinges largely on the evolving pattern of industrial development in the foreseeable future.

Rapid industrial restructuring will significantly increase the technological gap between emerging industries and the existing supporting industries that produce tools and equipment. Genuine concern has arisen about the relevance of the traditional production pattern of the machine tool industry.

Lithuania was known for its relative efficiency in the production of agricultural machinery and farm equipment. These are more suitable to large-scale farming. The mode of agricultural production is likely to undergo significant changes in the face of privatization of agricultural land and a series of land reforms, leading to the emergence of small-scale farming. This calls for a fundamental reorientation of the segment that hitherto turned out products for large-scale farming. Lithuania will need to capitalize on its rich tradition, experience and skill in the production of agricultural machinery and regenerate new production structures in order to cope with the changing pattern of agricultural production.

There seems to be a quest for reorienting production and sale with the help of foreign partners. Enterprises having contacts with hard currency markets seem to perform relatively better even during the current phase of deterioration. These enterprises include Alytus Refrigerator Plant "Snaigė", Vilnius Drill Plant "Grąžtai", Mažeikiai Compressor Plant "Oruva" and a few other plants.

The following joint venture initiatives merit mention:

- Kaunas Enterprise "Inkaras" jointly with two Italian firms using credit from the Government of Italy to produce spade work for single-use syringes and transfusion systems.
- Panevėžys Enterprise "Aurida" has set up a working complex for the production of compressors licensed by the firm "Knoor Bremze". The firm needs $8 million for installing one production line for the manufacture of crankshafts. Negotiations with the firm "Knoor Bremze" are under way.
- Mažeikiai Compressor Plant "Oruva" jointly with the German firm KHD is preparing a proposal for small-capacity manufacture of diesel engines in Lithuania.

The following joint ventures have been established:

- Lithuanian-United States joint enterprise "Brown Sharpe" and Precicika for new coordination measurement machines and measurement systems.
- Lithuanian (Refrigerator Plant Snaigė) and Canadian joint enterprise for the manufacture of decorative thermal insulating slabs.
- Lithuanian (Enterprise "Atrama") and the Russian Federation (Čerepovec metallurgy Enterprise) joint enterprise for the manufacture of boilers for household heating.

Following joint ventures are planned to be established:

- Lithuanian (Ukmergė "Vienybė") and Austrian (Hoerbiger Valve Manufacture) joint enterprise for the manufacture of compressor valves.
- Lithuanian (Rokiškis Agricultural Machinery Plant) and Germany, ("Robour") joint enterprise for the manufacture of medium-cargo automobiles (carrying capacity of 3 tonnes).

The potential new orientation of the industry has to stem from foreign collaboration, which could facilitate the access both to advanced technology and to external markets. However, this is only a necessary but not a sufficient condition for success in this sphere of industrial production. The backward integration of manufacturing into selected fields of capital goods production such as machine tools and equipment presents itself a logical step after the regeneration of a range of consumer goods industries.

H. ELECTRONICS AND ELECTRICAL APPLIANCES: THE CRUCIAL ROLE OF JOINT VENTURES

An overview

The electronics and electrical appliances industry in Lithuania was fully affiliated to different Ministries in Moscow. Most of what was considered part of the defence industry was however, engaged in the production of components, sub-assemblies and products for both military and civilian use. Although those industries were reporting to the Military Industrial Commission of the former USSR Council of Ministers, much of the production was indeed attuned to civilian end uses. In the 1980s the share of production for civilian use in total production rose significantly.[10/]

The Lithuanian statistical system does not report production data separately for electronics and electrical appliances. Data pertaining to selected products are reported under household commodities. A few products are also listed under machine building and metalworking.

The relatively well developed Lithuanian electronics industry, by the former USSR standards, has a low level of technology by international standards. As the domestic market could absorb only 20 per cent of the industry's output, around 74 per cent was hitherto exported to the former USSR and about 6 per cent to hard currency markets.

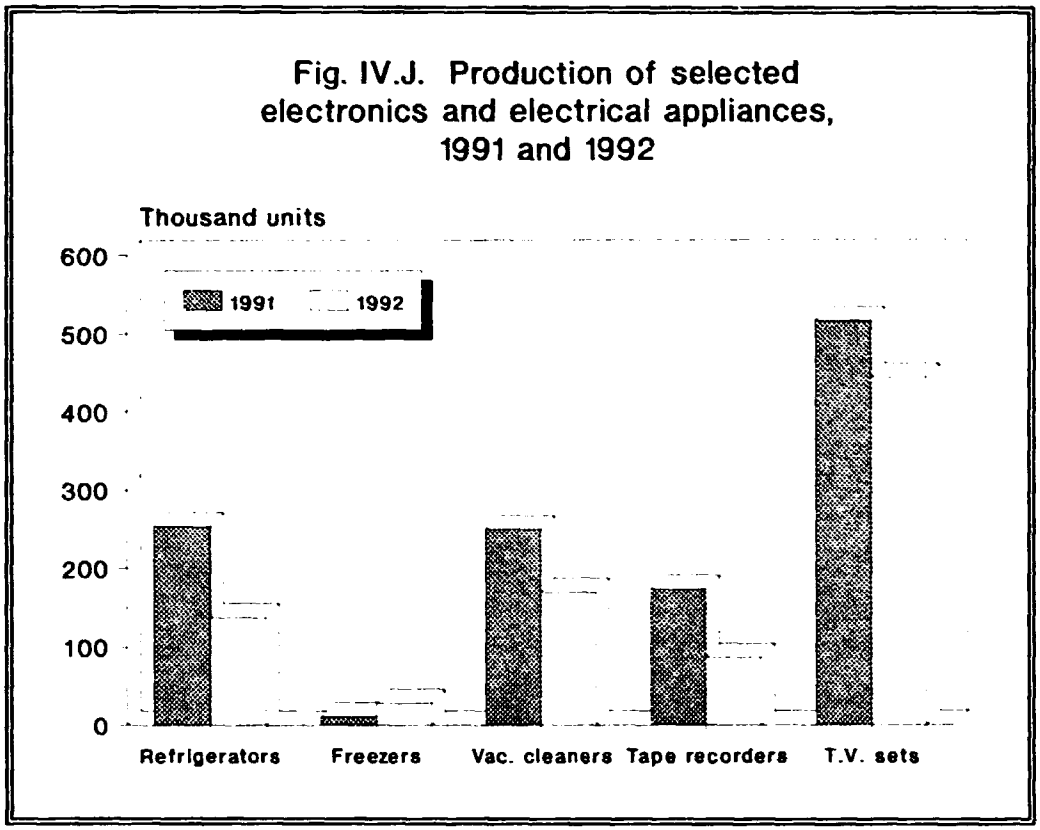
Currently the industry comprises 41 State enterprises, 1 State/joint stock company, 3 pure joint stock companies, 27 major manufacturing enterprises, 12 organizations engaged in applied research and development and 6 private commercial ventures. Most of them are large-scale enterprises geared to mass production of standardized products. The range of products turned out by the industry includes audio visual equipment, especially television sets and tuners (18 per cent), office information systems and information related equipment (28 per cent), electronic measuring devices, especially for medical purposes (10 per cent), household equipment and devices (6.5 per cent), manufacture and assembly of components (33 per cent) and general electrical/electronic products, especially electric engines (1.7 per cent).

The physical volume of output, presented in Table IV.9, shows a dramatic increase in the production of television sets until 1985, and drastic fall thereafter. The production of tape recorders reached its peak in 1975. Its 1991 production level fell below the level of production achieved in 1970.

Table IV.9. Production of selected electronics and electrical appliances, 1970-1991, selected years

	1970	1975	1980	1985	1990	1991
Television sets (Thousand units)	192.6	329.1	437.9	609.5	558.2	516.2
Of which:						
Colour	-	-	42.7	134.9	364.8	361.4
Portable	-	40.1	97.4	165.3	245.6	232.7
Tape recorders (Thousand units)	200.7	378.9	238.2	237.9	192.7	154.8
Of which: cassette recorders	-	92.6	84.5	127.9	81.1	67.9
Refrigerators and freezers (Thousand units)	85.8	222.8	296.4	310.3	263.4	264.6
Of which: refrigerators	85.8	222.8	296.4	310.3	263.4	253.5
Of which: refrigerators with two-compartment	-	-	-	-	104.2	134.3
Vacuum cleaners (Thousand units)	166.0	36.4	110.8	146.1	230.6	249.7

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).



The production of refrigerators and freezers rose from 85 million in 1970 to 310 million in 1985. By 1991 this manufacturing segment could not turn out the volume of output achieved in 1980. The industry's relatively poor performance in recent years was due to a number of factors. For decades, the industry depended on the former USSR for raw materials, export markets and technology. This has made the industry extremely vulnerable to stoppages and irregularities in supplies and most recently to a significant increase in the prices of imported inputs. The industry was particularly hard hit in the first half of 1992 when prices of imported inputs more than doubled. The production of enterprises using imported copper wires fell by 70 per cent in the wake of soaring copper wire prices. Rising prices of imported inputs resulted in a 20 per cent fall in the production of television sets in the first half of 1992.

SELECTED ENTERPRISE PROFILES

Banga Television Technique Plant Location: Kaunas

i) **Sources of inputs**

Banga was the only company in the former USSR which was consistently engaged in television tuner design and production and in the development of new components. A substantial portion of production inputs was met by imports from former USSR under barter arrangements. Banga now produces more than 40 varieties of components. The creation of Banga's Research and Development Institute has enabled the enterprise to develop varieties of television tuners, ranging from valves, transistors, electronic tuners which seem to correspond to international standards.

ii) **Production in 1991:**

Major products	Production
Colour television sets (Thousand units)	78,000
Black and white television sets (Thousand units)	155,000
Television tuners (Million pieces)	7

Television tuners account for 60 per cent of total production. The company has virtual monopoly in the production of portable television sets in the Baltic region. A substantial proportion of the output is exported to the Russian Federation, the CIS and other Baltic States. The trade name is well known in eastern and central Europe. The enterprise hinges on the price competitiveness of products to penetrate new markets. In 1991 it used 73 per cent of its installed capacity.

iii) **Restructuring needs:**
Banga has embarked on a programme to acquire the latest technology and design of new products and assimilation of new technologies. In the sphere of modernization and upgrading competitive modes, the enterprise has already developed a new production line for television sets with varying sizes featuring the latest state of the art design, including remote control, 39 stored programmes, a voltage synthesizer, and a switch mode power supply unit. In 1992 Banga planned to introduce control information displays on its television screen, with the facility to receive signals from television satellites with teletext and frequency synthesis. Banga has established links with Philips and subcontracting arrangement with west European partners. The firm is already using Siemens technology for products destined to western Europe. By mid-1992 only 5 per cent of the capital was privatized.

Venta State Micro Electronic Enterprise Location: Vilnius

i) **Sources of inputs:**
Principal raw materials and components are silicon, chemicals used for diffusion, plastic coverings and various semi-manufactured items and components. The enterprise has barter arrangements with suppliers from the Russian Federation. A small proportion of input needs is met by import from western countries.

ii) **Production:**
The enterprise produces high-technology products including mainly loudspeakers and electric keyboards. Its main line is the mass production of integrated silicon circuits (micro chips), capable of turning out 100 different types of 4-inch circuits. Optimal utilization of the enterprise's installed capacity could turn out 8 million 4-inch circuits annually. The enterprise has diversified its product mix in recent years to include, *inter alia*, electronic musical instruments.

iii) **Restructuring needs**
In order to enhance the quality of products to international standards there is a need to modernize the production segments with high level of design automation, sophisticated computer technology, robots, etc. The most immediate rehabilitation exercise will need to be focused on environmental problems. The use of various chemicals in the production process pollutes the entire production area. The enterprise has accumulated various waste materials, such as mercury which are stored outdoors at the enterprise's premises. By mid-1992 only 1.2 per cent of the capital could be sold to employees within the privatization programme. The company is placing greater emphasis on the production of new products.

Sigma Computer Plant Location: Vilnius

i) **Sources of inputs:**
Production inputs include ferrous and non-ferrous metals, chemicals and semi-finished electronic parts. Almost all production inputs are imported from the CIS and Germany.

ii) **Production in 1991:**
The enterprise has a diversified production profile, including machine and assembly workshops, maintenance and power engineering, civil engineering, transport and casting capabilities. The installed capacity for the production of computers (SM 1600 and 1700) currently stands at 600 units per year. In 1991 it turned out only 141 units.

iii) **Restructuring needs:**
The enterprise has embarked on a new course of rationalization and modernization of the computer segment. At present it is developing a prototype of personal computer based on the Intel 8088 microprocessor similar to the IBM XT personal computer. Recently it entered into a joint venture with a United States enterprise with 25 per cent of the capital being contributed by Sigma. The purpose of the joint venture is to combine United States hardware with software developed by the Lithuanian enterprise. The enterprise's concern for ecological compliance is relatively high. It has installed appropriate equipment for waste water treatment. By mid-1992, only 2 per cent of the capital could be sold to its employees.

Alma State Enterprise Location: Alytus

i) **Sources of inputs:**
Copper, bronze, steel and semi-finished products such as resistors and transistors are the principal production inputs. With the exception of printed circuit boards, which are purchased from the enterprise "Vilma" in Vilnius, all other production inputs are imported from the CIS.

ii) **Production in 1991:**

Major products	Production (Units)
Tape recorders	17,000
Magnetic heads	140,000
Tape drive components	60,000

iii) **Restructuring needs:**
The enterprise was operating at optimal capacity in 1991. But its outdated capital stock, purchased from the former USSR and former German Democratic Republic, needs to be overhauled. The tool making shop, quality control section, and punching equipment were installed in 1988. Efforts are under way to establish a production line for manufacturing car radios. The enterprise does not seem to face any environmental problems. It endeavours to sell 30 per cent of the capital to the employees.

Mažeikiai State Electrical Engineering Plant Location: Mažeikiai

i) **Sources of inputs:**
The enterprise depends heavily on the CIS for the supply of its key raw materials such as steel, copper, aluminium and chemicals.

ii) **Production:**
In 1991 the factory had a turnover of Rb 76,634,000 from sales primarily to Latvia and the former USSR. Around 40 per cent of the components was sold to Riga Washing Machine Factory and 53 per cent to producers of household equipment in the former USSR. The remainder was sold in the domestic market. Components for household appliances are produced in the pressing and moulding segment. After mechanical treatment and copper winding, they are

assembled together in the galvanizing segment of production. In 1991 only around 15 per cent of the installed capacity was utilized due to the acute shortage of imported inputs.

iii) **Restructuring needs:**
In 1992 a new line of winding equipment was purchased from Germany. There is an urgent need to find alternate sources of input supplies, or to re-establish the traditional trade levels within the framework of counter-trade arrangements. The enterprise seems to comply with the minimum environmental requirements with chemicals used in the production process being purified and recycled. However, air pollution emanating from inefficient combustion in the boiler rooms is causing environmental problems. Heavy metal waste products are used for recycling in another factory. By mid-1992 only 1.5 per cent of the capital could be sold to its employees within the framework of the privatization programme.

Constraints and prospects

The crucial role of joint ventures with major players in the world electronics and electrical appliance production is being increasingly recognized in Lithuania. Hitherto the industry had an assured market within the division of labour among the former USSR and the CMEA for its uncompetitive products. The quality of its products is not up to western or East Asian standards. Many enterprises lack knowledge and experience of western markets and most enterprises require restructuring. It is being contended that the manufacture of television sets and tuners, consumer and household electronic and electrical goods have good market prospects. The sophistication of the industry will, however, need to be significantly enhanced. Probably joint ventures could be effective means of strengthening the industry's technological base.

Recent initiatives of the Lithuanian State Plant Banga to manufacture television tuners with the assistance of the world's leading transnational corporations typifies the industry's need to interact with western firms.[11/] The aim of the project is to enable Banga to penetrate western markets with sophisticated technical products. The project was a follow-up to an analysis of tuner manufacturing in well-known tuner producers such as Grundig, Philips and Telefunken in western Europe, and Daewoo, Gold Star and Samsung in East Asia, as well as Banga's own experience. The product is hyperband tuner kS-H-62, developed by Banga with the assistance of Siemens. The plan aims at turning out 3 million tuners per year, using imported components from western Europe and raw materials from the CIS. Hard currency required for the purchase of additional equipment is estimated at $8.3 million. Philips is reported to have agreed to supply equipment and render some indirect help for management, marketing, etc. The leading creditors for this project are likely to be Philips and Siemens. The implementation of this project is likely to improve the motivation for employees and management as well as achieve a high degree of ecological improvements.

Lithuania's relatively cheap and skilled labour may emerge as an advantage if major players of the industry in western Europe look for locations in the Baltic region. The country's traditional role in the industry within the framework of the division of labour in the former USSR could be revitalized with significant infusion of modern technology and upgrading of human skills. The Russian Federation and other countries of the CIS could re-emerge as potential external markets for a wide range of electronics and electrical appliances. The revitalization of the industry in Lithuania would only benefit from the regeneration of demand for products in the region. In order to successfully penetrate the external markets with sophisticated, high precision and high definition products, the interaction with major players of the industry in the world is crucial.

I. FUEL AND POWER: TOWARDS ENERGY CONSERVATION

Energy balance

Almost all sources of primary energy are imported despite the country's capability to produce twice as much electrical energy as it requires to meet electrical energy requirements. Imported fuel, natural gas, oil fuel, coal and nuclear fuel account for over 96 per cent of all fuel consumption. The imports of gas and coal originate from Siberia, heavy fuel oil from Belarus and coal from Ukraine. Coal is also delivered from Poland through Belarus.

The Mažeikiai refinery, the only refinery in the Baltics, is the largest industrial complex in Lithuania producing a wide range of refined oil products, mainly heavy fuel oil, diesel fuel and petrol. About 50 per cent of the refined products are exported, mainly to the CIS and to other Baltic States.

Lithuania is the largest electricity producer in the Baltic region. When two production segments with a capacity of 1,500 MW each came on stream at the nuclear power plant in Ignalina in 1985 total electricity generation rose to 21 TWh, compared with 11.7 TWh in 1980. Electricity generation in 1991 stood at 29.3 TWh. In 1991 Lithuania exported 16.4 TWh and 3.7 TWh of electricity (see Table IV.10). The loss of electricity in public network amounted to 1.7 TWh in 1991. Electricity was exported largely to Belarus and around 20 per cent to Kaliningrad region.

Table IV.10. Electricity balance, 1970-1991, selected years
(Million kilowatt-hours)

	1970	1975	1980	1985	1990	1991
Total electricity generation	7,362.9	8,993.2	11,665.5	20,962.4	28,405.2	29,363.3
Electricity imports	1,414.1	2,605.7	4,329.2	4,992.6	4,538.5	3,724.8
Electricity consumption	5,186.4	8,476.3	11,558.7	14,741.6	16,430.4	16,613.6
Industry	2,461.9	4,161.5	4,843.8	7,203.8	8,032.5	7,607.0
Agriculture	663.3	1,345.8	2,399.0	3,064.2	3,673.7	3,630.9
Construction	75.3	101.6	208.9	258.2	257.5	206.9
Transport	107.0	170.3	232.4	254.0	247.1	252.8
Other branches	811.2	1,305.6	1,848.2	2,376.9	2,667.7	3,201.6
Loss in public network	639.6	907.6	1,370.8	1,584.5	1,552.0	1,714.4
Electricity exports	3,590.6	3,122.6	4,436.0	11,213.4	16,513.3	16,474.5

Source: *Lithuania's Statistical Yearbook 1991* (Vilnius 1992).

Lithuania currently faces an energy crisis due to the acute shortage of imported primary energy sources. The normal operation of thermal plants requires 3.7 million tonnes of imported crude oil. The primary objective of Lithuania's energy policy is to reduce the country's dependence on oil-based products (energy and fuels derived from imported oil). The exploitation of oil wells has already commenced in Lithuania.

Energy consumption pattern

The industrial sector is the largest consumer of energy, accounting for 47.6 per cent of the total energy consumption in the country. Industry consumes 48 per cent of total electricity generated and 54.2 per cent of thermal energy produced in Lithuania. Industry's share in total final consumption of energy is quite high in Lithuania compared with around 20-40 per cent of industry's share in energy consumption in developed countries. The relatively high share of industry in total energy consumption in Lithuania is explained by the high energy intensity of

Fig. IV.K. Production of selected fuels, 1991 and 1992

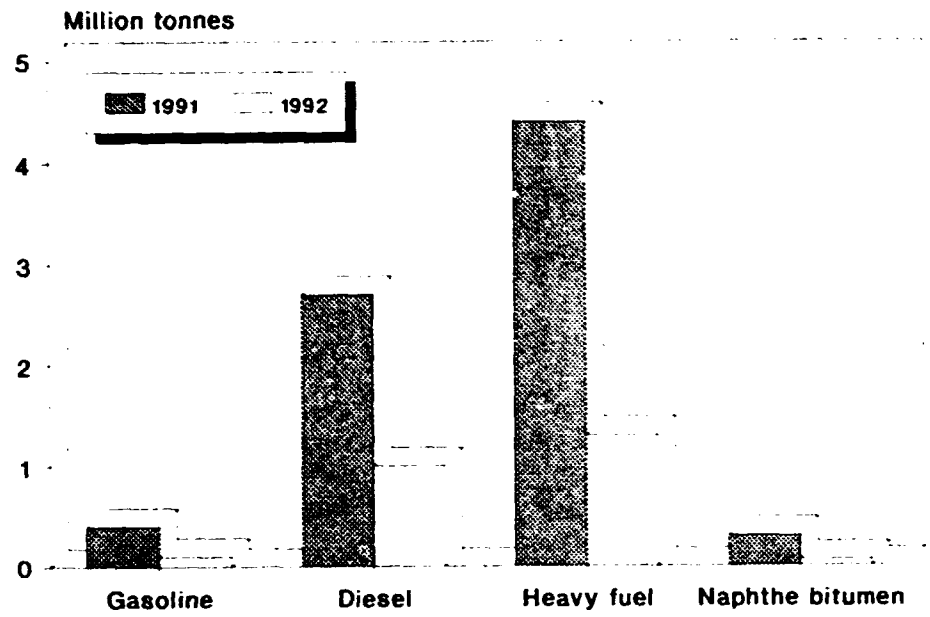


Fig. IV.L. Production of energy by source, 1989 (Percentage)

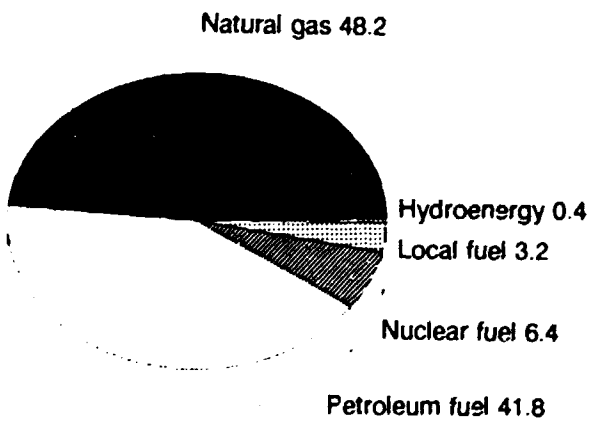


Fig. IV.M. Pattern of energy consumption by sector, 1989 (Percentage)

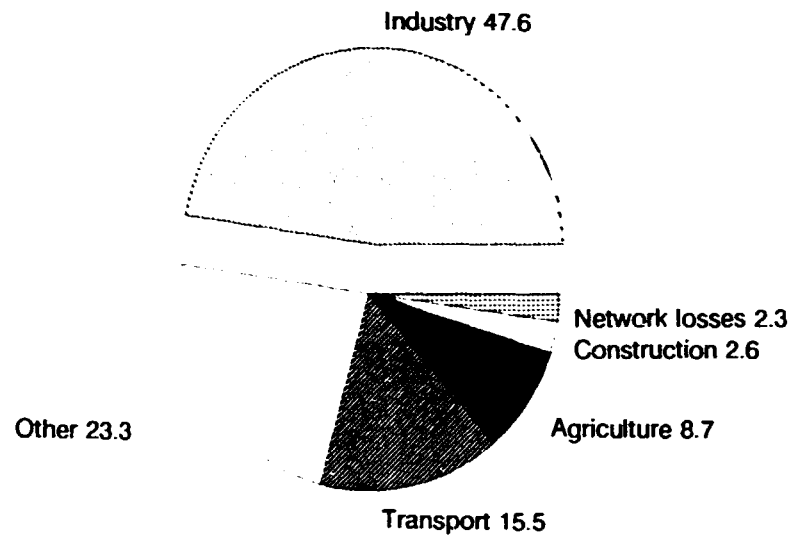
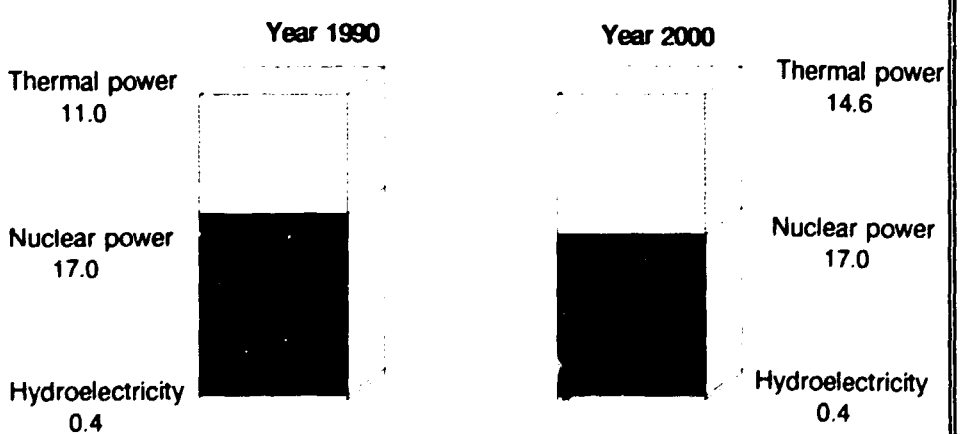


Fig. IV.N. Electricity production forecast, 1990 and 2000 (Billion kwh)



production. Although the structure of the industrial sector in Lithuania is not dominated by heavy industries, the country produces large amounts of cement and mineral fertilizers using energy-intensive technologies. According to rough estimates, chemical, oil and construction industries consume around one-half of the electricity used by all industries. The consumption of electricity rose by five times and that of heat and fuel by 4.5 times during the last 25 years.
According to official estimates, around 5 million tonnes of coal equivalent of energy is being used inefficiently in Lithuania. If the national energy conservation programme, prepared in 1991, is fully implemented Lithuania will be able to save 20-25 per cent of various fuels. In addition to a substantial reduction in energy consumption, the programme envisages a high degree of ecological compliance through energy conservation. This is likely to be achieved by savings in existing and newly constructed buildings through the restructuring of the building materials industry, energy accounting and control, and increased efficiency in installations and technologies. The programme also envisages the development of alternative sources of energy.

Energy prospects

Due to limited alternative energy sources, nuclear energy is likely to remain the major source of energy in Lithuania in the next 10-15 years. In its endeavour to develop alternative sources of energy Lithuania could explore geothermal energy sources in the western part of the country which could generate some 520,000 MW of electricity per year.

A radical restructuring of the industrial sector towards greater use of efficient production technologies could continue to reduce energy consumption. Thus the future energy consumption will be significantly influenced by the pace of industrial restructuring and also by energy prices. A gradual increase in energy prices would create a need for industry to rationalize the consumption of energy in order to avoid a significant increase in the cost of production. In a recent study on energy consumption in Lithuania[12/] an unchanged energy elasticity as well as a decreasing energy elasticity to GDP growth from 1995 onwards has been estimated.

Substantial quantity of energy is being wasted because of poor maintenance, warn-out equipment and inefficient management. According to rough estimates eastern and central European countries waste about one-third of their energy consumption amounting to 250 million tonnes of oil equivalent per year.[13/] With a view to assisting the countries of this region in energy-saving programmes the United Nations has set up a scheme entitled Energy Efficiency 2000. The scheme makes western energy technology available to these countries. Lithuania could endeavour to make optimal use of such assistance in order to achieve a high degree of energy conservation and efficiency in the pattern of energy use.

Lithuania is likely to depend heavily on nuclear energy. Since the nuclear plant in Ignalina uses the type of technology used in the Chernobyl nuclear plant, the reactor will need to be upgraded to modern standards of safety and efficiency. Lithuania will need to benefit from both bilateral and multilateral assistance in upgrading its nuclear power plant and gain public confidence about the safety standards of nuclear energy as an important source of electricity generation. Attempts in this respect have already been made in cooperation with experts from Sweden.

NOTES TO CHAPTER IV

1/ This section draws on Per H. Ståhl, *Forest Sector Development Programme, Republic of Lithuania, Phase I: Base Surveys and Identification of Development Options*, Interforest AB, (17 September 1992).

2/ This section draws on information presented in the Phase I of Base Surveys conducted within the framework of the Forest Sector Development Programme by Peavo Ulmanen of Interforest AB on behalf of the Ministry of Forestry and Ministry of Economics (September 1992).

3/ The study was conducted by the International Institute for Applied Systems Analysis on future forest resources in Europe. For details, see Anders Asp, "Future Fibre Deficit in Europe", *Pulp and Paper Magazine* (October 1990).

4/ For an analytical survey of the global use of waste paper for paper and board see P. Sutton, "Waste paper for paper and board", UNIDO *Industry and Development Global Report, 1991/92* (Vienna 1991).

5/ For details, see Steen, "Modernization of the world's most northerly cement plant at Kjopsvik, Norway", *World Cement* (November 1991), pp. 3-7.

6/ See *World Cement* (March 1991) p. 24.

7/ United Nations Conference on Environment and Development, *Lithuania: National Report* (1992), p. 39.

8/ For an analytical exposition of the problems and prospects of the chemical industry in the CIS and Baltic republics, see Jay K. Mitchell, "Chemical industry of the former USSR" *Chemical and Engineering News* (13 April 1992), pp. 46-66.

9/ See *Chemical Week* (9 September 1991), p. 26.

10/ See Lithuanian Department of Statistics, *Lithuania, Latvia, Estonia Statistical abstract* (Vilnius 1991), p. 26.

11/ *Banga, Project for the Production of TV Hyperband Tuners* (September 1991).

12/ See Carsten Oder and others, "Analysis of the Lithuanian final energy consumption with respect to economic changes", *Energy* (1992) vol. 17, No. 12, pp. 1179-1188.

13/ See *Financial Times*, "Energy Efficiency", (16 October 1991).

ANNEX A
STATISTICAL TABLES

Annex A-1. Volume of output, selected food products, 1991 and 1992

Product	Unit of measure	1991	1992	Production in 1992 as percentage of production in 1991
Fish products	Tonnes	208,882	117,695	56.3
Of which:				
Animal feed (proteins)	Tonnes	23,882	11,990	50.3
Sausages	Tonnes	67,962	57,751	84.9
Fats	Tonnes	17,449	12,857	73.6
Processed meat	Tonnes	40,861	25,339	62.0
Butter	Tonnes	67,200	49,189	73.1
Milk products	Tonnes	722,907	400,462	55.3
Of which:				
Sour milk	Tonnes	50,841	31,687	62.3
Cream (milk)	Tonnes	3,874	725	18.7
Sour milk cream	Tonnes	37,071	21,012	56.6
Cottage cheese	Tonnes	12,451	6,410	51.4
Ice cream	Tonnes	15,276	7,573	49.5
Preserved food	Thousand cans	326,721	207,641	63.5
Fruit juices	Thousand cans	62,895	35,484	56.4
Sugar	Tonnes	150,510	85,479	56.7
Flour	Tonnes	355,924	318,739	89.5
Oil in bottles	Tonnes	3,148	1,304	41.4
Sparkling wine	Thousand bottles	8,586	7,884	91.8
Beer	Thousand decalitres	14,005	11,910	85.0
Non-alcoholic beer	Thousand decalitres	655	314	47.9
Mineral water	Thousand decalitres	39,979	20,311	50.8
Starch	Tonnes	2,853	2,663	93.3
Food concentrates	Tonnes	3,952	1,902	48.1
Enzymes	Tonnes	174	145	83.3
Dry animal feed	Tonnes	20,720	17,388	83.9

Source: Department of Statistics.

Annex A-2. Volume of output, selected textiles, clothing and leather products, 1991 and 1992

Product	Units of measure	1991	1992	Production in 1992 as percentage of production in 1991
Flax fibre	Tonnes	11,610	9,636	82.9
Of which:				
Long staple	Tonnes	3,349	3,300	98.5
Cotton	Tonnes	28,373	23,972	84.4
Fabrics	Thousand square metres	203,387	166,329	81.6
Woollen fabrics	Thousand metres	96,900	79,723	82.0
Cotton fabrics	Thousand square metres	106,139	88,854	83.7
Handkerchiefs	Thousand units	469	221	47.1
Cotton wool	Tonnes	891	434	48.7
Linen fibres	Tonnes	4,667	4,235	90.7
Linen fabrics	Thousand metres	20,093	17,571	87.4
Of which:				
Table cloth fabrics	Thousand metres	1,100	1,074	97.6
Towels	Thousand metres	1,525	1,969	129.1
Bed clothes	Thousand metres	10,243	8,159	79.6
Wool	Tonnes	10,916	7,671	70.2
Wool fabrics	Thousand metres	14,008	11,073	79.0
Synthetic yarn	Tonnes	3,506	3,139	89.5
Silk fabrics	Thousand metres	30,927	22,259	71.9
Curtains	Thousand metres	2,097	3,227	153.8
Carpets	Thousand square metres	2,732	2,615	95.7
Men's socks	Thousand pairs	37,146	28,593	76.9
Children's socks/pants	Thousand pairs	8,063	6,393	79.2
Women's socks/pants	Thousand pairs	17,048	13,669	80.1
Knitwear yarn products	Thousand units	53,677	35,709	66.5
Of which:				
Upper knitwear	Thousand units	17,176	13,513	78.6
Gloves	Thousand pairs	11,993	6,960	58.0
Pressed wool footwear	Thousand pairs	250	186	74.4
Wearing apparel	Thousand units	651	542	83.2
Sheets	Thousand units	597	386	64.6
Pillow slips	Thousand units	326	161	49.3
Children's bed linen	Thousand sets	59	45	76.2
Woollen blankets	Thousand units	238	171	71.8
Uniforms (work)	Thousand units	27	-	0.0
Overalls	Thousand units	492	198	40.2
Leather goods	Thousand square metres	50,230	22,797	45.3
Soft leather	Thousand square metres	17,235	10,484	60.8
Leather small goods	Thousand units	138	55	39.8
School bags	Thousand units	271	139	51.2
Handbags	Thousand units	979	929	94.8
Synthetic fur coats for children	Units	10,400	6,900	66.3
Footwear	Thousand pairs	11,154	7,693	68.9
Of which:				
Insulated footwear	Thousand pairs	1,565	1,127	72.0

Source: Department of Statistics.

Annex A-3. Volume of output, selected wood, pulp and paper products, 1991 and 1992

Product	Units of measure	1991	1992	Production in 1992 as percentage of production in 1991
Pre-fabricated wooden houses	Units	564	242	42.9
Window and door blocks	Thousand square metres	975.5	508.7	52.1
Of which:				
Doors	Thousand square metres	513.3	256.0	49.8
Parquet tiles	Thousand square metres	244.5	70.7	28.9
Wood particles board	Thousand unified square metres	27,775.8	20,494.0	73.7
Of which:				
Hard top	Thousand unified square metres	5,011.0	2,844.9	56.7
Furniture				
Of which:				
Tables	Units	286,608	208,199	72.6
Dining tables	Units	75,842	59,299	78.1
Chairs	Units	632,344	355,498	56.2
Stools	Units	397,046	200,679	50.5
Wardrobes, cupboards	Units	128,006	113,077	88.3
Cupboards, bookcases	Units	68,874	70,464	102.3
Kitchen furniture	Units	225,281	181,060	80.3
Sofas	Units	28,186	9,343	33.1
Armchairs	Units	11,590	9,755	84.1
Bed/sofas	Units	74,715	60,673	81.2
Beds	Units	53 ?24	36,329	68.2
Book-shelves	Units	6; 11	62,530	92.7
Mattresses	Units	64	49	76.5
Furniture sets	Sets	144,700	103,850	71.7
Matches	Thousand boxes	198.4	206.8	104.2
Pulp	Tonnes	32,837	19,760	60.1
Paper	Tonnes	101,170	34,900	34.4
Of which:				
Paper for notebooks	Tonnes	7,307	96	1.3
Paper for school notebooks	Thousand units	65,017	15,892	24.4
Cardboard	Tonnes	113,257	49,547	43.7

Source: Department of Statistics.

Annex A-4. Volume of output, selected chemicals, 1991 and 1992

Product	Units of measure	1991	1992	Production in 1992 as percentage of production in 1991
Synthetic ammonia	Thousand tonnes	619.6	334.0	53.9
Sulphuric acid	Thousand tonnes	368.3	141.0	38.2
Mineral fertilizers	Thousand tonnes	469.0	284.3	60.6
Of which:				
Nitrogen fertilizers	Thousand tonnes	318.9	232.8	73.0
Phosphate fertilizers	Thousand tonnes	149.2	51.5	34.5
Urea	Thousand tonnes	271.8	228.4	84.0
Ammonium nitrate	Thousand tonnes	471.3	340.8	72.3
Ammoniac water	Thousand tonnes	31.7	0.0	0.0
Superphosphate	Thousand tonnes	315.0	111.0	35.2
Amonium phosphate	Thousand tonnes	181.0	71.0	39.2
Plastic resins	Tonnes	143,170	76,419	53.3
Of which:				
Urea resin	Tonnes	127,942	74,524	58.2
Insulation tape	Tonnes	161	99	61.4
Polymer film	Tonnes	11,418	4,424	38.7
Thermo-plastic pipes and fittings	Tonnes	4,478	2,331	52.0
Polystyrol	Thousand cubic metres	64.6	8.2	12.6
Synthetic fibres and yarn	Tonnes	6,137	4,231	68.9
Paint and varnishes	Tonnes	2,102	845	40.1
Tyres, retreaded	Thousand units	159.0	66.3	41.6
Aspirins	Thousand vials	252,462	80,696	31.9
Vitamins	Thousand packages	45,542	29,877	65.6
Feed yeasts	Tonnes	7,453	4,035	54.1
Ferments	Unified tonnes	788.7	267.7	33.9

Source: Department of Statistics.

Annex A-5. Volume of output, selected non-metallic mineral products, 1991 and 1992

Product	Unit of measure	1991	1992	Production in 1992 as percentage of production in 1991
Cement	Thousand tonnes	3,125.5	1,485.0	47.5
Plaster	Thousand tonnes	145.6	112.7	77.4
Chalk	Thousand tonnes	425.1	154.9	36.4
Wall materials	Unified units	1,326.2	977.2	73.6
Of which:				
Bricks	Unified units	1,084.5	799.1	73.6
Wall blocks	Unified units	84.7	66.2	78.1
Pre-fabricated reinforced concrete parts	Thousand cubic metres	1,863.1	1,162.4	62.3
Of which:				
Panels	Thousand square metres	938.6	501.0	53.3
Concrete parts	Thousand cubic metres	120.3	78.0	64.8
Asbestos-cement sheets	Million unified units	113.7	76.6	67.3
Asbestos-cement pipes and fittings	Unified kilometres	1,885	670	35.5
Ceramic tiles for floor	Thousand square metres	610.3	235.6	38.6
Ceramic tiles for facade	Thousand square metres	92.2	78.3	84.9
Ceramic drainage pipes	Unified kilometres	46,494	22,760	48.9
Linoleum	Thousand square metres	1,291.3	1,165.8	90.2
Light insulation materials	Thousand cubic metres	813.0	394.8	48.5
Window glass	Thousand square metres	4,044.0	3,788.0	93.6
Bottles	Million bottles	55.7	46.1	82.7
Glass containers	Thousand units	356	438	123.0
Porcelain ware	Thousand units	563	449	79.7
Ceramic products	Thousand units	3,348	4,008	119.7

Source: Department of Statistics.

Annex A-6. Volume of output, selected metallurgical products, 1991 and 1992

Product	Unit of measure	1991	1992	Production in 1992 as percentage of production in 1991
Rolled steel	Tonnes	26,633	7,911	29.7
Normal rolled wire	Tonnes	15,591	5,053	32.4
Bolts and nuts	Tonnes	9,076	4,718	52.0
Nails	Tonnes	9,558	5,677	59.3
Electric motors	Units	331,000	139,682	42.2
Mini electric motors	Units	7,771,833	2,112,239	27.1
Welding equipment	Units	75,311	53,735	71.3

Source: Department of Statistics.

Annex A-7. Volume of output, selected mechanical engineering and machine products, 1991 and 1992

Product	Unit of measure	1991	1992	Production in 1992 as percentage of production in 1991
One-phase electric motors	Units	7,771,833	2,112,239	27.2
Three-phase electric motors	Units	331,000	139,682	42.2
Fuel injection pumps	Units	306,351	272,905	89.0
Compressors	Units	54,719	25,350	46.3
Mini-compressors	Units	1,027,056	1,068,942	104.0
Construction machinery	Units	349,325	174,879	50.0
Bicycles	Units	391,415	172,984	44.1
Boilers	Units	881.2	701.7	79.6
Grain grinders	Thousand units	3	2	66.6
Milling equipment	Thousand units	186	56	30.1
Axes	Thousand units	380	174	45.7
Enamelled ware	Thousand units	233	235	100.8
Dairy fixtures	Thousand units	39	10	25.6
Cutlery	Thousand units	2,530	1,056	41.7
Teaspoons	Thousand units	898	918	102.2
Serving tables	Thousand units	3.5	2.8	80.0
Tractor spare parts	Units	1,012	250	24.7
Motor spare parts	Units	27,989	11,617	41.5

Source: Department of Statistics.

Annex A-8. Volume of output, selected electronics and electrical appliances, 1991 and 1992

Product	Units of measure	1991	1992	Production in 1992 as percentage of production in 1991
Refrigerators and freezers	Units	264,596	165,641	62.6
Of which:				
Domestic refrigerators	Units	253,497	137,421	54.2
Of which:				
2-3 compartments	Units	134,342	94,446	70.3
Freezers	Units	11,099	28,220	254.2
Dust cleaners	Units	249,728	169,395	67.8
Electric waffle machine	Units	132,363	73,710	55.6
Tape recorders	Units	173,925	86,690	49.8
Table lamps	Units	24,500	7,900	32.2
Wall lampshades	Thousand units	5,067	2,261	44.6
Ceiling lampshades	Thousand units	26,145	8,321	31.8
Glass tops for glass containers	Thousand units	83,953	73,880	88.0
Television tubes	Thousand units	1,476	1,041	70.5
Television sets	Units	516,238	444,808	86.1
Of which:				
Colour television sets	Units	361,446	298,388	82.5
Portable television sets	Units	332,941	300,486	90.2
Personal computers	Units	5,827	881	15.1

Source: Department of Statistics.

Annex A-9. Volume of output, selected fuel and power products, 1991 and 1992

Product	Units of measure	1991	1992	Production in 1992 as percentage of production in 1991
Initial oil processing	Thousand tonnes	11,724.0	4,131.0	35.2
Gasoline	Thousand tonnes	2,225.4	847.3	38.0
Of which:				
Normal	Thousand tonnes	1,614.2	561.3	34.7
Super	Thousand tonnes	471.9	195.6	41.4
Diesel	Thousand tonnes	2,737.4	1,048.4	38.2
Heavy fuel	Thousand tonnes	4,433.9	1,357.2	30.6
Naphtha bitumen	Thousand tonnes	320.1	61.5	19.2
Energy	Million Kwh	29,280	18,650	63.6
Heat energy	Thousand Gigacalorie	1,976.1	1,455.6	73.6

Source: Department of Statistics.

Annex A-10. Forest resource forecast and future harvesting possibilities, 1993-2083

Figure A-10.1 presents the forecast of the harvesting areas for alternative 1, intensive. The final felling areas are more stable over time and there seems to be a sustainable level around 20,000 hectares per year.

Figure A-10.2 presents a forecast of the harvesting volumes, separated on pulpwood and sawn timber. It must be noted here that the harvesting volumes per hectare is the same as for period 1, and thus there are effects on the volume per hectare of intensified thinning, etc. The harvesting volumes have a much lower variation over time than the harvesting areas.

The sustainable pulpwood volumes in the intensive alternative seems to be at least 3 million cubic metres.

Figures A-10.3 and A-10.4 present the harvesting areas for the three major forest types pine, spruce and birch. The different forest types have a different pattern over time, which might lead to a variation in the species composition of the harvesting volumes over time.
The pine areas show a big variation over time, both for thinning and for final felling. The thinning area is decreasing from 20,000 hectares to 10,000 hectares in 30 years. In the same period, the final felling area is increasing from 4,500 hectares to about 6,500 hectares. In the first period, the thinning volume was about 40 per cent of the total pine volume. Assuming that the harvest volumes per hectare will not decrease in the future, a slight increase (5 per cent) in the pine volumes for the next 30 years and after that a substantial increase is forecast. However, after 60 years there will be a substantial decrease in the possible final felling areas. To find an exact sustainable level of pine volumes will require a much more reliable calculation model, but it seems that it should not be lower than the volumes in period 1 (1993-2002).

The spruce areas show a much less variation over time than the pine areas. The sustainable spruce volume might be a little higher than what we get in period 1, as there is a small potential for an increase in final felling area.

The birch areas show a very high variation over time, both for thinning and for final felling. For the next 30 years there is a possibility to increase the birch volumes with about 30 per cent compared with period 1, but the sustainable level is only slightly above the level in period 1.

The harvesting volumes from the forest type black alder was not included in the calculation for period 1, so some very rough estimates will be presented here.

The area of black alder is about 98,000 hectares. In alternative 1, the minimum age for final felling is 61 years and the number of thinnings per rotation is 2. With an average rotation of 70 years, about 1,400 hectares of final felling per year can be calculated. With 2 thinning per rotation, about 2,000 hectares of thinning per year will be possible. An average of 200 cubic metres from final felling and 40 cubic metres from thinning would yield a total of 360,000 cubic metres. Of these 360,000 cubic metres about 70 per cent is black alder, 20 per cent is birch and 10 per cent is spruce, adding about 250,000 cubic metres of black alder, 70,000 cubic metres of birch and 35,000 cubic metres of spruce expressed in commercial volume over bark.

The results presented in this report are to some degree uncertain, but how much is difficult to say. There are mainly two types of uncertainty. Firstly the reliability of data source. Secondly, the forecast of the harvesting volumes.

Fig. A-10.1. Forecast of annual harvesting areas, 1993-2083
Alternative 1, intensive

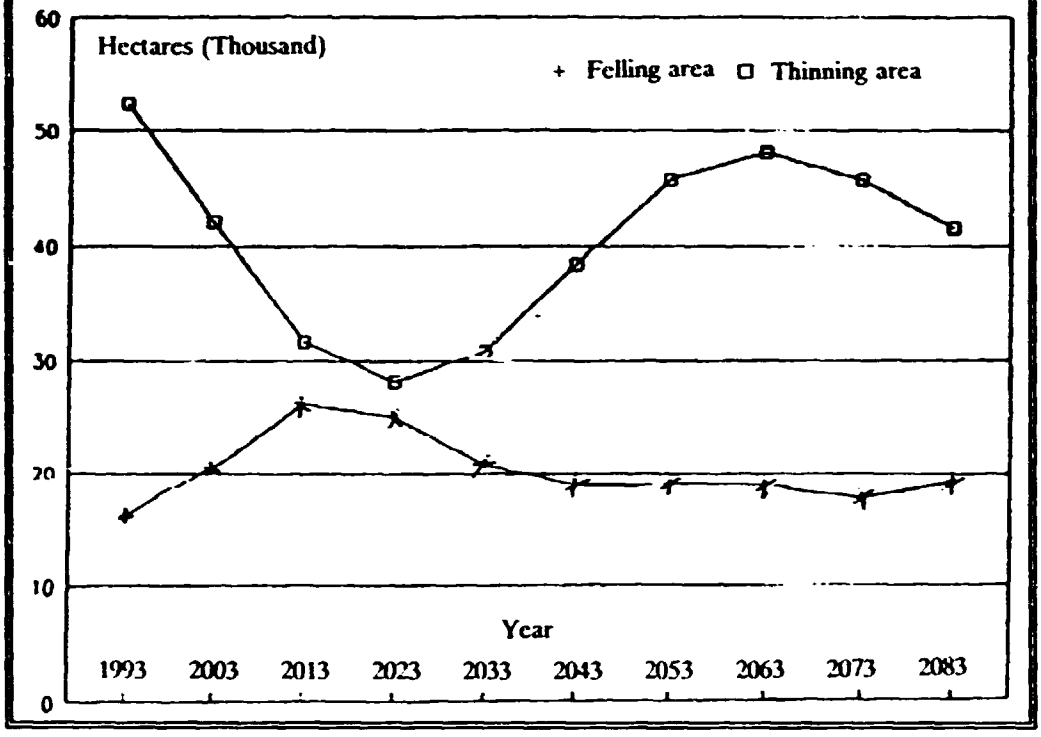


Fig. A-10.2. Forecast of annual harvesting volumes, 1993-2083
Alternative 1, intensive

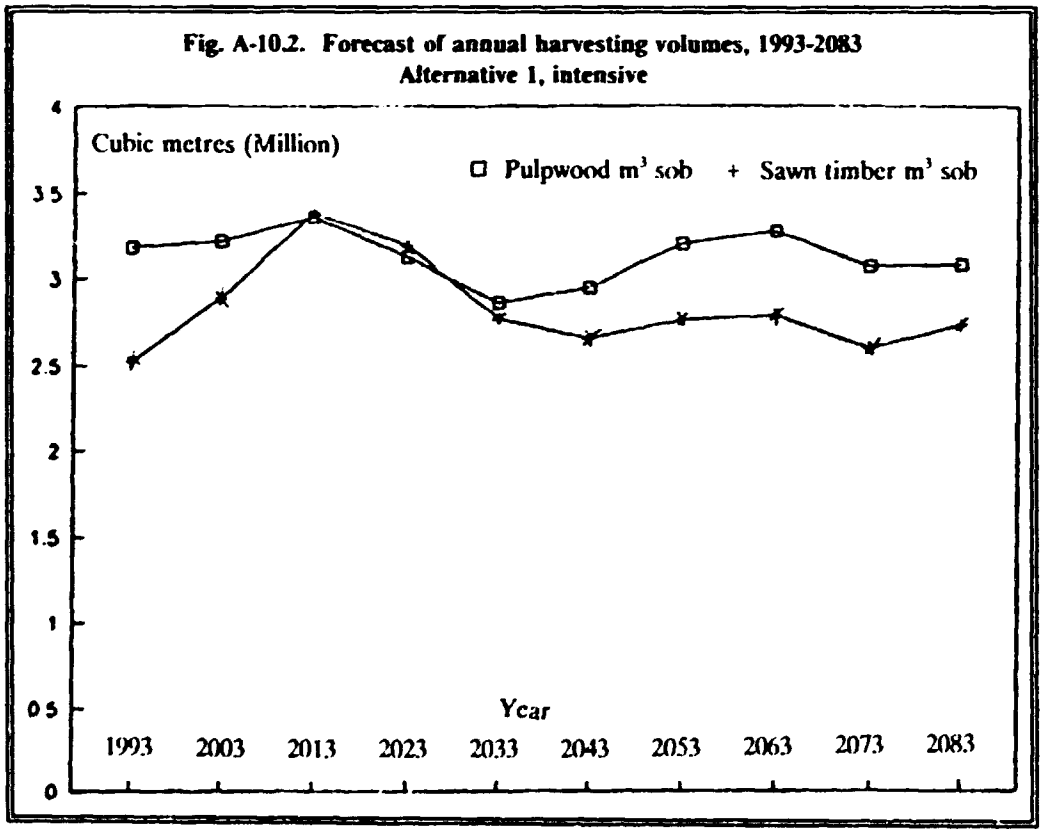


Fig. A-10.3. Annual thinning areas for the three major forest types
Alternative 1, intensive

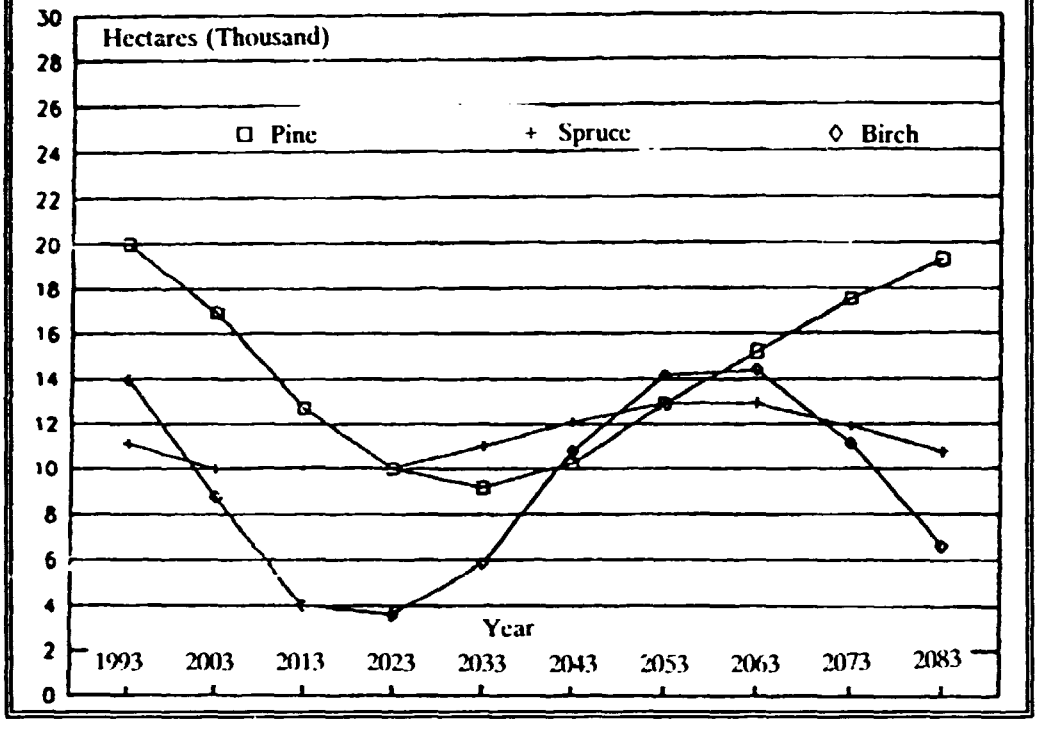
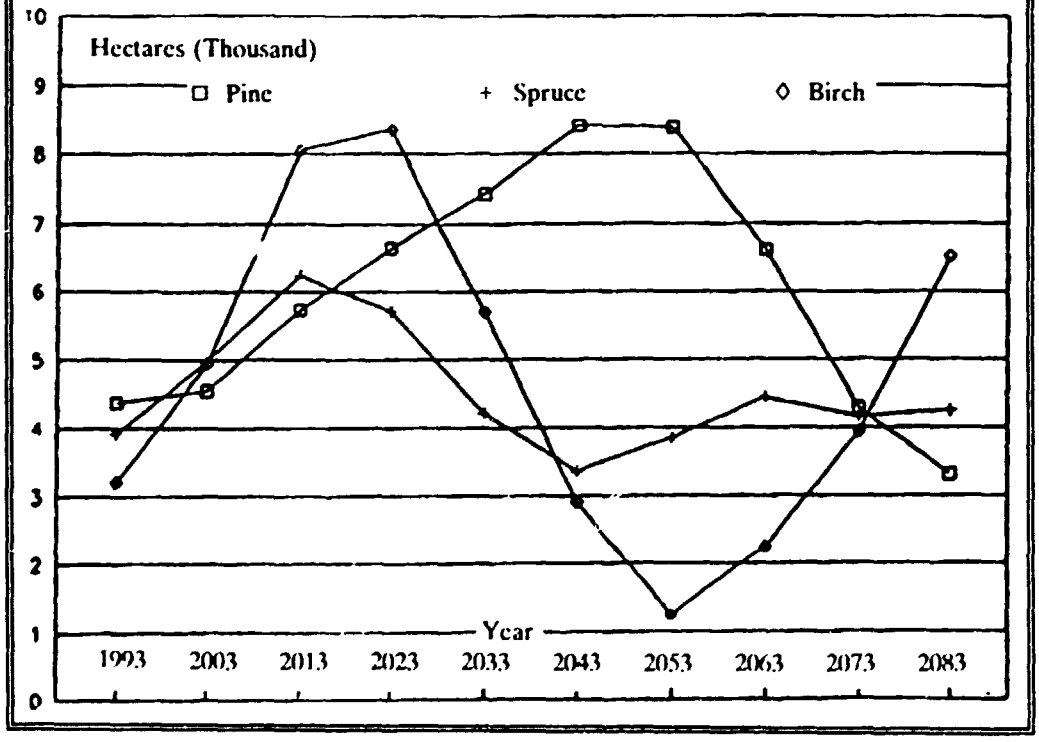


Fig. A-10.4. Annual final felling areas for the three major forest types
Alternative 1, intensive



The methods used for data collection are not really adapted to the requirements which this type of study would need, especially if there is a total lack of dynamic parameters in the data source. The area figures are probably of high quality as high resolution aerial photos have been used. The figures on the age class distribution is probably also of fairly good quality as plantation records have been kept, at least for the young and middle-aged forest. What is difficult with the methods used is to get good estimates of the growing stock. Usually when these types of methods are used, there is a high risk of under-estimating the volume, especially the old well-stocked forest.

These forecasts do not reflect any changes in the composition of the growing stock. Roughly we could assume that increased thinning intensity and the shorter rotation will in the long term lead to a higher share of swan timber volumes, higher share of conifers and a higher yield per hectare.

The original data source, which is a stand record, has for this study been aggregated to classes of forest. This aggregation means loss of some of the variation in growing stock per hectare. This causes a problem in calculating the thinning volumes. Firstly, the thinning percentage on an average volume is applied but in practice the stands with high stocking will be subject to thinning. This means a probable under-estimation of the thinning volumes per hectare. Secondly, it is difficult to calculate how much of the area that is actually in need of thinning. This problem is probably smaller in the calculation per 10-year period.

To sum up, the estimates of the possible harvesting volumes for the three major species are as follows:

Pine	880,000 cubic metres of pulpwood 640,000 cubic metres of sawn timber
Spruce	810,000 cubic metres of pulpwood 760,000 cubic metres of sawn timber
Birch	700,000 cubic metres of pulpwood 500,000 cubic metres of sawn timber

These figures are estimated to be sustainable by species, but the relation between pulpwood and sawn timber will probably very over time, especially for pine and birch, where an increase in the sawn timber share for the next 30 years will be realized.

The possibilities to forecast the growth and yield for estimation of the long-term harvesting possibilities are constrained by the available data source.

Sources: Ollas, R., "Nya utbytesfunktioner for trad och bestand", Forksningsstiftelsen Skogsarbeten, *Ekonomi* No. 5 (Stockholm, 1980), and Soderberg, U., "Functions for forest management. Height, form height and bark thickness of individual trees", Swedish University of Agricultural Sciences, Department of Forest Survey, Report 52 (Umea, 1992).

ANNEX B
EMPLOYMENT STATISTICS BY INDUSTRY

Annex B-1. Employment in food industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Food industries	56,007	51,980
Processed foods	21,260	19,905
Sugar	2,224	2,010
Bread	7,190	6,972
Bakery	2,441	2,244
Oils and fats	422	410
Pure alcohol	227	254
Vodka and liqueur	1,055	994
Wine	829	878
Beer	2,658	2,438
Soft drinks	334	320
Fruits and vegetables	2,062	1,879
Tobacco	577	564
Dry concentrates	870	878
Meat and dairy	23,138	21,535
Meat processing	12,774	11,441
Glue and gelatins	152	151
Milk, butter, cheese	10,364	10,094
Of which: Dairy products, except canning	9,062	8,860
Milk conserves	1,302	1,234
Fish industries	11,609	10,484
Of which: Fish, except canning	10,392	9,255
Microbiological production	1,355	1,222
Proteins	923	892
Other bio-technological production	432	330
Ferments	432	330
Flour and animal feed	5,011	4,361
Of which: Flour	1,203	187
Animal feed	4,808	4,174

Source: Department of Statistics.

Annex B-2. Employment in textiles, clothing and leather industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Light industries	79,952	70,968
Textiles	48,197	45,781
Flax semi-processed	1,404	1,418
Cotton fabrics	8,521	8,486
Linen fabrics	3,314	3,452
Wool fabrics	10,348	10,102
Silk fabrics	3,651	3,651
Non-woven fabrics	416	447
Textiles (clothing)	1,701	1,296
Yarn industries	18,641	16,859
Yarn weaving	18,354	16,859
Yarn weaving hand-made	287	..
Pressed wool footwear	200	170
Wearing apparel	17,803	13,186
Hides and leather processing	13,952	12,001
Natural leather	331	347
Synthetic leather	745	739
Leather small goods	1,245	1,102
Fur industry	2,770	2,533
Footwear (except rubber)	8,856	7,210
Footwear	8,749	7,100

Source: Department of Statistics.

Annex B-3. Employment in wood, paper and pulp industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Wood, pulp and paper	39,252	26,013
Wood working	25,541	19,876
Wood cutting	2,666	57
Pre-fabricated houses	3,439	3,232
Wooden parts for buildings	5,478	4,129
Wooden packing crates	1,793	1,366
Furniture	11,050	10,756
Other woodworking/wood products	615	336
Pulp and paper	4,402	6,137
Paper and cardboard	3,529	5,277
Packaging paper	255	238
Paper products	618	622

Source: Department of Statistics.

Annex B-4. Employment in chemical industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Chemicals	15,675	13,243
Chemical products	13,323	11,210
Basic chemicals	4,584	4,856
Fertilizers	3,118	2,971
Phosphate fertilizers	1,466	1,385
Chemical fibres	2,264	2,107
Plastics and glass fibres	3,609	2,914
Plastics	3,461	2,799
Polymeric films, pipes and sheets	148	115
Domestic chemicals	1,086	1,776
Other chemicals	881	57
Rubber and tyres	2,352	2,033
Tyres retreading	224	129
Rubber and asbestos	2,128	1,904

Source: Department of Statistics.

Annex B-5. Employment in non-metallic mineral products industries, building materials and glass industry, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Cement	2,030	1,935
Reinforced concrete parts	12,029	3,573
Wall materials	8,612	8,006
Ceramic parts for buildings	4,492	3,609
Polymer materials	308	305
Quarrying	5,618	4,659
Gas concrete wall materials	606	609
Thermo-insulation materials	520	54
Other materials	1,552	328
Concrete and plaster	708	75
Asphalt concrete	219	168
Others	605	85
Glass and porcelain	3,268	3,280
Porcelain industries	1,266	1,243
Glass	2,002	2,037
Technical glass	1,022	1,048
Bottles	803	832
Glass ware	177	157

Source: Department of Statistics.

Annex B-6. Employment in metallurgical industries and metalworking, 1991 and 1992

Industry branch	Number of persons 1991	1992
Iron and steel	1,369	1,038
Iron and steel secondary resource	290	196
Metalworking	1,079	842
Non-ferrous metals (scrap melting)	64	63
Installation fixtures	904	744
Horse carts	390	297
Metallic frames and fixtures	9,719	7,377
Metallic frames	1,590	1,408
Steel frames production	1,224	1,086
Aluminium frames	366	322
Technological metal fixtures	5,600	4,416
Other metal products	939	145

Source: Department of Statistics.

Annex B-7. Employment in machine building and metalworking industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Machine building and metalworking	168,070	129,146
Machinery for construction	124,958	109,210
Cables	1,013	868
Batteries	1,952	1,671
Welding equipment	4,329	3,736
Machinery for chemical industries	1,748	1,666
Machine tools and tools	10,064	8,873
Machine tools	7,694	6,834
Tools	1,366	1,139
Jigs and fixtures	1,004	900
Miscellaneous for metalworking	2,366	2,284
Of which: Machines (other)	1,627	1,605
General engineering products	739	679
Instruments	22,439	18,091
Electric meters	2,989	2,622
Radio meters	8,479	6,190
Office automation	1,275	1,172
Bicycles and motorcycles	2,566	2,136
Tractors and agricultural machines	10,269	9,335
Of which: Tractors	6,188	6,229
Agricultural machines	507	377
Machines for animal feed	3,574	2,729
Road and municipal equipment	3,743	3,438

Source: Department of Statistics.

Annex B-8. Employment in electronics and electrical appliances industries, 1991 and 1992

Industry branch	Number of persons 1991	1992 (9 months)
Electrotechnics	17,947	15,148
Electrical equipment	10,653	8,873
Domestic refrigerators	5,390	5,236
Radio equipment	5,164	4,747
Electronics	13,156	11,945

Source: Department of Statistics.

ANNEX C
INDUSTRIAL SALES, STATE-OWNED AND PRIVATE ENTERPRISES

Annex C.1. Industrial sales, State-owned and private enterprises, 1991 and 1992

	Sales		Domestic market		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
			(Million Talonas)											
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Industrial sale , State-owned and private enterprise, 1991 and 1992														
Industries tot	5,421	38,291	3,497	22,093	1,608	10,407	315	5,789	64.5	57.7	29.7	27.2	5.8	15.1
Of which:														
State-owned sectors	4,634	33,969	2,951	19,570	1,443	9,325	238	5,073	63.7	57.6	31.2	27.5	5.2	14.9
Private sector	787	4,321	545	2,523	165	1,082	76	716	69.3	58.4	21.0	25.0	9.7	16.6
Sales of food products, 1991 and 1992														
Food processing	1,948	12,834	1,430	8,899	330	1,679	187	2,255	74.4	69.3	17.0	13.1	9.6	17.6
Dry food	889	5,362	803	5,051	15	261	70	53	90.3	94.1	1.8	4.9	7.9	1.0
Sugar	209	1,343	208	1,304	-	10	0.5	29	99.8	97.1	-	0.8	0.2	2.2
Bread	86	686	86	677	0.2	9	-	-	99.7	98.6	0.3	1.4	-	-
Bakery	89	531	86	448	3	79	-	2	96.3	84.4	3.7	15.0	-	0.6
Oils and fats	25	70	23	62	0.8	8	0.8	-	93.1	88.6	3.5	11.4	3.4	-
High alcohol	7	88	7	85	0.1	2	-	-	97.9	97.5	2.1	2.4	-	-
Vodka and liqueurs	202	872	202	871	-	-	-	1	100.0	99.9	-	-	-	0.1
Wine	144	684	87	574	0.3	98	56	11	60.4	83.9	0.2	14.4	39.3	1.7
Beer	50	443	48	423	0.6	19	0.9	0.4	96.7	95.5	1.4	4.4	1.9	0.1
Soft drinks	13	47	6	39	-	-	7	7	44.0	83.7	0.1	-	55.9	16.3
Fruits and vegetables	23	87	17	64	2	23	3	-	74.5	73.0	10.2	27.0	15.3	-
Tobacco	28	477	25	476	2	0.5	-	-	90.4	99.9	9.6	0.1	-	-
Food concentrates	9	22	4	19	5	2	-	0.2	47.3	88.6	52.7	10.3	-	1.1
Other food	-	11	-	4	-	7	-	-	-	36.2	-	63.8	-	-
Meat and milk	919	6,153	565	3,296	236	1,382	116	1,473	61.5	53.6	25.7	22.5	12.7	23.9
Meat	584	2,637	353	1,598	222	824	8	214	60.5	60.6	38.0	31.3	1.5	0.1
Glues and gelatins	1	5	0.5	2	0.5	2	-	-	48.7	56.9	51.3	43.1	-	-
Milk, butter, cheese	334	3,515	211	1,698	14	557	108	1,259	63.4	48.3	4.2	15.9	32.4	35.8
(excluding canned milk)	300	2,898	191	1,610	13	509	94	779	63.8	55.6	4.6	17.6	31.5	26.9
Canned milk	33	617	20	88	-	48	13	480	59.4	14.3	0.3	7.9	40.3	77.8
Fish processing	139	1,311	61	546	77	35	0.3	728	44.1	41.7	55.6	2.7	0.3	55.6
Fish (excluded canned fish)	117	1,162	42	436	74	25	-	699	36.2	37.6	63.8	2.2	-	60.2
Proteins	8	68	3	12	4	55	-	-	48.1	18.4	51.9	81.6	-	-
Flour and animal feed	160	1,493	160	1,493	0.4	0.1	-	0.5	99.7	100.0	0.3	-	-	-
Flour	3	8	2	8	0.4	-	-	-	86.2	100.0	13.8	-	-	-
Animal feed	157	1,484	157	1,484	-	0.1	-	0.5	100.0	100.0	-	-	-	-

(continued)

Annex C.1. (continued)

	Sales		Domestic market (Million Talonas)		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Sales of textiles, clothing and leather products, 1991 and 1992														
Light industries	1,214	5,929	757	2,765	426	2,574	29	590	62.4	46.6	35.1	43.4	2.5	10.0
Textiles	838	4,238	484	1,894	337	2,008	15	335	57.9	44.7	40.3	47.4	1.8	7.9
Flax pre-processing	35	52	27	45	8	6	-	-	76.9	87.5	23.1	12.5	-	-
Cotton	133	941	85	480	47	306	1	154	63.7	51.0	35.2	32.6	1.0	16.4
Linen	56	234	27	130	25	56	3	48	48.5	55.5	45.6	24.0	5.9	20.5
Wool	190	1,461	76	657	114	750	-	53	40.1	45.0	59.9	51.3	-	3.7
Silk	69	288	41	116	27	162	0.1	9	60.3	40.5	39.4	56.2	0.2	3.3
Non-woven fabrics	10	96	7	39	2	51	-	5	74.0	40.5	26.0	53.7	-	5.7
Textile confectionary	32	46	20	20	11	25	-	0.4	62.9	43.9	37.1	55.1	-	1.0
Knitwear	307	1,108	196	400	100	645	10	62	63.9	36.1	32.7	58.2	3.4	5.7
Knitwear customs made	2	3	1	2	0.2	1	-	-	90.4	69.0	9.6	31.0	-	-
Pressed wool footwear	2	8	2	5	-	3	-	-	100.0	56.3	-	43.7	-	-
Sewing	170	593	140	257	18	145	11	190	82.3	43.5	10.7	24.5	7.0	32.1
Hides and leather	205	1,098	131	612	70	420	2	65	64.3	55.8	34.5	38.3	1.2	5.9
Natural leather	2	20	1	18	0.2	1	-	-	88.4	94.0	11.6	6.0	-	-
Synthetic leather	20	163	2	25	16	115	0.4	22	14.5	15.3	83.5	70.9	2.0	13.8
Leather confectionary	13	85	10	59	3	25	-	-	75.9	69.8	24.1	30.2	-	-
Furs	35	314	14	189	20	124	-	-	41.7	60.4	58.3	39.6	-	-
Footwear	134	514	101	319	29	153	2	42	76.1	62.0	22.3	29.7	1.6	8.3
Sales of wood, pulp and paper products, 1991 and 1992														
Wood, pulp and paper	331	2,035	208	1,122	93	618	30	294	62.8	55.1	28.1	30.4	9.1	14.5
Wood	225	1,409	182	878	20	340	22	190	80.8	62.3	9.1	24.2	10.1	13.5
Roundwood	0.2	1	0.2	1	-	-	-	-	100.0	100.0	-	-	-	-
Pre-fabricated houses	35	84	35	83	-	-	-	0.2	100.0	99.7	-	-	-	0.3
Wood parts	35	267	33	262	1	3	-	0.9	95.1	98.2	4.9	1.4	-	0.4
Wooden crates	28	56	25	53	2	0.4	0.9	1	87.8	95.9	9.0	0.9	3.2	3.2
Furniture	124	998	87	475	14	335	21	187	70.7	47.6	11.8	33.6	17.5	18.7
Other wood products	1	2	-	2	1	0.7	-	-	5.7	72.6	94.3	27.4	-	-

(continued)

Annex C.1. (continued)

	Sales		Domestic market (Million Talonas)		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Pulp and paper	106	625	26	243	72	278	7	104	24.7	38.9	68.2	44.4	7.1	16.7
Pulp	101	490	25	166	71	233	5	90	24.7	33.9	70.3	47.7	5.0	18.5
Packing paper and cardboard	2	21	1	18	1	3	-	-	46.9	85.6	53.1	14.4	-	-
Paper and cardboard products	2	114	0.1	59	-	41	2	13	3.8	51.8	0.7	36.3	95.5	12.0
Sales of non-metallic mineral products, 1991 and 1992														
Building materials	310	1,849	257	1,435	51	115	1	299	83.0	77.6	16.4	6.2	0.6	16.2
Cement	62	462	30	161	29	7	1	292	49.1	35.0	48.2	1.6	2.7	63.4
Reinforced concrete products	82	573	81	550	1	23	-	-	97.9	95.9	2.1	4.1	-	-
Wall materials (bricks and tiles)	84	395	68	359	15	34	-	1	81.7	91.0	18.3	8.6	-	0.4
Construction ceramics	32	88	30	75	1	10	-	2	94.7	85.6	5.3	11.7	-	2.8
Polymer materials	6	43	4	21	1	22	-	-	81.3	48.2	18.7	51.8	-	-
Mineral materials	35	254	34	237	0.7	16	-	0.1	98.0	93.4	2.0	6.6	-	0.1
Gravel, sand	4	16	4	14	-	0.5	-	1	98.4	85.8	1.1	3.5	0.6	10.7
Thermo-insulation materials	1	11	1	11	0.2	0.1	-	-	81.4	99.0	18.6	1.0	-	-
Other materials	0.9	3	0.9	3	-	-	-	-	100.0	100.0	-	-	-	-
Concrete and plaster	0.6	2	0.6	2	-	-	-	-	100.0	100.0	-	-	-	-
Asphalt concrete	-	0.4	-	0.4	-	-	-	-	-	100.0	-	-	-	-
Glass, porcelain	29	268	21	169	5	38	1	61	73.5	63.0	19.3	14.1	5.5	22.9
Glass	22	210	15	129	5	37	1	44	68.7	61.4	24.4	17.7	6.9	20.9
Technical glass	13	103	9	57	2	7	1	39	67.5	55.0	21.5	7.2	11.0	37.8
Glass bottles	8	96	5	67	2	29	-	-	69.6	69.4	30.4	30.6	-	-
Glass ware	0.6	9	0.5	4	-	-	-	4	82.5	50.2	8.7	1.3	8.7	48.5
Porcelain ware	6	58	6	40	0.1	0.8	-	17	96.7	68.7	2.6	1.4	0.7	29.8

(continued)

Annex C.1. (continued)

	Sales		Domestic market		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
	(Million Talonas)													
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Sales of chemical products, 1991 and 1992														
Chemicals and oil chemicals	163	2,530	87	334	63	437	12	1,758	53.3	13.2	38.9	17.3	7.8	69.5
Chemicals	153	2,426	84	308	55	359	12	1,758	55.3	12.7	36.4	14.8	8.3	72.5
Basic chemicals	62	2,020	26	182	23	131	12	1,706	42.1	9.0	38.1	6.5	19.8	84.5
Nitrogen	41	1,733	14	166	22	129	4	1,437	34.5	9.6	54.1	7.5	11.3	82.9
Phosphate fertilizers	21	286	12	16	1	1	7	269	56.8	5.6	6.9	0.4	36.3	94.0
Synthetic fibres and yarn	29	144	25	35	3	53	-	58	86.7	24.8	13.3	37.3	-	37.9
Plastics, glass fibres, glass plastics	17	80	7	57	9	26	0.3	2	41.5	70.9	56.2	32.5	2.3	3.3
Plastics goods	15	68	7	54	9	16	0.3	2	44.7	79.3	52.8	24.6	2.5	3.9
Polymer films, pipes, sheets	1	11	-	2	1	9	-	-	4.7	21.3	95.3	78.7	-	-
Naphtha chemicals	10	103	2	26	7	77	-	-	24.1	25.2	75.9	74.8	-	-
Tyres production	0.7	14	0.6	11	0.1	2	-	-	82.9	82.5	17.1	17.5	-	-
Rubber and asbestos	9	89	1	14	7	74	-	-	19.3	16.1	80.7	83.9	-	-
Sales of metallurgical products, 1991 and 1992														
Iron and steel metallurgy	12	47	8	27	3	4	-	16	68.4	57.7	31.0	8.9	0.6	33.4
Iron and steel, secondary resources	0.3	9	-	5	0.2	3	-	-	17.7	59.8	82.3	40.2	-	-
Metalworking	12	38	8	22	3	0.5	-	16	69.9	57.2	29.5	1.3	0.6	41.5
Non-ferrous metallurgy	0.2	0.6	-	-	0.2	0.6	-	-	-	-	100.0	100.0	-	-
Sales of machine building and metalworking, 1991 and 1992														
Machine building	885	6,638	293	1,616	558	4,564	33	457	33.1	24.4	63.0	68.8	3.8	6.9
Electrotechnical	156	1,104	40	246	104	741	10	115	26.1	22.4	67.1	67.2	6.8	10.5
Electrotechnical equipment	65	397	14	43	50	354	-	-	22.2	10.9	77.8	89.1	-	-
Cables	18	257	11	113	3	28	3	115	59.4	44.0	19.8	11.0	20.8	45.0
Batteries domestic	28	66	7	30	14	35	6	-	27.8	45.9	49.0	54.1	23.3	-
Electric welding	43	382	7	59	36	323	-	-	16.3	15.6	83.6	84.4	0.1	-
Compressors	21	72	5	26	16	45	0.2	-	24.6	36.7	74.5	63.2	1.0	0.1

(continued)

Annex C.1. (continued)

	Sales		Domestic market (Million Talonas)		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Machine tools and tools	66	171	17	38	39	123	10	10	22.5	22.3	59.5	71.7	15.0	6.1
Machine tools	49	133	12	22	27	100	10	9	24.7	17.0	54.9	75.7	20.4	7.2
Tools	13	29	1	8	11	20	-	0.8	12.0	28.9	88.0	68.3	-	2.8
Jigs and fixtures	4	9	3	7	1	2	-	-	71.5	75.8	28.5	24.2	-	-
Instruments	92	402	18	95	68	262	5	42	19.8	23.8	74.2	65.3	6.1	10.9
Electric meters	21	228	1	52	14	133	5	43	8.6	23.0	65.6	58.2	26.0	18.9
Radio meters	28	61	4	5	24	56	-	-	16.4	8.8	83.6	91.2	-	-
Office equipment	7	5	3	2	3	3	-	-	48.0	40.4	52.0	59.6	-	-
Automobile equipment	21	274	1	18	19	256	0.5	-	6.6	6.6	90.9	93.4	2.5	-
Automotive production	2	226	0.1	12	2	213	0.5	-	5.2	5.5	75.7	94.5	19.1	-
Motorcycles and bicycles	18	48	1	5	17	42	-	-	6.8	11.7	93.2	88.3	-	-
Tractors and agricultural machinery	60	480	15	58	45	422	-	0.1	25.3	12.1	74.7	87.9	-	-
Tractors	42	415	5	9	37	405	-	0.1	12.1	2.3	87.9	97.6	-	-
Agricultural machinery for:														
Animal husbandry	14	57	6	40	8	16	-	-	45.1	70.6	54.9	29.4	-	-
Road construction	32	183	9	32	21	151	0.8	-	30.7	17.8	66.6	82.2	2.7	-
Earth moving	24	98	9	22	14	76	0.8	-	39.4	23.0	57.1	77.0	3.5	-
Building construction	17	84	2	9	14	74	0.8	-	15.8	11.0	79.3	89.0	4.9	-
Municipal use	7	85	0.2	9	7	75	-	-	2.8	11.6	97.2	88.4	-	-
Domestic use	7	85	0.2	9	7	75	-	-	2.8	11.6	97.2	88.4	-	-
Equipment for light and food industries	58	816	16	271	37	328	4	216	27.6	33.2	64.0	40.3	8.4	26.5
Fixtures for food and animal feed production	12	10	1	6	10	3	-	-	14.0	65.3	86.0	34.7	-	-
Equipment for catering and retailing	2	17	1	14	0.9	3	-	-	61.6	82.4	38.4	17.6	-	-
Domestic use	42	788	12	250	25	322	4	216	29.7	31.7	58.9	40.9	11.4	27.4
Refrigerators and freezers	42	788	12	250	25	322	4	216	29.7	31.7	58.9	40.9	11.4	27.4

(continued)

Annex C.1. (continued)

	Sales		Domestic market (Million Talonas)		Estonia, Latvia and CIS		Other		Sales (Percentage) Domestic market		Latvia, Estonia and CIS		Other	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Sanitary and gas equipment	4	55	3	12	0.6	42	0.1	-	81.2	23.5	15.1	76.5	3.7	-
Shipbuilding	7	548	4	12	3	535	-	-	57.2	2.3	42.8	97.7	-	-
Radio equipment production	24	112	7	17	17	95	-	-	30.3	15.1	69.7	84.9	-	-
Communication means	199	1,279	102	466	96	788	0.5	24	51.4	36.5	48.3	61.6	0.3	1.9
Electronics	98	879	21	147	77	732	-	-	21.8	16.8	78.2	83.2	-	-
Other	26	184	22	154	3	30	0.1	-	85.3	83.6	14.2	16.4	0.5	-
Installation fixtures	8	59	8	59	-	0.2	-	-	100.0	99.6	-	0.4	-	-
Horse carts and accessories	3	8	3	8	-	0.1	-	-	100.0	98.0	-	2.0	-	-
Metal frames and parts	54	263	36	151	16	103	1	8	67.4	57.5	30.7	39.2	1.9	3.3
Metal frames	7	49	5	38	1	7	-	3	78.6	77.9	21.4	15.8	-	6.3
Steel frames	6	35	4	26	1	5	-	3	76.3	76.5	23.7	14.6	-	0.9
Aluminium frames	1	14	0.9	11	-	2	-	-	92.3	81.5	7.7	18.5	-	-
Metal works for construction	38	172	26	104	10	62	1	5	68.5	60.8	28.7	36.0	2.8	3.2
Metal works general purpose	9	41	5	8	4	33	-	-	54.5	19.5	45.5	80.5	-	-
Kitchen ware	3	10	1	4	1	5	-	-	49.2	44.7	50.6	55.3	-	-
Personal use utensils	5	31	3	3	2	27	-	-	58.2	11.0	41.8	89.0	-	-
Parts for repairs	44	237	37	211	6	25	-	0.1	85.2	89.2	14.8	10.7	-	0.1
Other repair	7	72	5	52	1	19	-	0.1	74.4	72.6	25.6	27.2	-	0.3
Railroad repair	-	4	-	3	-	0.5	-	-	68.7	86.9	31.3	13.1	-	-
Ship repair	3	12	2	11	0.9	1	-	-	74.2	91.1	25.8	8.9	-	-
Trucks and buses repair	17	49	14	46	3	2	-	-	81.0	94.1	19.0	5.9	-	-
Cars service and repair	2	6	2	6	0.1	0.6	-	-	93.9	90.5	6.1	9.5	-	-
Tractors repair	9	72	8	72	0.1	0.4	-	-	98.6	99.4	1.4	0.6	-	-
Construction, repair	1	4	1	4	-	-	-	-	97.8	99.0	2.2	1.0	-	-
Computers repair	0.9	3	0.9	3	-	-	-	-	100.0	100.0	-	-	-	-
Other repair	1	11	1	11	-	-	-	-	100.0	100.0	-	-	-	-
Sales of electronics and electrical appliances														
Computers	34	106	8	35	26	69	-	0.6	23.7	33.5	76.3	65.9	-	0.6
Peripherals	24	106	8	35	26	69	-	0.6	23.7	33.5	76.3	65.9	-	0.6
Software	0.3	2	0.2	2	-	-	-	-	94.8	95.8	5.2	4.2	-	-

Source: Department of Statistics

Annex C.2. Sales by industrial branches, 1992
(Thousand talonas)

Industry branch	Production sales	Lithuania	Other Baltic States and CIS	Other countries
TOTAL INDUSTRY	**257,347,982**	**158,740,978**	**790,089,984**	**27,698,020**
Fuel industry	34,363,355	31,330,592	1,308,387	1,724,376
Ferrous metal industry	881,089	456,272	270,851	153,966
Non-ferrous metal industry	84,672	179	84,493	-
Chemicals and oil industry	13,510,464	3,975,318	3,451,183	6,083,963
Machine building and metal working incl. electro-technical industry	47,116,241	13,713,695	30,674,307	2,728,239
Forestry, wood products and paper and cellulose industries	13,671,829	8,257,275	3,751,058	1,663,496
Building materials industry	14,480,660	12,080,126	1,380,681	1,019,853
Glass, china and faience industries	1,774,852	1,049,684	423,734	301,434
Light industry	43,712,263	24,059,558	17,345,436	2,307,269
Food industry	76,195,104	53,912,189	10,674,436	11,608,479
Microbiology industry	560,988	150,418	410,570	-
Meal, grain and combine fodder industry	7,934,013	7,871,840	57,674	4,499
Medicine industry	606,266	122,875	434,407	48,984
Printing and publishing industry	724,237	707,065	17,172	-
Other industries	1,731,949	1,053,892	624,595	53,462

Source: Department of Statistics.

ANNEX D
FOREIGN INVESTMENT FLOWS
BY COUNTRY AND AREA

Annex D. Foreign investment flows by country and area, 1987 - January 1993

	Joint ventures				Foreign companies	
	Number of enterprises	Statutory capital (Thousand roubles)	Foreign investments (Thousand roubles)	Percentage	Number of enterprises	Statutory capital (Thousand roubles)
Total	**1,659**	**4,358,614.8**	**2,079,813.9**	**4..7**	**395**	**261,786.5**
Australia	8	6,401.5	3,015.5	47.1	1	2,002.0
Austria	15	14,593.1	3,253.3	22.3	5	292.5
Bahamas	1	100.0	90.0	90.0	-	-
Bangladesh	1	500.0	300.0	60.0	-	-
Belgium	6	2,655.0	539.5	20.3	2	115.0
Brazil	1	8.0	4.0	50.0	-	-
Bulgaria	13	7,623.8	2,524.6	33.1	1	10.0
Canada	26	170,768.9	14,570.5	8.5	4	1,880.0
China	9	6,389.6	4,145.8	64.9	19	18,427.5
Colombia	1	698.0	120.0	17.2	-	-
Costa Rica	1	14.0	4.2	30.0	-	-
Czech and Slovak Federal Republics	16	3,131.9	2,511.2	80.2	-	-
Cyprus	1	100.0	50.0	50.0	1	350.0
Denmark	15	4,870.0	1,749.8	35.9	3	2,610.0
Finland	20	35,404.9	13,624.4	38.5	3	880.0
France	13	4,068.3	1,846.3	45.4	7	241.8
Germany	229	1,289,839.9	617,211.1	47.9	50	20,724.4
Gibraltar	1	400.0	200.0	50.0	-	-
Greece	3	855.0	495.0	57.9	-	-
Hong Kong	1	140.0	70.0	50.0	-	-
Hungary	30	23,392.1	9,643.8	41.2	3	586.0
Iraq	2	401.0	200.8	50.1	-	-
Ireland	4	890.0	313.0	35.2	6	7,637.5
Israel	13	3,597.0	1,745.5	48.5	1	369.5
Italy	24	36,111.0	5,724.1	15.9	2	35,024.5
Japan	2	1,000.0	600.0	60.0	-	-
Jordan	3	490.5	414.0	84.4	-	-
Kuwait	1	99.0	33.0	33.3	-	-
Lebanon	1	90.0	60.0	66.7	3	1,188.8
Liechtenstein	2	250.0	77.0	30.8	1	91,000.0
Luxembourg	4	6,005.0	2,157.0	35.9	1	10.5
Malaysia	1	1,000.0	480.0	48.0	-	-
Malta	3	3,006.0	987.5	32.9	-	-

(continued)

Annex D. **(continued)**

	Joint ventures				Foreign companies	
	Number of enterprises	Statutory capital (Thousand roubles)	Foreign investments (Thousand roubles)	Percentage	Number of enterprises	Statutory capital (Thousand roubles)
Netherlands	13	3,236.4	2,386.5	73.7	4	2,175.0
Norway	9	162,658.2	84,248.1	51.8	3	2,984.4
Panama (excluding Canal Zone)	3	428.0	215.0	50.2	-	-
Poland	321	74,967.4	34,215.0	45.6	71	22,160.9
Portugal	1	50.0	30.0	60.0	-	-
Sierra Leone	1	200.0	98.0	49.0	-	-
South Africa	-	-	-	0.0	1	91,000.0
Spain	1	10.0	7.5	75.0	-	-
Sweden	25	11,575.0	4,239.9	36.6	10	1,976.7
Switzerland	10	128,187.0	71,009.0	55.4	1	350.0
Syria	1	12.0	6.0	50.0	-	-
Turkey	3	222.0	96.0	43.2	-	-
United Kingdom	31	52,060.5	29,108.9	55.9	6	751.0
United States of America	95	664,820.6	433,633.9	65.2	34	8,459.6
Venezuela	2	310.0	105.0	33.9	-	-
Yugoslavia	4	30,022.0	12,216.0	40.7	1	150.5
Total with foreign countries	**955**	**2,731,004.1**	**1,360,375.7**	..	**235**	**221,590.6**
Armenia	6	452.5	181.8	40.2	5	1,180.0
Azerbaijan	11	28,902.0	7,294.0	25.2	2	350.0
Belarus	73	105,369.9	45,067.7	42.8	9	658.4
Kazakhstan	20	7,914.0	4,078.0	51.5	3	220.0
Kyrgyzstan	2	70.5	33.0	46.8	-	-
Moldova	1	10.0	6.0	60.0	-	-
Russian Federation	555	1,553,275.7	626,441.4	40.3	108	30,119.4
Tajikistan	2	200.0	80.0	40.0	1	100.0
Ukraine	96	62,933.2	20,843.6	33.1	13	6,195.0
Uzbekistan	9	1,075.0	460.5	42.8	1	20.0
Total with CIS	**748**	**1,671,008.3**	**704,486.0**	..	**142**	**38,842.8**
Estonia	10	19,043.0	1,394.0	7.3	6	1,098.1
Georgia	7	35,612.0	5,666.4	15.9	1	50.0
Latvia	19	25,816.2	7,891.8	30.6	11	860.0

Source: Department of Statistics, Vilnius.

ANNEX E
LIST OF MANUFACTURING ENTERPRISES SLATED FOR HARD CURRENCY PRIVATIZATION

Annex E. List of manufacturing enterprises slated for hard currency privatization, 1992

Name	Address	Location	Telephone	Main line of business	Number of employees
Vilnius Polymer Products Plant	Basanavičiaus 114	Vilnius	64 09 43	Linoleum, rubber products, glue	320
Panevėžys "Metalistas" Plant	Sermuksniu 19	Panevėžys	6 17 17	Metal accessories, construction bindings, locks	851
"Elektrotechnika" Panevėžys	Kranto 36	Panevėžys	6 14 23	Household lighting equipment	353
Utena Laboratory Electric Furnace Plant	Basanavičiaus 114	Utena	5 19 85	Furnace for laboratories	750
Mažeikiai Electrical Engineering Plant	Laisvės 216	Mažeikiai	3 24 48	Household electrical appliances	1,632
Panevėžys "Ekranas" Plant	Elektronikos 1	Panevėžys	6 31 88	Television tubes and devices	6,975
Kaunas "Metalas" Factory	Juozapavičiaus 82	Kaunas	74 16 75	Household heating, sanitary engineering	1,026
Pavenciai Sugar Refinery	Kuršenai Ventos 79	Šiauliai	7 16 42	Sugar	770
Marijampolė Sugar Refinery	P. Armino 65	Marijampolė	5 06 75	Sugar	592
Kėdainiai Sugar Refinery	Pramonės 6	Kėdainiai	5 03 42	Sugar	590
Panevėžys Sugar Refinery	Imoniu 22	Panevėžys	6 20 07	Sugar	563
Klaipėda Dairy Plant	Silutespl.33	Klaipėda	7 08 27	Milk	697
Vilnius Dairy Plant	Saltoniskiu 9	Vilnius	75 11 31	Milk	995
Vilnius Oil and Fat Product Plant	Paneriu 62/1	Vilnius	63 09 88	Oil, fat and soap	210
Marijampolė Canned Milk Products Plant	Kauno 114	Marijampolė	7 14 20	Canned milk	1,968
Mažeikiai Milk Processing Plant	Skuodo 4	Mažeikiai	6 53 41	Milk	484
Utena Dairy Plant	Pramonės 8	Utena	5 15 70	Milk	712
Alytus Butter Plant	Putinas 4	Alytus	3 54 58	Milk	500

(continued)

Annex E. (continued)

Name	Address	Location	Telephone	Main line of business	Number of employees
Kaunas Confectionary Plant	Taikos Ave. 88	Kaunas	75 05 89	Confection	980
Klaipėda Tobacco Plant	Bangu 7	Klaipėda	1 45 49	Tobacco	275
"Drobe" Wool Enterprise	Jonavos 60	Kaunas	26 42 17	Wool carded fabrics	4,357
Mažeikiai Footwear Factory	Pramonės 27	Mažeikiai	65 45 15	Footwear for men and women	817
"Vilija" Knitted Goods Plant	Polocko 26	Vilnius	61 18 69	Knitted apparel	672
"Audejas" Plant	Zarasu 24/1	Vilnius	69 74 77	Spinning and weaving	804
Kudirkos Naumiestis Flax Plant	Kybartu 1	Sakiai	5 24 68	Preparation and weaving of flax fibre	206
"Utenos Trikotazas" Knitted Goods Company	Basanavičiaus 122	Utena	5 14 45	Knitted apparel	2,909
Lentvaris Carpet Factory	Klevu Ave. 46	Trakai	8 12 38	Carpets and carpet floor covering	1,037
Vilnius Computer Plant	Kalvariju 125	Vilnius	3 56 11	EDP, toy machines, communication devices, calculating machinery	2,886
Telsiai Computer Plant	Sedos 30	Telsiai	5 15 35	EDP, communication devices	1,403
Panevėžys Fine Mechanical	Janonio 3	Panevėžys	6 38 33	Winchester discs	1,750
"Venta" Scientific Industrial Association of Microelectronics	Ateities 10	Vilnius	76 07 26	Assembly of microcircuit, electronic equipment	3,328
Šiauliai "Nuklonas" Electronics Factory	Architektu 1	Šiauliai	5 22 35	Assembly of microcircuit	2,714
Alytus "Alma" Factory	Pramonės 14	Alytus	5 18 33	Household electricals, electronic	717
Matuizai Construction	Matuizos	Varena	4 06 55	Silicate bricks and heat installations	277
Vilnius First Reinforced Concrete	Zariju 6	Vilnius	6 40 32	Reinforced concrete, concrete and steel framework	214
Namu Detales	Gamybos 4	Šiauliai	4 01 06	Large-panel house parts	929

Source: Ministry of Economics, *Republic of Lithuania, Privatization and Restructuring Programme*, (Vilnius, August 1992).

ANNEX F
A PROGRAMME FOR LITHUANIA: PROJECT PROPOSALS

Programme for Lithuania

In 1992, UNIDO undertook a mission to Lithuania to tentatively identify project concepts for a programme of assistance in support of Lithuania's transition to a market economy. The following concepts were identified:

1.	Assessment of the global competitiveness of Lithuania's industries	($118,000)
2.	Restructuring assistance to Lithuanian industrial enterprises	($160,000)
3.	High-level advisory services in support of the restructuring of the Ministry of Economy of Lithuania	($58,000)
4.	Preparatory assistance to the Republic of Lithuania in investment promotion	($60,000)
5.	A diagnostic survey of human resources infrastructure and development needs in support of the transformation process in the Republic of Lithuania	($60,000)
6.	A strategy to enhance the development of small and medium-scale (SMIs) in Lithuania	($82,000)
7.	Advisory services in support of energy conservation at the subsector and enterprise levels	($60,000)
8.	A survey to evaluate the environmental policy framework and the process technologies used in major polluting industries	($70,000)
9.	Assessment of the fish processing industry in Lithuania and a strategy for its upgrading and integrated development	($46,000)
	The total value of the above projects:	**$714,000**

The aim of the programme is to enable Lithuanian industry to move to more competitive structures and increasing integration into the world economy so as to spur overall economic growth.

The project assessing the global competitiveness of Lithuania's industries will provide a clear picture of Lithuania's existing and future competitive strengths and weaknesses particularly at the level of key subsector and product ranges. The projects providing restructuring assistance will complement the competitiveness project by providing explicit enterprise information on the restructuring needs of industries and of ministries providing institutional support for the transformation process. The project on SMIs will complete the perspective of Lithuania's industries by offering a comprehensive assessment of SMI requirements in the context of restructuring and privatization. This project will also provide broad information about human resource development and training needs. The diagnostic survey of human resource development needs will provide more in-depth and wider coverage of Lithuania's human resource development requirements to build-up the competitiveness of its key subsectors, industries and enterprises. At the same time, the project on investment promotion will identify associated investment promotion needs in the transition to a competitive market economy. The projects on energy and the environment will address the major problems of Lithuania's industry due to overly high energy intensity and environmentally unsound production processes. Finally, the fisheries project will provide a solid basis for rationalization of fish processing facilities and a strategy for their upgrading and integrated development.

Project Proposal No. 1

1. **TITLE:** **Assessment of the global competitiveness of Lithuania's industries**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

With the collapse of the Council of Mutual Economic Assistance (CMEA) market in 1991 and the disintegration of the former Soviet Union, Lithuania lost many of its guaranteed markets for her final products and sources of raw materials. In addition, in those markets within the Russian Federation and the other CIS countries which remain, Lithuania is experiencing difficulties in making settlements in hard currency and maintaining its market position due to the lack of competitiveness and inefficiency of its existing industrial structures and increasing competition, particularly from Western and Asian competitors. It is estimated that Lithuania's monopoly positions in the Russian Federation and CIS country markets inherited from the USSR era are unlikely to remain in the next four years without significant improvement in the price, quality, design and finish of Lithuanian products. The unclear political situation in the Russian Federation and the former Soviet Republics is also an added problem of Lithuania's current concentration on Eastern markets. The Government is therefore strongly interested in diversifying its trade to Western, Asian and possibly developing country markets as well. To do this, in the context of the country's transition to a market-based economy, Lithuania needs to develop a coherent and comprehensive new industrial trade strategy and orientation based on a solid analytical assessment of its existing and future competitive strengths, weaknesses, and potential in key subsectors, enterprises and even product ranges.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

In the context of Lithuania's transformation towards a competitive market-based economy, the recommendations of the study will lead to the identification of measures to be undertaken to promote key industrial subsectors and product groups to the relevant global industrial product markets and the design of corresponding technical assistance programmes/projects. The recommendations, once implemented, will lead to improved competitiveness of key industrial subsectors, product groups and the penetration of new and more remunerative international markets in the CEE countries, the Russian Federation and other CIS countries, Western Europe, Asia and other developing regions of the world. The study will therefore first and foremost serve as a solid basis for the Lithuanian Government in designing policy measures and action programmes to improve the overall competitiveness of its manufacturing industry. In addition, the study can be used by UNDP/UNIDO, EC, the World Bank, other interested multilateral and bilateral agencies and private sector bodies to identify and develop packages of technical and other assistance in support of the Government efforts to improve the competitiveness of Lithuanian industry.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The Government and private sector of Lithuania are fully aware of the need to undertake major reforms of the economy to transform it from a command to a market-based competitive structure. A key element of the Government's reform programme is an emphasis on improving the competitiveness of Lithuania's industries and the need to re-orientate more of the country's productive capacity toward export production, and the essential need to raise productive capacity. In this connection, it has been particularly stressed that there is a large scope for raising efficiency in manufacturing industry, particularly large-scale industry. The need to improve the competitiveness of various product groups and to penetrate new and more remunerative markets in the West, East and the developing countries has also been emphasized. The Government has already been making preliminary efforts to assess the competitiveness of its industries but is hampered by a lack of expertise and knowledge of international market trends and possibilities. Hence, its request for UNIDO assistance in the context of the October 1992 UNIDO/UNDP/ECE mission to Lithuania.

8. BUDGET:

Work months: 9 w/m	$108,000
Staff travel:	$ 10,000
TOTAL	**$118,000**

Project Proposal No. 2

1. **TITLE:** **Restructuring assistance to Lithuanian industrial enterprises**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

Much of Lithuania's large-scale industry is in critical condition. A key task, therefore, in Lithuania, as in all the countries in transition is that of industrial restructuring. Lithuania now faces the daunting task of restructuring its industry to meet the current and emerging challenges associated with the transition to a competitive market orientated economy system. The restructuring process in Lithuania will be needed at three levels: the overall industry level, the individual subsector level and at the enterprise level.

At the overall industry and subsector levels, there is a need to analyse structural weaknesses and conceive appropriate policy measures and support programmes. An essential requirement in the development of such policy measures and programmes will be an examination of the prospects and constraints in key industrial subsectors and in the manufacturing sector as a whole and advise on approaches and policies for restructuring. It is important to tailor restructuring programmes to the specific needs of individual subsectors in Lithuania, as restructuring needs differ by subsector.

At the enterprise level, especially for large-scale enterprises, major efforts are required to adjust to the new emerging market conditions. These efforts should include diagnostic assessment of management and organization; marketing; cost accountancy and financial control; technical and technological matters concerned with product adaptation, development and production processes; finance for foreign exchange acquisition and the importation of essential inputs; specific training requirements, general human resource development, and other specific enterprise requirements. It is likely that these specific enterprise requirements will be unearthed in the process of the overall industrial restructuring work undertaken when a detailed enterprise restructuring programme could be elaborated. It is also important in the restructuring exercise not to forget the need for venture capital to actually implement the restructuring programme. In this connection, an attempt should be made to link the diagnostic work with the setting up of a venture capital fund.

There is particular need in the context of the privatization process for assistance to diagnose the problems and potential of large-scale enterprises. At present, the privatization process in the country has done little to privatize these sort of enterprises. This is largely because of the critical need to adequately prepare these enterprises for privatization by undertaking explicit enterprise audits. In this respect, the proposed project will be a major support to Lithuania's privatization efforts in as much as 4-6 large-scale State-owned enterprises selected from 2 key subsectors (food processing and light industries) will be examined in-depth and restructuring programmes proposed.

In short, the project will assist Lithuania's restructuring and privatization programmes by providing diagnostic analyses and formulation of restructuring programmes and assistance in selected enterprises. These programmes will enable the enterprises to consolidate their corporate structure, rationalize production and develop into viable entities. In particular, the enterprises and the Government will be provided with diagnoses to improve performance, identifying markets, develop management capability and thereby contribute towards the overall industrial development of the country. The project will also form the basis for policy formulation for more widespread restructuring and privatization.

6. INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:

The survey will serve as a basis for the Lithuanian Government to formulate its industrial development programmes and, in particular, programmes for industrial sector restructuring and privatization. The survey can also be used by UNIDO/UNDP, EC, the World Bank, and other interested multilateral and private companies to identify and develop packages of technical and financial assistance in support of the Government's industrial regeneration and modernization efforts. It will be specially complementary, and supportive of, the country's major recent privatization programme.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The priority status is accorded to industrial restructuring by the Lithuanian Government in the context of Lithuania's major on-going economic reform programme. The request for UNIDO assistance was made during the recent UNIDO/UNDP/ECE (October 1992) mission to the country.

8. BUDGET:

Work months: 12.5 w/m	$150,000
Staff travel:	$ 10,000
TOTAL	**$160,000**

Project Proposal No. 3

1. **TITLE:** **High-level advisory services in support of the restructuring of the Ministry of Economy of Lithuania**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

Lithuania has recently embarked on a complex process of economic transformation towards a market-based system and greater international integration. In order to turn the economy around, Lithuania has to simultaneously: (i) create a legal and institutional framework for economic transformation and market development; (ii) build up new government administrative machinery and policies for introducing an supporting economic restructuring; (iii) commercialize, privatize and restructure industrial enterprises; (iv) gradually move away from the dominance of supplies from and sales to the former Soviet Union in order to become more integrated into and utilize opportunities in the global economy; (v) adjust purchasing, sales and cost calculation practices of companies to market system requirements; (vi) develop monetary policies, foreign exchange regime and new trade arrangements with East and West following the expected move to introduce a national currency (LITA); (vii) attract foreign investment and loan capital; and (viii) acquire and generate new technology for sustainable industrial development. These indispensable and urgent tasks entail major changes in policy making, institution-building and company management. In view of the above, the Ministry of Economy and particularly the Department of Industry needs urgent assistance to guide the transformation process.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

The study will provide the Lithuanian government with urgently needed policy advice on the optimum organizational structure for the Ministry of Economy, in particular, the Department of Industry and the build-up of its capability for assuming new tasks and functions connected with the transformation process.

These new functions will cover industrial policy formulation, the administration of industrial licensing and in particular, guidance and support to State enterprises in restructuring, commercialization and eventual privatization, the promotion of foreign and domestic investment, the formulation and co-ordination of foreign assistance to industry, and in general, assuming the leading role of a focal point for and co-ordination of the industrial sector in the economic transformation process. Up-to-date information on and a "vision" of emergent prospects for industry is required for the Ministry along with information regarding relevant international challenges and opportunities. The gradual build-up and increasing interlinkage with other economic agents for industrial development will be another major task for the Ministry.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The Government is strongly committed to supporting the economic reform process through restructuring of relevant ministries. Indeed, preliminary work has been done to restructure the Ministry of Economy. It is on this basis that an initial Government request was made to UNIDO for assistance after its March/April 1992 mission to the country. The study was also requested during the recent UNIDO/UNDP/ECE October 1992 mission to Lithuania and reiterated during the visit of Mr. R.Barcevicius, Deputy Ministry of Industry and Trade of Lithuania to UNIDO in November 1992.

8. BUDGET:

Work months: 4 w/m	$48,000
Staff travel:	$10,000
TOTAL	**$58,000**

Project Proposal No. 4

1. **TITLE:** **Preparatory assistance to the Republic of Lithuania in investment promotion**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

With the collapse of the Council of Mutual Economic Assistance (CMEA) market, the disintegration of the former Soviet Union and Lithuania's recognition as an independent Republic in 1991, Lithuania has to re-integrate itself into the world economy. To this end, the country has embarked on a major transformation process towards a competitive market economy. Much of Lithuania's large-scale industry is in a critical state. In order to restructure, modernize its industry, and increase its competitiveness, Lithuania needs to attract large flows of foreign direct investment (FDI) to transfer capital, technology know-how and much needed managerial skills and experience of market-based economies.

Unfortunately, attracting FDI is an entirely new activity to Lithuania. At present, there is little or no indigenous capacity or capability to facilitate or generate FDI flows. There is therefore an urgent need for a study with a specific industry focus to assess FDI needs of key subsectors of Lithuania's economy, the FDI economic and legal environment in terms of the relative attractiveness of Lithuania as an investment location, the services, human and physical infrastructure, the information needs of foreign investors considering investing in Lithuania, and the need to create an efficient approval system and of "one-stop shops" and/or an investment office as an efficient focal point in the country to systematically build up international contacts. In particular, there is an urgent need for a study to assess the training requirements of Lithuanian specialists in the various Government, ministries, industry, and particularly, the private sector, in the formulation and pre-appraisal of investment projects and the financial and legal aspects of joint ventures and other forms of business co-operation to properly prepare projects for foreign investors.

In addition, an examination should be made of the need for various special industrial investment promotion programmes - such as UNIDO's Investment Forums - to actively mobilize the interest of foreign industrialists in specific projects and/or industrial sectors.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

The results of the study will provide a solid analytical basis for the Government of Lithuania and its various international technical co-operation partners - such as UNIDO, UNDP, EC, World Bank and other multilateral and bilateral agencies - in formulating technical co-operation programmes to support the attraction of FDI to Lithuania and providing an indigenous capability, capacity and focus for the promotion of FDI.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The promotion of FDI is a key element of the Government's reform programme, in particular, its restructuring and privatization programmes. The Government is already making attempts to improve the environment for attracting FDI but needs international expertise and experience to do this more effectively. Hence, its request for UNIDO assistance during its March/April 1992 mission and the recent UNIDO/UNDP/ECE (October 1992) mission to the country.

8. BUDGET:

Work months: 4 w/m	$48,000
Staff travel:	$ 12,000
TOTAL	**$60,000**

Project Proposal No. 5

1. **TITLE:** **A diagnostic survey of human resources infrastructure and development needs in support of the transformation process in the Republic of Lithuania**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

In the transition from a centrally planned to a market economy, no other issue assumes such enormous importance as the advancement of proper human resources for industrial development. Despite a large pool of manpower with vocational skills and basic scientific/technological knowledge, among other things, the lack of proficiency in management, product development, financing, marketing, corporate business strategy, international trade (especially at the individual establishment level), HRD at the enterprise level probably constitute the most serious impediment to industrial and other development in Lithuania today. While the country has embarked on an ambitious industrial development programme and is deploying tremendous efforts to bring restructuring up to speed, it still lacks the information base and the strategic framework for the necessary entrepreneurship and human resources for the successful management and implementation of the programme. Furthermore, notable inadequacies in the present educational/vocational system and in enterprise HRD policies and practices inevitably will lead to an economy-wide failure to meet the requirements of the industrial sector in the complex transition to a market economy.

Now the adequacy of past structures is challenged by the imperatives of the transformation process to a market economy and particularly by:

- national resource constraints putting pressure on efficiency in public spending;
- rapidly switching patterns of trade and competition requiring equally fast response from producers of goods and services;
- modern manufacturing plant structures that depend on external industrial and other essential services such as design, engineering, operations research, administration, marketing etc. for their full functioning; and
- new technologies that change the patterns of skills demand faster than ever before.

Thus, in the context of Lithuania's economic reform programme thorough reviews are required of medium and long term manpower requirements of industry, present formal and vocational training capacities, effectiveness and quality of training as well as conformity to industry's requirements (demand and supply relationship), contribution of the private sector, and so on. Particular attention must be given to the development of industrial management, product development, entrepreneurship and industrial services. A clear distinction must be made between the specific problems and demands of the small- and medium-scale firms and large-scale manufacturers, respectively.

6. INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:

The survey will serve as an important basis for the Lithuanian Government to formulate its industrial development programmes and, in particular, programmes for its industrial sector restructuring, privatization, small and medium-scale industry, and entrepreneurship development programmes. The survey can also be used by UNDP/UNIDO, EC, the World Bank, and other interested multilateral and private enterprises to identify and develop packages of technical and financial assistance in support of the Government's industrial regeneration and modernization efforts.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The priority status accorded to industrial human resource development has been re-iterated many times in the context of the Government's economic reform programme and particularly its emphasis on gaining competitiveness in key industrial subsectors. The request for UNIDO assistance was made during the recent October 1992 UNIDO/UNDP/ECE mission to Lithuania.

8. BUDGET:

Work months: 4 w/m	$48,000
Staff travel:	$ 12,000
TOTAL	**$60,000**

Project Proposal No. 6

1. **TITLE:** **A strategy to enhance the development of small- and medium-scale industries (SMIs) in Lithuania**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

Assessments of the current structure and recent developments in Lithuania as in the countries of central and eastern Europe reveals that, at present, the small-scale industry sector plays only a very minor role. Past plans and policies obviously were directed primarily towards establishment and expansion of large public industries and industrial complexes. In the current economic transformation process, the lack of a viable small-scale industries sector emerges as a severe structural weakness. In Western European countries, Asian NIC's, etc. it is the prevalence of specialized small-scale, so-called supporting industries, providing parts and components to large industries which form an essential part of the production and subcontracting networks and thus of the national competitive system. Moreover, the built-in flexibility and responsiveness of small industries to external challenges and the role of this sector as a nucleus for future growth industries constitute important features of the dynamism of industrial growth.

For Lithuania's economic transformation, it is of major importance that small-scale entrepreneurship be encouraged. So far, small-scale industrial support schemes, incentives and credit facilities for small-scale entrepreneurial development are generally lacking or are largely ineffective. It is essential to build up these supporting measures in order, first, to generate dynamic growth, and second, to ensure that domestic partners are prevalent for foreign joint ventures and third, to soak up some of the unemployment necessary in the large-scale privatization process. Such measure may include technological opportunities and assistance to potential entrepreneurs, the setting up of "incubators" or other forms of basic infrastructure and special banking facilities etc. to support entrepreneurial activities.

The promotion of SMIs is therefore essential to economic development within the process of economic transformation towards the market economy. It is also important that policy be developed to focus and integrate the efforts of the Association of Lithuanian Industries and the various Chambers of Commerce and small business associations that exist.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

The study will examine available options for the development and promotion of SMIs in Lithuania and indicate a framework for government policy in this sector. It will also provide recommendations on the establishment of adequate support services and will identify the technical assistance needed to support SMIs and integrate and amalgate various existing institutions for the support and development of SMIs. This study will be a major support to the Government and the Lithuanian Chamber of Commerce, among others, in their efforts to develop and promote SMIs most of which should belong to the private sector.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The creation of an effective private sector and the promotion of small- and medium-scale enterprises, as a seed-bed of entrepreneurial activity, has been the most important goal of Lithuania's economic reform programme particularly in the context of Lithuania's privatization programme.

This programme has started with the privatization of small-scale enterprises in order to create a large and vibrant private sector to path the way to a competitive market economy.

The promotion of SMIs is also an area of major support by the EC, World Bank and other international agencies.

The Government is fully committed to the creation of an environment in which the private sector can flourish and expand.

However, advice and assistance are requested to obtain improved advisory services, credit support, the setting up of industrial estates and business information as part of a special package of promotion measures designed to stimulate SMIs.

This study will be carried out in co-operation with UNDP.

8. BUDGET:

Work months: 6 w/m	$72,000
Staff travel:	$10,000
TOTAL	**$82,000**

Project Proposal No. 7

1. **TITLE:** **Advisory services in support of energy conservation at the subsector and enterprise levels**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

The high energy intensity of Lithuania's industry in general and of particular subsectors (cement, mineral fertilizers) are major obstacles for the country's industry to achieve international competitiveness, particularly as supplies of energy, especially oil, from Lithuania's main suppliers, the Russian Federation and the other CIS countries, have been unreliable and subject to abrupt stoppages and sharp price increases. A major task for Lithuania's industries is to reduce energy consumption in enterprises by adopting technological processes with less energy consumption, and also by upgrading existing technological processes to make them more fuel efficient.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

The advisory services will be used to provide the Lithuanian Government and major enterprises with assistance in energy auditing and other technical assessments at the enterprise and plant levels as well as in providing estimates of the investments required to upgrade and/or adapt technological processes.

7. **EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:**

A key element of the Government industrial strategy in the context of its economic reform programme is its stated intention to mount vigorous efforts to reduce energy consumption, reduce its dependence on supplies from the former Soviet Union, and reduce emissions of gaseous pollutants in the air. This project was originally requested during UNIDO's March/April 1992 mission to Lithuania and reiterated during the recent UNIDO/UNDP/ECE October 1992 mission to the country.

8. **BUDGET:**

Work months: 4 w/m	$48,000
Staff travel:	$ 12,000
TOTAL	**$60,000**

Project Proposal No. 8

1. **TITLE:** **A survey to evaluate the environmental policy framework and the process technologies used in major polluting industries**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

A key issue to be addressed in Lithuania's transition to a competitive market-based economy is the threat of environmental pollution. The main source of pollution in Lithuania is due to manufacturing industry operating without adequate environmental controls and discharging untreated waste water. There is also a problem of contamination of ground water due to over intensive use of pesticides and fertilizers. Industrial waste and municipal solid waste is often disposed inadequately. It is estimated that 60 per cent of Lithuania's forests are damaged in some way. The paper and pulp and current industries are major sources of pollution.

In addition, water pollution in rivers, lakes and the Baltic Sea is an acute environmental problem. The country also suffers from cross-border pollution (water and air) from Belarus and Kaliningrad. At present, there are no processing plants for residuals and solid waste from industry. The total emissions into the air is estimated (1989) at approximately 1 million tons. Lithuania now needs assistance to develop environmental policies for industry and, in particular, to introduce new cleaner technologies, processes, and protective device.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

A study by K-Consult AB of Sweden, financed by the Nordic Investment Bank, has already been carried out in co-operation with the Environmental Protection Department in Vilnius, Pram project in Kannas, and the University of Klaipeda to identify the main polluting industries. The objective was to prepare a priority action programme to permit decisions on the financing of priority investment projects to control and reduce the pollution of the Baltic Sea from the Lithuanian coast and the Nemunas River Basin. The technologies used in the identified sectors will have to be evaluated and recommendations on new, environmentally sound technologies should be provided by the proposed project. This will be of benefit to Lithuania, the neighbouring countries/regions of Belarus and Kaliningrad, Russian Federation, and their countries technical co-operation partners. The study could also form the basis for a regional environment programme for the Baltics. This project will provide necessary assistance and recommendations on the development of an appropriate environmental policy framework and on cleaner production technologies to be applied in industrial process.

7. EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:

The Government's commitment to environmental preservation is shown by its stated intention to mount vigorous efforts to combat industrial pollution, its commissioned study by K-Consult and this requested study.

The study was originally requested during the recent UNIDO/UNDP/ECE October 1992 mission to the Lithuania and reiterated during the visit of Mr. R. Barcevicius, Deputy Minister of Industry and Trade of Lithuania to UNIDO, in November 1992. Assistance was requested to develop an appropriate policy framework and new and less energy/material and environmentally friendly technologies in the main industrial sectors of Lithuania. This is a major concern of the Government and to her neighbouring countries/regions - Kaliningrad, Russian Federation and Belarus.

Another priority is given by the Government to build up water treatment facilities in all the large towns of Lithuania, and to focus on the utilization and management of toxic industrial wastes and on their collection and recycling.

8. BUDGET:

Work months	5 w/m	$60,000
Staff travel		10,000
TOTAL:		**$70,000**

Project Proposal No. 9

1. **TITLE:** **Assessment of the fish processing industry in Lithuania and a strategy for its upgrading and integrated development**

2. **COUNTRY:** **Lithuania**

3. **SUBREGION:** **Eastern Europe**

4. **SECTOR/SUBSECTOR:** **Industry**

5. **ISSUES TO BE ADDRESSED:**

Lithuania has significant resources for fishing and fish processing. It has 4,000 lakes covering around 94,000 hectares. In addition, the country has access to the Baltic Sea and the location of its rivers and lakes with a broad natural resource potential provides excellent conditions to develop the fish processing sector. But, at yet, the industry has not achieved its potential due to ageing facilities, outmoded technology, and the urgent need to replenish its capital stock and find new markets.

However, during the last few years output has fallen significantly. Considering that the fish processing industry does not require highly specialized production processes to meet international quality standards, this industry can be developed at relatively low costs. Its development could also pave the way for foreign investments and significant export possibilities.

6. **INTENDED USE OF RESULTS AND FOLLOW-UP ACTION ENVISAGED:**

This study will assess the actual status of the fish processing, packaging and quality control facilities in this sector. The study will also determine the framework for Government policy in this sector. In addition, the study will provide recommendations on the industry's development, the establishment of adequate support services (technology information and industry training facilities), and the identification of technical assistance requirements for the whole fishery industry sector. This study will be a major fisheries industry policy and strategy instrument for the Government to modernize and further develop this sector with a view to maximizing domestic market and international open market possibilities.

7. **EVIDENCE OF GOVERNMENT PRIORITY, COMMITMENT AND PARTICIPATION IN THE ACTIVITY:**

Improved utilization of natural resources will have to play a key role within Lithuania's economic reform programme. Through an official letter from the Ministry of Agriculture, signed by the Director of the Fisheries Department, a fact-finding mission to Lithuania was requested in order to evaluate the fish processing industry.

The outcome of the mission will provide relevant information on further development of a regional programme in this area of fisheries industry.

8. **BUDGET:**

Work months	3 w/m	$36,000
Staff travel		10,000
TOTAL:		**$46,000**

Source: UNIDO, *A Programme of Assistance to the Republic of Lithuania*, (12 January 1993)

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