Strategy to Promote Building Renovation and Energy Efficiency in Residential Buildings in Lithuania

Final Proposal

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Dansk Energi Management A/S

Housing and Urban Development Foundation, Lithuania

Preface

This study has been executed for the Danish Ministry of Housing and Urban Affairs and comprises a detailed survey of the current situation in the residential sector. It outlines an analysis of the barriers hampering the building renovation and energy efficiency process - and finally suggests a strategy and an implementation plan to overcome these barriers.

The study has been compiled in an integrated teamwork between the Housing Policy Division of Housing and Technical Regulation Department of Lithuanian Ministry of Environment, Housing Urban Development Foundation (HUDF) and HUDF's project consultant from the Danish company COWI and the Consultant (Dansk Energi Management A/S). The Consultant wishes to express his sincere thanks to the many contributors from the involved Lithuanian counterparts for their constructive assistance and valuable comments.

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1 INTRODUCTION

This report presents the findings and results of the study to formulate a strategy to promote building renovation and energy efficiency improvements in residential buildings in Lithuania. The report has been thoroughly scrutinised and commented by stakeholders involved in the building renovation and energy efficiency process, including the World Bank. Amendments resulting from this has been approved by the Lithuanian Ministry of Environment and incorporated in the Strategy accordingly.

This introductory chapter describes the background for elaborating the Strategy for Building Renovation and Energy Efficiency in Residential Buildings in Lithuania (The Strategy). Furthermore this chapter gives brief general information about Lithuania with emphasis on housing sector: the legal and administrative framework; social and economic developments and indicators that affect the transition from a centrally planned housing sector into a market based sector. Finally the objectives for building renovation and energy efficiency are discussed; the existing means and instruments are described; the accordance and parallelism between this Strategy and the "superior" Lithuanian National Energy Strategy are described.

1.1 Structure of the Report

This report is composed of four main parts:

Part 1 – Introduction;

Part 2 – Analyses;

Part 3 – Strategy;

Part 4 - Implementation.

Part 1 "Introduction" consists of

- Various general background information about the country, framework and policies etc. (Chapter 1);
- Description and lessons learnt from the Energy Efficiency Housing Pilot Project (Chapter 2);

Part 2 "Analyses" is an important part of the study to elaborate the Strategy and are composed of overviews and analyses of:

- Regulatory and legal framework (Chapter 3);
- Target groups (Chapter 4);
- Existing support network (Chapter 5);
- Market participants (Chapter 6);
- Barriers hampering building renovation and energy efficiency (Chapter 7).

Part 3 "Strategy" provides elaboration of measures to overcome the identified barriers:

- Basis for the Strategy (Chapter 8);
- Steps into the future – recommendations to overcome the barriers (Chapter 9);

Part 4 "Implementation" presents an implementation programme of the proposed measures with executing institution, budgetary implications and time horizons.

- Implementation programme (Chapter 10).

Finally, the Strategy contains four appendices - Appendix 1-4.

- Reports and articles (Appendix 1);
- Feasibly Study on Macroeconomic consequences (Appendix 2);
- Calculations to Substantiate the findings of the Feasibility Study (Appendix 3);
- List of Participants of the Working Groups (Appendix 4).

The report is based on the most current studies and reports on issues involved, new fact finding and on a number of interviews with the relevant parties (see Appendix 1).

1.2 The Strategy

To develop a Strategy on building renovation and energy efficiency is a governmental function – and the result is a political document upon which the politicians make their decisions for further measures. The Strategy must provide convincing arguments to a wide national audience that building renovation and energy efficiency should be given priority. Therefore, the Strategy must also be read and understood by the executive level in relevant ministries; parliamentarians who are responsible for endorsement of elements through legislation; the dwellers; the housing service and energy service sector; banks and other investors; the research institutions as well as international organisations.

During Part 2 of the Strategy preparation (overview and analyses), a number of market barriers that hamper household investments in building renovation and energy efficiency were identified. The barriers and preliminary recommendations how to overcome the barriers were presented for Representatives of the World Bank, Danish Ministry of Housing and Urban Affairs, Ministry of Environment, Housing and Urban Development Foundation, and Advisory Centres on 14 February 2000. The document with recommendations was available for the four working groups, which subsequently were formed.

This Strategy is developed by involving the strongest representatives from the various stakeholders: The Lithuanian Ministry of Environment, Finance, Social Security and Labour, Public Administration and Reforms; Energy Agency; Association of Municipalities; Tax Inspection; Housing and Urban Development Foundation (HUDF) and the private sector.

Four Working Groups have been formed to work on how to overcome the identified barriers categorised in Part 2 of the Strategy within the Political and Institutional; Financial and Economic; Legal and Regulative, and Capacity and Capability fields. The Working Groups held a number of meetings where barriers and recommendations to overcome the barriers were discussed and finalised. Appendix 4 is a list of members of the Working Groups.

After presentation of the draft strategy report a thorough scrutiny and analysis of comments submitted by invited stakeholders has been conducted. This resulted in a number of amendments and clarifications being incorporated subsequently - mainly related to the proposed strategy measures in chapters 9 and 10 - before presentation of the present final strategy report.

This Strategy has been financed by the Danish Ministry of Housing and Urban Affairs and is one of more activities supported by the Ministry with focus on housing sector development in Lithuania.

1.3 National objectives for housing policies and energy efficiency

The basis for a housing policy during the transition period was already established in 1992, when the Parliament approved the governmental programme "Bustas" ("Dwellings") with the following objectives:

A. Gradually move from State housing provision to housing purchase;

B. Shift away from uniform housing to individual choice, with the State remaining responsible for providing housing only to the socially and economically vulnerable persons;

C. Create favourable conditions for the provision of long-term loans for housing construction;

D. Promote construction of new dwellings by different types of developers: public, private, joint-stock companies and housing associations;

To which degree are the objectives from 1992 fulfilled?

A. Is fulfilled – 97% of the housing stock is privatised

B. Is not fulfilled – hindered by (a) – as a serious lack of apartments for rental by socially disadvantaged persons has occurred.

C. Is not fulfilled as no mortgage financing scheme has been established yet as well as the private banks are reluctant to finance construction and building renovation & energy efficiency. The ETB-loan of the EEHPP has been the only long-term loan scheme available for building renovation and energy efficiency when it is assumed that "construction" stated in objective C above covers building renovation. The EEHPP terminates by 31 December 2000.

D. The number of annual new constructed dwellings aimed at the "Bustas" programme has turned out far below the goal.

Currently, the Government's goals for housing policies (cf. UN ECE 2000) are to:

1. Encourage new construction whereas individuals finance their housing;
2. Direct financial markets to provide long-term financing;
3. Differentiate State subsidies to support most needy households;
4. Ensure 2% of the State budget to the "Bustas" programme, and to;

5. Promote individuals, homeowner associations and public enterprises to save energy by building renovation.

Most of the present housing policy objectives focus on the development of effective instruments to make long-term housing loans available to the majority of the home owners, i.e. development of a mortgage financing system, encourage the banks to provide Litas based long-term loans for building renovation and energy efficiency. In addition the Government is aware of the inadequacies of support to needy households and the necessity to reduce energy consumption - e.g. by renovation of buildings. Among the reasons are the considerable increase in energy prices[1] and the necessity to comply with other goals in the existing energy saving strategies.

The updated (1999) National Energy Efficiency Programme (NEEP) – a part of the National Energy Strategy (NES) – implemented by the Energy Agency of the Ministry of Economy reiterates the objective to reduce the consumers' energy costs. Consequently the above point 5 fully comply with the overriding priorities of the National Energy Strategy. However, the National Energy Strategy has been recently revised, setting up new objectives for the energy sector development for the years to come. The desire to increase energy efficiency in the residential housing stock is certainly in compliance also with the new NES and a revised National Energy Efficiency Programme is currently under preparation - due to be published later in year 2000. The present Strategy for building renovation and energy efficiency in residential buildings will have a significant bearing on the revised NEEP (and vice versa). Therefore a comparison of the compatibility between this Strategy and the new NES has been made based on the logic that the new NEEP is bound to be subordinated, and therefore consistent with the NES. The overall conclusion is that the objectives and strategy recommendations for building renovation and energy efficiency declared in the present report comply with the recently published NES and the national objectives for building renovation declared in the government's policies for housing (cf. above).

1.4 Current means and instruments to implement building renovation and energy efficiency measures

The current means and instruments comprise the categories Financial instruments, Economic instruments, Legislation and Public Information. The scopes of these measures are as follows:

Financial instruments (further elaborated in Part 2 Analyses)

- Loan schemes ("Bustas", EEHPP);
- Tax incentives (exemption of VAT);
- Grants (EEHPP);
- Subsidies (EEHPP, energy consumption, municipal maintenance enterprises).

[1] At the time of construction energy prices were artificially low due to heavy subsidisation. As a consequence energy efficiency were generally not a priority, resulting in high energy consumption. This has now become a serious problem for home owners that energy prices are required to reflect actual generation costs.

Economic instruments (further elaborated in Part 2)

- Taxation (introduction of VAT of central heat).

Legislation (further elaborated in Chapter 3)

- Legislation on housing in general;
- Legislation for Home Owners;
- Legislation for rental housing;
- Legislation for building maintenance;
- Building codes and norms and standards;
- New legislation to be introduced for Parliament in near future, comprising
  - Law on Amendments to the Law on HOAs
  - Property relations (Civil Code)
- Approximation to EU legal framework.

Public Information (further elaborated in Part 2)

- Information offices;
- Information campaigns in nation-wide and local mass media;
- Energy consultants;
- Training courses.

1.5 Country information

Lithuania is the most southern of the three Baltic States with borders to Latvia, Belarus, Poland and the Kaliningrad region of the Russian Federation. With a surface area of 65,301 km^2, Lithuania is the largest of the three Baltic countries. The diverse landscape includes forests (up to 30% of the territory), agricultural land (54%), built-up and road areas (up to 5%) and numerous lakes, rivers, and marshland.

1.5.1 Recent History

From the end of 18th century, Lithuania has been under Russian Tsarist rule, which resulted in a "russification" of the population. When First World War broke out in 1914, the attacking Germans who were regarded as liberators by the Lithuanians defeated the Russian army. Under German tutelage an independent Lithuanian Republic was declared on 16 February 1918. Heavy fighting between Lithuania, Poland and the Bolsheviks followed German surrender, and on 9 October 1920 Poland annexed parts of Lithuania including Vilnius. Lithuanian capital then became Kaunas.

The short period of independence ended in August 1939 by signing of the secret Molotov-Ribbentrop pact between Soviet General Secretary Stalin and German Reich Chancellor Hitler. Lithuanian became incorporated in the Soviet Union's area of

interests, and all areas of life were reorganised according to Soviet model. On 22 June 1941 the war between Germany and the Soviet Union broke out and already less than one week later German forces – again greeted as liberators as during WWI - occupied all Lithuania.

The Red Army conquered the German forces and Lithuania became a part of USSR on 7 July 1944. A "Sovietisation" was enforced and during the period of 1945 to 1953 more than 110000 Lithuanians were deported to Siberia – and a number of Russians took over central functions in the country within manufacturing, construction, planning and of course security/defence. However, the share of Russian population of Lithuania was limited after restored independence compared to other former Soviet republics, i.e. Latvia and Estonia.

From 1988 more and more protests against the Soviet rule were organised and on 11 March 1990 the Lithuanian Supreme Council (Soviet) declared Lithuanian's independence restored after several manifestations nation-wide. Moscow imposed economic blockade short after - and Soviet troops assaulted Vilnius TV tower (13 January 1991) and a border checkpoint (31 July 1991). Between these two serious episodes, Iceland recognised as the first country the independence of Lithuanian and many countries followed. Sweden opened as the first country an embassy in Vilnius in August 1991 a few days after the collapse of the Soviet Union.

A new Constitution was adopted by a referendum in October 1992 and declared Lithuanian an independent democratic republic where Parliament (Seimas), President, Government and the Court hold state power. On 14 February 1993 Mr. Brazauskas became the first freely elected President of Lithuania.

The last former Soviet military units left Lithuania by 31 August 1993 and five months later, Lithuania joined NATO's Partnership for Peace Programme and signed an association agreement with EU in 1995. At the EU Helsinki summit in December 1999 the decision to begin negotiation for Lithuania's accession to EU was announced.

More that 40 years of Soviet rule meant that most problems within the housing sector refer to the Soviet way of planning, construction, and administration – including attitudes to responsibilities for individual daily life. Anyway, during a thousand-year turbulent history, the Lithuanians never lost their national identity and are still homogeneous people.

1.6 National legislative Institutions

1.6.1 Parliamentary institutions

The Constitution introduced a parliamentary system with a President as head of State, who is elected by universal and direct suffrage for a term of five years. The Seimas is a one-chamber parliament composed of 141 members elected for a four-year term. Seimas' political majority proposes a Prime Minister, appointed by the President.

Four Parliamentary Committees are responsible for housing policies: The Committees on Health, Social Affairs and Labour is dealing with social housing. The Committee on Budget and Finance is dealing with financing of housing programmes. The Committee on Economics is dealing with energy efficiency and finally The Committee on Public

Administrative Reform and Local Authorities is dealing with reforms of the public sector as well as relations to the municipalities. In addition questions of housing issues as privatisation are dealt with at parliamentary level.

1.6.2 Governmental institutions

Sector ministries normally initiate the Laws (or other legislative acts); co-ordinate with other ministries and institutions before the Government considers, approves and presents them to Parliament. Other specific issues related to the legal framework for housing is analysed below in Chapter 3.

The Government of Lithuania consists of a Prime Minister and 14 Ministers appointed and dismissed by the President of the Republic, pending upon the approval of the Seimas. The main responsibility for formulation and implementation of housing policy rested with the Ministry of Construction and Urban Development.

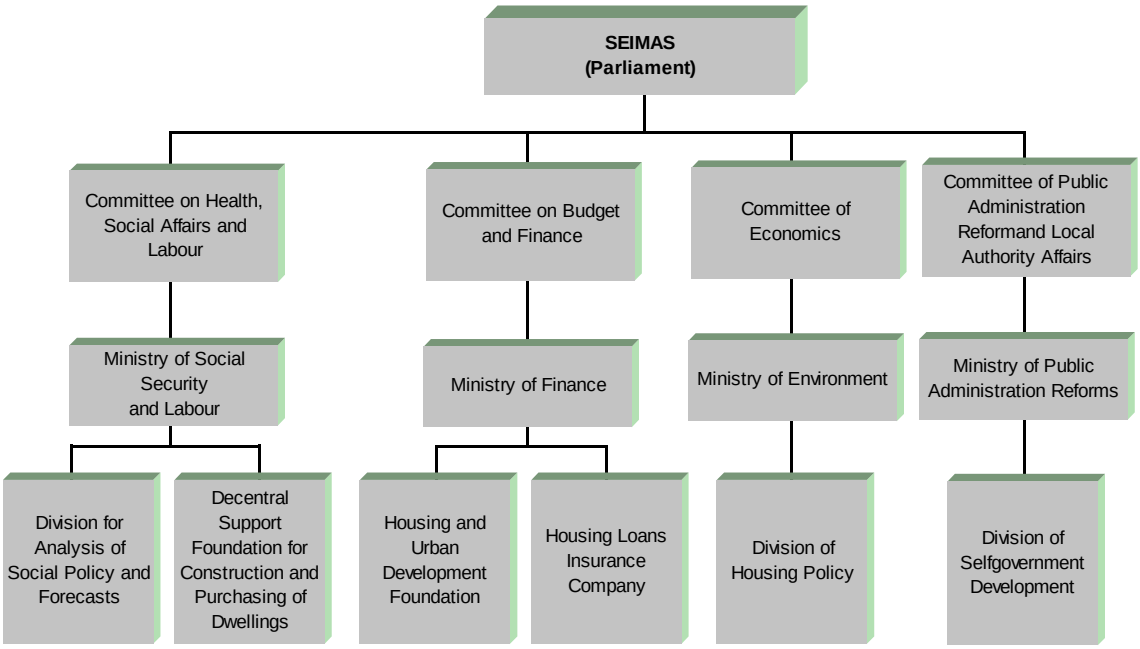
To reduce the number of ministries, Ministry Construction and Urban Development was abolished in 1998 and responsibilities for further development of Lithuanian housing sector were shared between the Ministry of Environment (MoE) and the Ministry of Finance (MoF). The Housing Policy Department (HPD) of Housing and Technical Regulation Department, MoE, remains therefore the only governmental institution exclusively focusing on housing policies. (Proposes legislation, strategies and programmes on housing, participation in and adjusting other legal aspects related to housing proposed by other ministries, municipalities etc.). Out of MoE's total staff of about 130 professionals, the staff of Housing and Technical Regulation Department makes 24 – and among them only four deal with housing policies.

The Ministry of Finance is responsible for financial issues related to the country's housing sector. (Funding of State and municipal housing programmes, obtaining and administering international loans for housing sector).

In addition, the Ministry of Social Security and Labour is responsible for formulation of social housing policies.

Furthermore, the Ministry of Public Administration and Local Authorities is formulating and regulating State and municipal policies on housing and provision of municipal services.

Finally, the Public institution, Housing and Urban Developing Foundation, is among others administering the Energy Efficiency Housing Pilot Project (EEHPP) including five Advisory Centres.



1.6.3 Regional level

The local authority reform of 1994 divided the country into 10 Counties by 1995. This is the highest regional administrative unit of Lithuania. The administration of counties is organised by the Government according to the Law on the Territorial Administrative Units of the Republic of Lithuania and Their Boundaries (1999) and other relevant laws. The major role of the County administration is to act as an executive, co-ordinating branch of the Government in the implementation of state policies. The Government appoints county Governors and the Governor has therefore responsibilities and powers with respect to land use planning and urban development – within delegation from the Government. The future role of Counties is a topic for hectic political discussions by May 2000.

1.6.4 Municipal level

Lithuania is divided into 56 municipalities (44 districts and 12 cities). Each municipality has its Municipal Council elected for a period of two years by direct suffrage – latest on 19 March 2000. The Council is responsible for the provision of social housing, construction and maintenance of municipal as well as private buildings, municipal services, basic education, primary medical treatment, social care, land-use planning, and public security. The Municipal Council can establish committees, commissions or other bodies.

Local governments draft and approve their own budgets, which include local sources of revenue (such as notary, real estate and some personal income tax – 7% of GNP in 1997). In addition the municipalities receive State transfers, and the municipalities can, according to procedures provided by the law, collect local fees for i.e. municipal maintenance service and levy taxes. Municipal budgets have provisions related to municipal housing and subsidies for low-income families' heat bill.

1.7 Demographic trends

The total population of Lithuania is 3.7 million. 2.5 million live in urban areas and 1.2 million live in rural areas. The ethnic composition for the country - and for Vilnius within brackets - consists of - 81,3 (52,8)% Lithuanians, 8,4 (19,2)% Russians, 7,0 (19,2)% Poles, 1,5 (4,8)% Belarussians, and 0,1 (0,7)% Jews. The remaining part is Latvians, Ukrainians and other nationalities.

Some 40% of the population live in the six largest municipalities (Vilnius, Kaunas, Klaipeda, Šiauliai, Panevezys and Alytus). The average population density has grown from 39.5 inhabitants per km^2 in 1950 to 56.8 in 1998, while the country's population has increased by 48% from 2.5 million to 3.7 million over the same period.

Rapid urbanisation took place in Lithuania within the latest 30 years. The urban population has grown almost 3.5 times since 1950, while the rural population has decreased by one third. Migration to urban centres was dominant before 1990. Since 1993, despite the overall population decline, rural areas have gained new residents, which reversed the longstanding migration trends. Emigration from Lithuania has also increased. 800 thousand with Lithuanian roots live in USA and Chicago is in fact the third largest "Lithuanian" city.

An indicator of potential demand for dwellings is the growth rate of population and change of family patterns. Currently, the country experiences natural decrease of population. The highest population increase was in 1970s, followed by a moderate growth in 1980s. Since 1990, birth rates have declined, while death rates have increased. Birth rates fell particularly sharply in urban areas. Overall, Lithuania experiences alarming negative natural growth of population.

The proportion of single person households is growing and women account for two-thirds of these households. While the divorce rate increased dramatically - from 35.1 in 1990 to 60.5% for 100 new marriages - marriages decreased from 9.8 to 5.1 per thousand of population over the same period. Women outnumber men in the gender structure of the population, particularly in the post-retirement age group. Experts estimate the number of Lithuanian households to 1.3 million in 1999. The average lifetime for men is 66 years and 77 years for women.

1.8 Macroeconomic indicators

Lithuanian economy measured by *gross domestic product* (GDP) is some USD 10,65 billion. In 1999 GDP decreased by 4.1% compared to 1998

Until 1991, the *industry* accounted for 44.4% of GDP (Table 1.1), followed by agriculture (16.4%) and construction (5.4%). During the first years of independence, Lithuania's industry suffered the steepest decline in the Baltic region, with production of the about half of the 1992 output. Due to industrial restructuring the industry production increased 5.4% in 1997, 7,0% in 1998, and 7,3% in 1999. Services have increased their share in GDP; reflecting typical transformations to market oriented service based economy like in other Western countries. The *construction industry* - mostly privatised - experienced recovery in the mid-1990s with a 6.6% growth in 1997. The construction sector contributed with 9% to GDP in 1998 as indicated below.

Table 1.1 Major sectors' share of total output, 1991-1998
Source: UN ECE Economic Survey of Europe, issues: 1996-1997, 1998 No.1, and 1999 No.1.

% of value added GDP, current prices

	1991	1992	1993	1994	1995	1996	1997	1998
Industry	44.4	37.5	34.2	27.0	26.1	25.8	25.2	22.5
Agriculture	16.4	13.8	14.2	10.7	11.7	12.2	11.7	12.3
Construction	5.4	3.9	5.1	7.2	7.1	7.1	7.7	9.0
Real estate and financial services ..	..		11.5	11.7	10.5	10.5	9.6	10.7
Services b/	33.9	44.8	35.0	43.4	44.5	44.4	35.8	35.4

The *main manufacturing sectors* in Lithuania are food processing, light industry, machine building, metalworking, electronics, electrical appliances, chemicals, building materials, and energy industries. Manufacturing depends on imports of raw materials. Lithuania is the largest electricity producer in the Baltic region (Ignalina NPP)

The current inflation rate is only a few percent. There has been months with even deflation (For detailed information and updates: http://www.std.lt).

Unemployment reached 7.5% in 1998, 8,1% in 1999 and estimated to 11,1% for 2000. (http://www.std.lt). The actual unemployment rate is considered some percent above the official figures.

The Lithuanian *export* accounted for LTL 12.01 billion in 1999. (LTL 14.84 billion in 1998). The *import* accounted for LTL 19.33 billion in 1999 (LTL 23.17 billion in 1998). The *trade deficit* stood at LTL 7.32 billion in 1999 (LTL 8.33 billions in 1998) or about 20% of GDP.

There was a significant increase in share of export to EU countries from 38.0% in 1998 to 50,1% in 1999. On the other hand the share of export to CIS[2] countries decreased from 35.7% in 1998 to 18.2% in 1999. The share of import from EU countries remained nearly unchanged from 47.7% in 1998 to 46.7% in 1999. The share of import from CIS countries decreased a little from 26.0% in 1998 to 24.4% in 1999.

1.9 Economic policies

The transition to market economy started after independence, when the Law on Initial Privatisation of State Property was adopted in February 1991. Prices were liberalised in November 1991.

In 1994 Lithuania introduced a national currency, the Litas, and established a Currency Board in April 1994. Since then, Litas is pegged to the US dollar at an exchange rate of 4:1.

Fiscal policy. A major priority in Lithuania's fiscal policy is to restructure the tax system, to minimise budgetary arrears and to improve the tax administration. The Government strengthened tax administration with establishing Tax Police Department and re-

[2] CIS = Commonwealth of Independent States (Former Soviet union - minus Lithuania, Latvia and Estonia)

organising State Tax Inspection. Lithuania currently has an individual income tax with a rate of 33% on personal income and a 29% corporate income tax. Value added (VAT) tax is levied at a rate of 18%; excise taxes are applied to gasoline, tobacco, alcohol, and spirits. By January 2000 VAT of heat was introduced by 9%, rising to total 18% by July 2000

Economic development strategy. The Government's economic development strategy aims at developing market institutions, upgrading the economy's technological potential and its infrastructure. It also aims to integrate Lithuania into the EU's political and economic structures. As mentioned above, the accession negotiations with EU began officially after the EU Helsinki Summit of December 1999.

1.10 Privatisation

The first stage of mass privatisation covers the period September 1991 to July 1995. The state-owned enterprises, land, agriculture companies and apartments were offered in exchange for the privatisation vouchers. Country-dwellers willing to undertake farming activities had priority in the privatisation of the land. Owners of single family housing were given the same privileges in purchasing built up residential land both in rural and urban areas. This phase of the privatisation included sale of the apartments to the tenants. The privatisation vouchers were accepted as payment for 80% of the price and 95% of the formerly state-owned flats became private already by 1995. No legislation on responsibilities for maintenance of individual apartment as well as maintenance of common areas of residential buildings did follow privatisation and has subsequent caused most serious problems for building renovation and energy efficiency.

1.11 Overview of residential building stock

By the end of 1998 there were more than 1306 thousand dwellings in Lithuania with an average ratio of 353 units per 1000 inhabitants (cf. table 1.2, UN ECE 2000 and Lithuanian Department of Statistics 1999). Approximately 67% of dwellings are located in urban areas and the rest in rural areas.

Table 1.2 Lithuanian housing indicators, 1991 - 1998

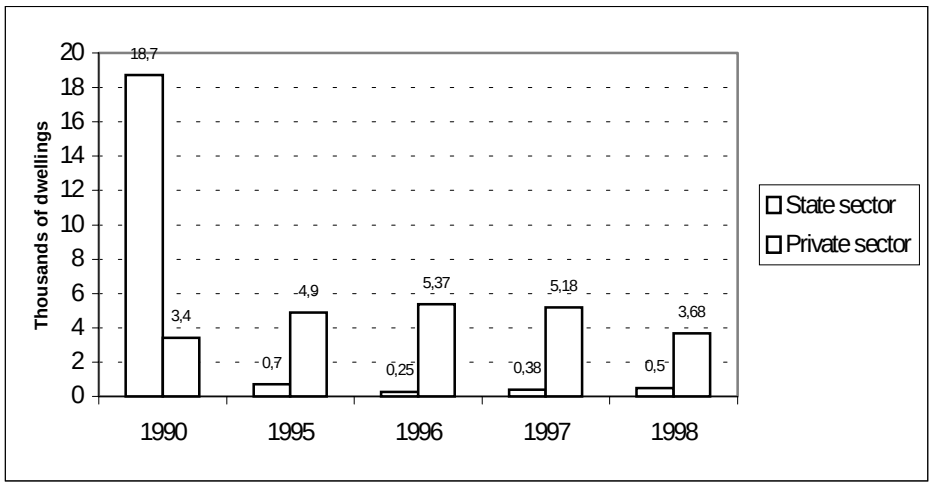
	1991	1995	1998
Total dwellings, thousands	1166	1246	1306
Dwellings per 1000 population	311	336	353
Total area of dwellings, million m^2	71	74.2	77,0
Average useful floor space per dwelling, m^2	57.9	58.3	59.0

More than a half of Lithuanian households are settled in the apartments of multi-apartment buildings and 27% dwell in individual houses while the rest owns a part of individual house or rents a room in common apartment (KPMG 1998). In rural areas 66% of households live in individual houses and only 17% in apartments.

Housing construction dramatically declined during the last few years, especially in the state sector (cf. figure 1.3 below). Approximately half of privately constructed dwellings during the last few years were individual houses and the rest is apartments in multi-apartment buildings (Lithuanian Department of Statistics 1999).

According to Lithuanian Association of Municipalities there were 29.5 thousand multi-apartment buildings in the country in 1998. Roughly half of all multi-apartment buildings are located in major Lithuanian cities and the rest is located in small towns and rural areas. Furthermore the current number of households residing in single family houses is in excess of 500.000 (p.12 KPMG 1999).

Figure 1.3 Number of dwellings completed, 1990-1998 (Source: UN ECE 2000)



Major indicators of Lithuanian housing stock are presented in table 1.4. Most of urban residential buildings receive heat and domestic hot water from municipal networks. In rural areas only 44% of the dwellings are connected to the piped water and 39% have district heating.

Table 1.4 Facilities in the housing stock of Lithuania in 1998 in percent (Source: UN ECE 2000).

	Piped water	Sewerage system	Fixed bath or shower	District heating	Electricity
Urban	89,4	89,1	80,7	87	100
Rural	44,1	39,1	32,5	39,2	100
Total	58,9	N/A	53,8	57,8	100

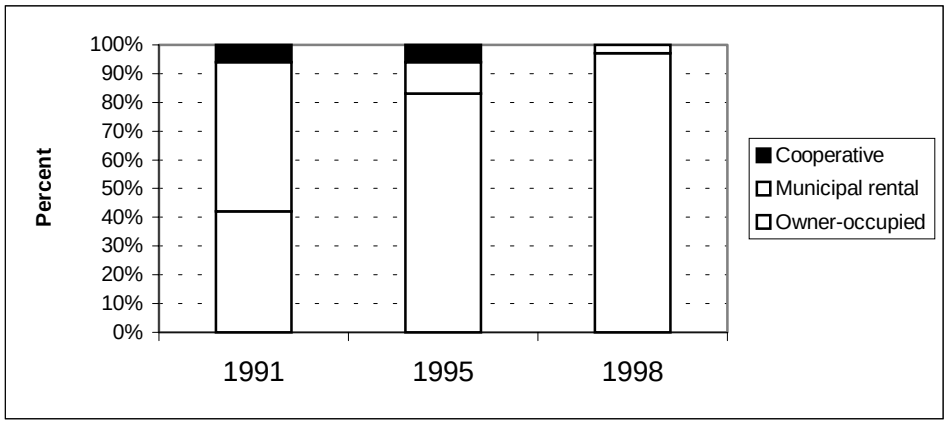
1.11.1 Ownership

Because of massive privatisation campaign in early nineties more than 97% of Lithuanian dwellings became private by 1998 (cf. figure 1.4) and the rest belongs to the municipalities. All common areas and constructions of a multi-apartment building belong to apartment owners as shared property (cf. the homeowners' associations law). In some cases separate apartments in already privatised multi-apartment buildings can also belong to a municipality. Only 5 to 8% of owner occupied apartments are used as private rental (UN ECE 2000). Most of single family houses were private during the soviet times.

There were more than 4.5 thousand of multi-apartment buildings with homeowners associations in 1998 (data from Lithuanian Association of Municipalities). That amounts to 15% of all multi-apartment buildings countrywide but in some areas (for example in Alytus or Vilnius) share of buildings with associations is much higher. In 1991 approximately 9% of all multi-apartment buildings were owned by so-called co-operatives (UN ECE 2000). Apartment owners in these apartments were more organised

and co-operative in their activities and thus having an opportunity they re-registered former co-operatives into homeowners associations. As result 52% of associations in 1998 were re-registered former co-operatives (Ramboll 1998).

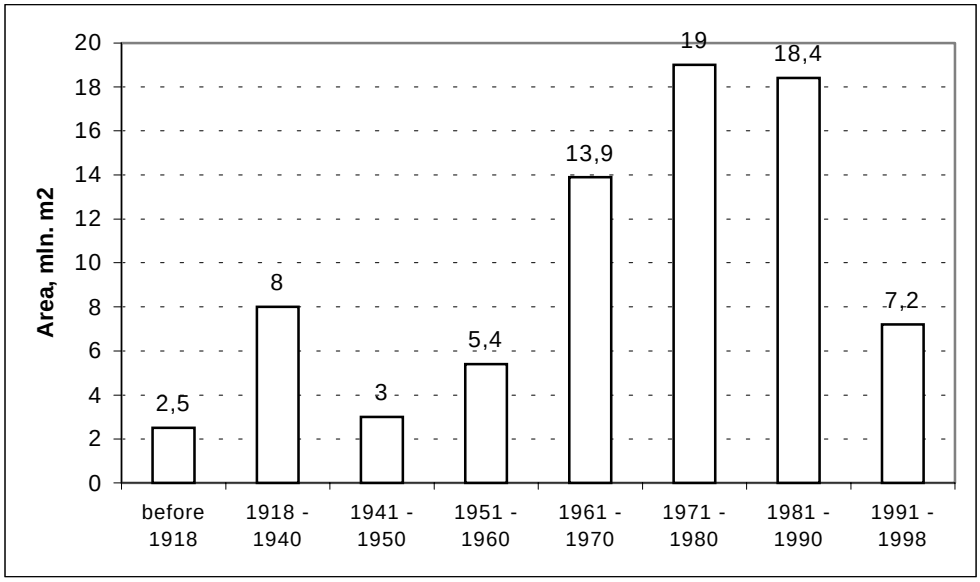
Figure 1.5 Changing tenure structure in Lithuania, 1991-1998 (Source: UN ECE 2000)



1.11.2 Construction

Two thirds of all Lithuanian residential buildings were constructed in 1960 - 1990 (cf. figure 1.6). Due to neglected maintenance this relatively new housing stock requires extensive renewal. Approximately 106 thousand m^2 of total living area is considered to be in a state of emergency and has to be either destroyed or extensively reconstructed (UN ECE 2000).

Figure 1.6 Age structure of Lithuanian housing stock (Source: UN ECE 2000)

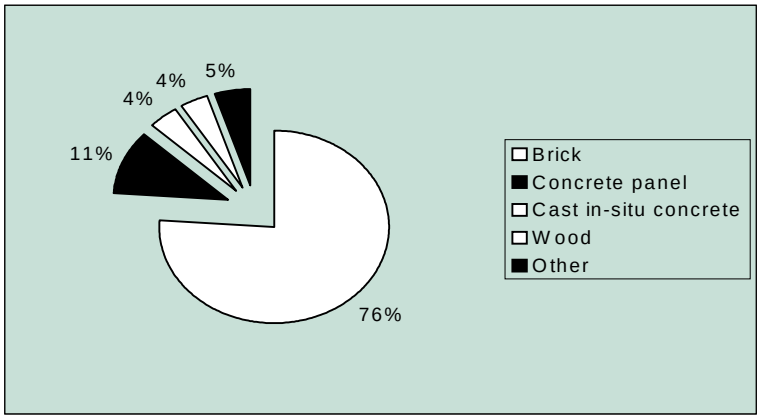


Most of Lithuanian housing stock is made of baked clay bricks (cf. figure 1.7), nevertheless a significant part of Lithuanian households reside in multi-apartment high

rise prefabricated concrete buildings. These types of buildings have the following typical problems (UN ECE 2000):

- poor construction quality, including the technical infrastructure in the buildings;
- neglected maintenance;
- low energy efficiency of building envelopes;
- high energy losses in district heating system and hot water production and distribution.

Figure 1.7 Lithuanian residential building stock by construction materials, 1998 (Source: Statyba 2000)



1.11.3 Energy supply

Despite low indoor temperatures, energy consumption for heating per square meter is much higher compared with that of other market economies. High energy consumption is not only the result of poor building design, but also influenced by poor quality of construction, poor maintenance and lack of proper energy management (flawed tenants' behaviour). The same type buildings located nearby can consume significantly different amounts of heat.

District heating networks provided the major part of final heat (approx. 7000 GWh) for the residential sector in 1998 (Lithuanian Energy Institute 1999). It has not been possible to locate data on the consumption of other fuels for heating. Based on the balances of fossil fuels for 1998, the final consumption of district heat was followed by firewood (approximately 5500 GWh), natural gas (part of approximately 1400 GWh consumed was used for cooking), coal (approximately 290 GWh) and peat (approximately 130 GWh). Some new construction buildings have individual gas boilers (both building level and apartment level) installed. These highly efficient local boilers exclude heat losses usually occurring in lengthy district heating networks (varying from 14 to 39% in various Lithuanian cities, cf. Lithuanian Energy Institute 1999), thus offering significant savings in both energy consumption and energy bill. A number of older individual boilers have low energy efficiency and need to be replaced.

2 ENERGY EFFICIENCY HOUSING PILOT PROJECT (EEHPP)

After the privatisation of building stock in mid nineties, households faced housing maintenance problem. During the soviet period, State or municipally owned apartments (90% of multi-apartment housing stock) were maintained by municipal housing maintenance enterprises (MME). Only homeowners living in co-operative multi-dwelling buildings (10% of housing stock) were responsible for the condition of their living premises, so only they developed skills and experience necessary to maintain their common property. Consequently a major part of newly established apartment owners lacked traditions and skills necessary to maintain their buildings and remained surrounded by soviet-style housing maintenance companies. In addition scarce financial resources and lack of affordable credits significantly reduced household opportunities to invest in energy efficiency measures and building renovation projects.

Municipal companies collected minor fees and performed only the most urgent repairs. Separate contractors - using money collected from apartment owners - performed minor building repairs. More substantial renovations were rare and often financed by international donors, as part of research or demonstration projects.

First attempt on the country's scale to improve this situation and to initiate more significant building retrofits and implementation of energy efficiency measures was the Energy Efficiency Housing Pilot Project. In the following chapters progress, major findings, and lessons learnt of this project will be analysed and discussed.

2.1 Description of EEHPP

To facilitate energy efficiency improvements in the residential and public sectors the Lithuanian Government signed a loan agreement with the World Bank and started the Energy Efficiency Housing Pilot Project in 1996. According to the initial agreement, USD 7.2 millions were allocated for implementation of energy efficiency measures in residential buildings (in both multi-apartment buildings managed by homeowners associations and single-family houses). USD 1.7 millions were allocated for municipalities to invest in energy efficiency measures and renovation of public schools. The implementation of the project began in the beginning of 1997. The Danish Ministry of Housing and Urban Affairs and the Dutch Ministry of Economics agreed to provide the main technical assistance for the project.

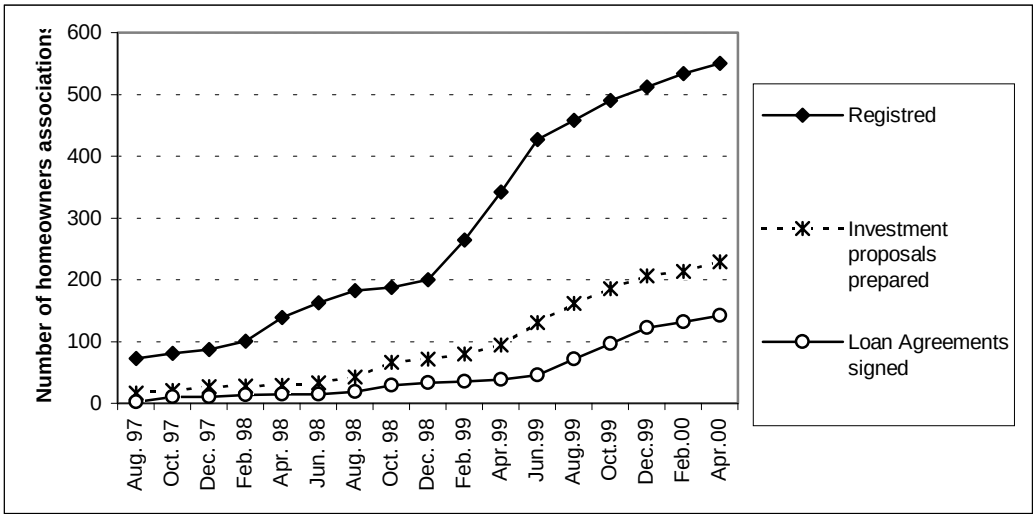
The objectives of EEHPP are to:

1. develop maintenance and of housing infrastructure by stimulating private initiative;
2. achieve of greater energy efficiency through demand side activities;
3. develop private sector;
4. introduce long term affordable financing schemes.

Absence of necessary institutional capacity supporting homeowners associations resulted in limited demand for the project loans in 1997 – 1998 (see figure 2.1 below). The demand for municipal loans was very high from the beginning, therefore Lithuanian Government asked the World Bank to reallocate funds from the part A to the part B, so that finally USD 5.2 millions were allocated for homeowners associations and USD 4.7 millions were allocated for municipalities.

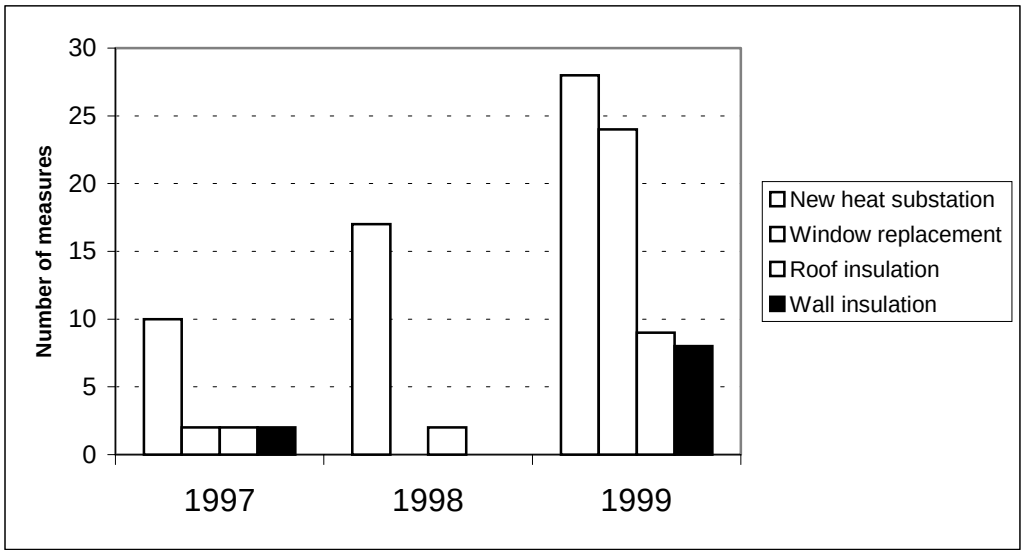
As of September 99, all loan agreements with municipalities regarding disbursement of USD 4.7 millions of municipal funds were already signed and it is expected that all these funds will be disbursed in the first half of the year 2000. Successful implementation of public school renovation projects (in some cases energy savings up to 50% were achieved) generated significant demand from municipalities' side for additional loans.

Figure 2.1 Number of homeowners associations participating in the EEHP project, 1997-2000



In the beginning of 1999 Lithuanian government decided to introduce 30% grant for homeowners associations investing in energy efficiency. New grant system and well-targeted public information campaign together with already developed support network of 5 advisory centres and local energy consultants resulted in a significant increase of loan applications. As of May 2000, more than USD 7 millions (including the World Bank loan and matching funds allocated by the Lithuanian Government) were approved for 162 homeowners associations and 23 owners of single family houses. Average loan size increased from USD 22 thousand in 1997 to almost USD 50 thousand in 1999. The range of energy efficiency measures implemented by homeowners associations also expanded (cf. figure 2.2 below).

Figure 2.2 Energy efficiency measures implemented by homeowners associations participating in EEHPP, 1997-1999



Technical monitoring of the projects implemented in 1997 revealed average energy savings of about 20% in multi-apartment buildings. In individual cases energy savings varied from 5 to almost 50% compared with previous consumption. Social monitoring of the same projects showed that more than 90% of surveyed households were very positive about implemented projects and did not have any problems with loan repayment (Lasas and Kazakevicius 1999).

2.2 Lessons Learnt

The Energy Efficiency Housing Pilot Project identified a number of factors influencing the pace of the building renovation and energy efficiency process.

A successful implementation of building renovation and energy efficiency in the EEHPP have been dependent on

- the home owners financial resources;
- ownership issues and real estate value of dwellings;
- energy prices;
- capacity and capability of market for maintenance, repair and construction.

The experience gained in the pilot project comprise:

- The original project strategy and plan was inadequate;
- The learning that took place during implementation was used to make major modifications
    - Some of these modifications took place within the project, changing of procedures and tasks;
    - Some involved major decisions by politicians, locally and centrally;

- Major project modifications difficult to carry through
  - Because of lack of political priorities and strategy;
  - Because of insufficient organisational set-up involving politicians.

2.2.1 The Home Owners' Financial Resources

Investments in building retrofits strongly depend on household financial resources and market capacity to meet consumers' demands. Financial resources for building renovation include not only family cash savings or monthly incomes but also availability of various long-term financing possibilities on the market.

Income

Re-distribution of economic activities led to the differentiation of household incomes in various regions of the country. Presence of grey sector in Lithuanian economy and different techniques used by separate research teams resulted in significant differences among various studies evaluating household incomes and expenditures. According to the Lithuanian Free Market Institute study (LFMI, 1999) average household monthly income in the first half of 1999 amounted to LTL 2428 in major cities, LTL 1757 in small towns and only LTL 982 in rural areas. Household monthly investments (purchase or lease of consumer durables, securities, etc.) amounted to LTL 342 in major cities, LTL 206 in small towns and only LTL 90 in rural areas. Data collected by Lithuanian Department of Statistics (LDS, 2000) shows that 4.7% of household expenditures were spent for home improvements. However data on household incomes significantly differs from that of LFMI (average household income did not exceed LTL 1330 in urban areas and LTL 970 in rural areas in 1999). Experts (LFMI 1999) did not anticipate any significant changes in household incomes and investment patterns during the following year (second half of 1999 to first half of year 2000). Removal of market barriers could increase the share of household investments spent for energy efficiency measures and building retrofits. For these purposes an average Lithuanian family could potentially spend up to LTL 120 per month in bigger cities and up to LTL 50 per month in rural areas. (Statistic Department Bulletin 6 March 2000)

Loans and other financial resources

Implementation of cost-effective energy efficiency measures coupled with soft long-term financing could create a positive cash flow from the very beginning of building retrofit. In this case building renovation would become affordable even for lower income families. Lithuanian banks lack long term financing (especially in Litas), so that they are not able to provide soft and Litas denominated loans for households or municipalities (KPMG 1999). Development of Lithuanian mortgage financing system with subsequent generation of local finances through long term mortgage bonds should increase long term financial resources available for both new construction and rehabilitation of current housing stock.

2.2.2 Ownership Issues and Real Estate Value of Dwellings

Clear ownership, sufficiently high real estate value and adequate energy prices are essential for households and municipalities to consider investments in energy efficiency and building renovation.

Ownership

While there is clear ownership regarding municipal property and single family houses, multi-apartment building ownership issues are not resolved yet. Apartment owners hold titles for separate apartments while responsibility for a building as a whole is vaguely shared between homeowners and municipal maintenance companies. Apartment owners (even formed into association) are eligible for bank loans only by mortgaging their apartments (theoretically they could also secure a loan with association's bank account, but practically Lithuanian banks do not accept this type of guarantee). It is almost impossible to convince all homeowners in a multi-apartment building to mortgage their apartments therefore other solutions on securing of bank loans should be sought. One of the possible solutions could be loan insurance by specialised state or private insurance company. Loan insurance could encourage banks to extend loans for homeowners associations thus increasing funds that society could invest in energy efficiency and building renovation. State owned enterprise that provides insurance for mortgage loans started its operations in the beginning of 2000, but major focus of the company is individual households taking loans for purchase, or construction of living premises - not homeowners associations seeking loans for refurbishment of existing housing.

Draft building maintenance law (see Chapter 3) pending in the parliament clearly states that apartment owners are fully responsible for a building and its condition. Apartment owners have an opportunity to form a homeowners association or to conclude a joint activity agreement and take care of their building by themselves. If they do not take necessary measures then the municipality (according to the new HOA Law (See 3.2)) should assign an administrator. Administrator will act on behalf of homeowners and will organise all works necessary for proper building maintenance. Administration expenses will be covered through monthly payments of tenants. Thus once building maintenance law is approved solution of the responsibility problem should advance.

Real estate value

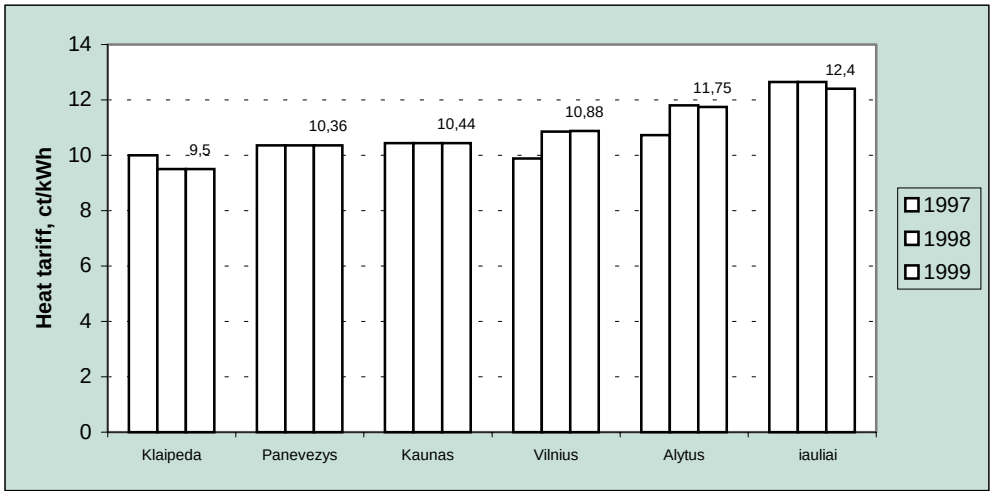
Concentration of businesses in major cities (Vilnius and Klaipeda) and rising unemployment in rural areas caused peoples' migration in the country. As result there is a dwelling surplus in rural areas and smaller cities and sharp increase of demand for living premises in Vilnius and other bigger cities (KPMG 1999). Lack of secure investment opportunities made real estate purchase a very attractive option, thus driving dwelling prices up. Demand for high quality housing and growth of real estate value created an additional motivation for households to invest in energy efficiency measures and housing quality improvements in order to increase value of their living premises. On the other hand low demand for higher quality housing and low dwelling prices in small towns and rural areas discourages households from substantial investments in their living premises, so households tend to limit their investments to the most cost-effective measures. According to "Oberhaus" real estate agency estimate, there is up to 20% difference between prices for new and energy efficient dwellings and old construction dwellings of

similar size and location in Vilnius. Therefore building upgrades could increase real estate value somewhere within this 20% limit.

2.2.3 Energy prices

Energy price is one of the major driving forces for energy efficiency improvements. The semi-independent National Control Commission for Prices and Energy approves heat tariffs (58% of all Lithuanian dwellings receive heat from district heating networks, UN ECE 2000). Since Lithuanian district heating companies were transferred to municipalities heat tariffs in various regions became different (cf. figure 2.3, Source: Energy Agency 1999).

Figure 2.3 Residential district heating tariffs in a number of Lithuanian cities, 1997-1999



A number of municipal district heating companies in bigger cities (Vilnius, Klaipeda) showed profit on their bookkeeping balance sheets (Verslo žinios 2000) meaning that tariffs cover heat generation and distribution costs. Due to higher production costs a significant number of smaller municipalities were forced to subsidise heat tariffs in order to keep district heating affordable for most of end users. Facing lack of experience and limited financial resources to run district heating companies efficiently several municipalities decided to rent these companies on a competitive basis for private operators or energy service companies. End user price and investments are among criteria used for evaluation of bids.

Experts from the NCCEPA do not foresee any dramatic changes in district heat costs during the next few years - unless Litas devaluates. Heat tariffs will increase in the year 2000 by 18% due to introduction of VAT for district heat. The UN ECE 2000 survey showed that a significant percentage of households considered heat tariffs to be very high therefore families paying full price for supplied heat have substantial interest in reduction of current energy consumption. Lower income households (up to 30% of all urban households, UN ECE 2000) receive state allowances for heat and hot water thus having limited interest in improved energy efficiency. One of the tasks for Lithuanian government is to reshape subsidy policies in order to promote energy efficiency rather than energy consumption.

2.2.4 Capacity and capability of market for maintenance, repair and construction

If financial resources and incentives are in place important issue remains whether there is enough of market capacity to implement these incentives. Actual renovation pace of residential buildings will depend on how easy is to make formal arrangements for upcoming retrofit and implement necessary works. Municipalities and owners of single family houses can contract construction or energy service companies directly. Homeowners associations can operate both directly or through maintenance and administration companies. Apartment owners without association first deal with housing maintenance and administration companies if they want to improve their living conditions.

Building maintenance market development: Municipal Maintenance Enterprises (MME)

Restructuring and privatisation of communal services (building maintenance, administration services, garbage removal, etc.) did not follow dwelling privatisation. As result new private ownership was surrounded by municipally owned and monopolistic structures. Municipal housing maintenance enterprises showed few incentives to initiate more substantial rehabilitation of multi-apartment premises and limited their activities to minor or urgent repairs. Monopolistic area-bounded arrangement inhibited competition among municipal companies and did not encourage improvement of their services. Indirect subsidies (from non-core activities) reduced opportunities for private businesses to enter this market segment. Poor quality services and lack of financial transparency created general distrust among households and limited their willingness to invest in building retrofits through municipal structures. As result apartment owners not formed into associations have very few possibilities to invest in their buildings even if they want to.

Successful privatisation of municipal businesses in Alytus and new start-up private ventures in the field forced a number of municipal enterprises to reconsider their policies and expand the range of offered services. In some districts of Vilnius municipal companies initiated roof renovations of buildings without homeowners associations. All households were informed about planned renovation work schedule and associated costs. During certain time period homeowners were billed monthly and after collection of 50% of a needed sum works were implemented. Contractors were selected on a competitive basis. Due to bulk purchases for several buildings renovation costs could have been reduced but lack of transparency and uniformity of selected solutions (only the cheapest measures were implemented) left a number of households unsatisfied. In the nearest future municipal companies could be a part of the market for maintenance and administration services provided fair competition is enforced and households are free to choose among services they need and can afford.

Building maintenance market development: Private sector

The first privatisation of municipal maintenance enterprises took place in Alytus in 1992. It was a good example on how subsidised and loss-making municipal company can be transformed into profitable private enterprise after a number of organisational reforms.

Prior to the privatisation the MME employed 150 staff employees. Only part of these specialists dealt with building maintenance and administration tasks. After restructuring a

private company employs staff of 40 full-time specialists and all of them are involved in building maintenance and administration services. With reduced staff the private company services the same number of buildings as before and there was almost threefold increase of investments in building maintenance and renovation. Table 2.4 provides comparison of indicators of private company with that of municipal companies (data from the Lithuanian Association of Housing Maintenance Enterprises). Alytus municipality does not interfere into price setting and tariffs for various services are agreed between the company and clients.

Table 2.4 Private (P) and municipal housing maintenance enterprises (M), 1998

	Number of employees	Multi-apartment buildings maintained	Revenues from core activities in 1998, LTL
"Zaidas" in Alytus (P)	40	112	840,000
"Alytaus butuukis" (M)	50	109	330,000
"Jurbarko komunalininkas" (M)	72	121	210,000

The company has started a promotion campaign encouraging homeowners in multi-apartment buildings to form associations. As of December 1999, associations manage over 60% of all multi-apartment buildings in Alytus and this number is much higher compared with that of other Lithuanian cities. The success was partially due to attractive contract conditions offered by the private company to newly formed associations. The private company introduced annual building inspections with following presentation of results to representatives of association. Presentation includes suggestions on improvements and repairs. Based on inspection results homeowners make decisions and the company implements decided measures. Major renovation works are financed by association funds accumulated over a certain time period. The company also assists associations participating in the Energy Efficiency Housing Pilot Project in Alytus.

Construction industry

Lithuanian construction industry has enough capacity to meet anticipated expansion of residential and public building renovation market but quality assurance and "grey" sector problems remain to be solved in the nearest future (see chapter 6).

Previously state owned industry was privatised in early nineties as a consequence of the Government's program of "voucher privatisation". Out of 474 construction companies

employing 113,000 people in 1991 only 40 remained as state owned by the end of 1997 (Statyba 2000, 1999). Privately owned companies accounted for more than 93% of the value of all construction contracts in 1998.

Overall, Lithuania has a private construction sector able to function in a competitive manner with regard to challenges presented by maintenance and repair of existing housing, as well as a new housing construction (UN ECE 2000). Economic changes resulted in dramatic decline of residential building construction. Reduction of in-country construction demand and limited export possibilities caused a fierce competition among construction companies within Lithuania.

Smaller size enterprises perform most of heating system upgrades in the residential buildings. These companies are quite flexible and can rapidly expand their capacities in line with growing demand.

Residential building envelope improvements (window replacements, external wall and roof insulation) are quite rare due to high costs associated with these measures. Potential

expansion of this market segment should not create capacity problems during the next five to ten years because the current capacity of Lithuanian construction industry is under-utilised.

3 LEGAL AND REGULATORY FRAMEWORK

This section gives a short overview of the major regulatory and legal framework with relevance for the housing sector – with focus on renovation of buildings to improve energy efficiency. The legal framework for energy efficiency/savings in general issued by Energy Agency, Ministry of Economics, is not covered by this section.

This section covers the following issues:

1. Legal framework for Housing in general;
2. Legal framework for Homeowners;
3. Legal framework for Rental Housing;
4. Legal framework for Building Maintenance;
5. Building Codes, Norms and Standards;
6. Impact of EU Legislation on Building Renovation and Energy Efficiency if Lithuania becomes a member of EU;
7. Overview of Legal Framework to be introduced for the Parliament by October 2000.

3.1 Legal Framework for Housing in General

The *Civil Code* is a "superior" law that regulates many fields of the Lithuanian society including parts of the housing sector, i.e. property relations, objects of public and private ownership, objects of municipal housing and landlord/tenant agreements. The Civil Code has no provisions for homeowners' responsibilities for common properties of multi-apartment buildings.

Law on the Provision of Citizens with Dwellings (1992) is the general housing legislation that sets the framework for a marked based housing system. According to the law each citizen has the right to housing, either through ownership or by renting from municipalities or other legal entities. Citizens may construct a house/flat individually, or by establishing a housing construction association, which will operate according to municipal by-laws. Any restrictions on private ownership have been abolished and citizens are allowed to own, dispose of, rent and mortgage their residential property.

3.2 Legal Framework for Homeowners

The Restitution Law (1991) returned nationalised property to former owners.

The Law on Privatisation of Dwellings (1991) gave the tenants the right to privatise municipal or state owned rental housing. Privatisation legitimised existing housing inequalities as some of the residents were entitled to privatise a room in a hostel, while others had the chance to privatise good quality and spacious flats. In other cases, new owners acquired a

liability rather than an asset given the massive need for investment in repair and renovation. In principle attractive and affordable loan schemes for renovation and new construction could remedy these inequalities. The privatisation has in addition drastically reduced the supply of social municipal housing.

The Law on Real Estate Register (1997) specifies that ownership and other property rights become officially enforceable after registration with the Central Data Bank of the Real Estate Register.

The new Law on Homeowners Associations of 20 June 2000 sets rules of establishing, management, operation, reorganisation and closure of a Homeowners Association (HOA). Furthermore this law sets the rules for management of apartment owners' common property in multi-apartment buildings. A HOA is a legal entity representing homeowners and responsible for management of a multi-apartment building.

In case of absence of a HOA in a multi-apartment building, the common spaces of the building, constructions and installations (roof, staircases, heating substations, etc.) belong to apartment owners proportionally to the share of their apartment value. The owner could be a person and/or an institution (including a municipality). According to the Law on Homeowners Associations the multi-apartment building (where HOA is not established, and where is no Common Activity Agreement among apartment owners) administration must be separated from maintenance activities. Municipal Maintenance Enterprises or other enterprises, which have been licensed to administer multi-apartment buildings, can carry out this administration. Maintenance services have to be procured through tenders following by quality and price criteria. If flat owners make Common Activity Agreement, maintenance and administration of the building have to be in accordance with this agreement, however this agreement form has not yet been elaborated in the secondary legislation. The expenses of maintenance of building parts, which are used commonly by all inhabitants, should be shared among apartment owners proportionally to the their apartment's value. The decision making regarding multi-apartment building renovation requires approval of more than 50 percent of flat owners. The board of HOA can take such decisions when more than 50 percent of HOA members participating in the general meeting approve this.

Governmental Resolution on Standards and Tariffs (Resolution No 1300 of 1995) sets the standards for operation and the tariffs for management and maintenance of residential buildings. Tariffs can be adjusted locally. If a HOA is established the residents have the possibility to choose others to provide the services.

Government Resolution No 739 (1998) states the basis for establishing a Housing Loan Insurance Company owned by the Ministry of Finance. The Company was planned to insure loans issued through commercial banks. But no legal framework for the operational procedures of the Company has been implemented by April 2000. However, the Government did by the end of March 2000 decide to introduce a new model according to the legal framework of *Law of insurance*. After enforcement of these amendments all Lithuanian citizens will be able to insure their loans for housing for a period of 25 years with 10% initial contribution.

The purpose of the *ETB loans (Energijos Taupymas Buste) of Energy Efficiency Housing Pilot Project* is to provide financing for investments in improving the energy efficiency in the housing sector through favourable loans – but only for HOAs and owners of single family houses. The loans are disbursed by Hermis Bank and are administered by Housing and Urban Development Foundation. (Before 8 January 2000: Housing Credit

Foundation – HCF). The loan scheme terminates by 31 December 2000 and no similar loan schemes to succeed the scheme have been decided on yet. Termination of this legal framework by the end of year 2000 is critical for further implementation of building renovation and energy efficiency (Cf. chapter 6).

3.3 Legal Framework for Rental Housing

Civil Code chapter 30 deals specific with municipal housing.

According to *Resolution No 1432 of 18 December 1997* municipalities determine the rent in their dwellings – calculated according to rules set by a governmental decree. This limits the building renovation and energy efficiency process in municipal owned buildings as the payback of investment in building renovation cannot be fully be reflected in the rental fee after renovation.

The *Civil Code* specifies that private dwellings can be rented without any restrictions on rent.

3.4 Legal Framework for Building Maintenance

Municipal Maintenance Enterprises charge all homeowners a fee for maintenance and emergency repairs - according to *Resolution No. 704*.

There is no legal framework for maintenance and repair of buildings. Absence of clear fields of responsibilities of maintenance of buildings is a serious problem as buildings can dilapidate unnecessary. A draft *Law on Maintenance of Construction Works* is proposed.

3.5 Building Codes, Norms and Standards

A comprehensive *Law of Construction* of September 2000 established the basic requirements for constructed objects, their inspection, planning, rehabilitation, repair, use and demolition. It also clarified rights and responsibilities of all parties in the construction process, including state institutions. Certification requirements were established for persons involved in planning, design, technical supervision and construction. Since July 1997 the law also established building product certification procedures and imposed mandatory compliance with established normative standards and other requirements. The latest amendments concern adoption of the requirements of *EU Directive 89/106/EEC*.

A system of technical norms, standards and regulations for the construction process has been established. The system comprises about 20 documents related to the design and construction of buildings with responsibilities assigned to Government institutions and organisations regulating various aspects of the construction process. It follows the principles and requirements of *EU Directive 89/106/EEC*.

Of special interest for energy efficiency are regulations of the building technical requirements:

- Thermal techniques of building partitions (STR 2.05.01:1999)

- Declared and design values of the thermal technical sizes of building materials and products (STR 2.01.03:1999)
- Heating, ventilation and air conditioning (STR 2.09.02:1998)
- Heat network and substations (STR 2.09.01:1998)
- Certification of building materials, products and equipment (STR 1.03.01:1996)

A building permit is issued upon presentation of construction design, prepared on basis of the detailed plans.

3.6 Impact of Future EU Legislation on Building Renovation and Energy Efficiency

The acquis communitaire contains numerous directives and other policy guidelines within the field of energy efficiency.

Of relevance for energy efficiency in the housing sector are the following from the *SAVE I and SAVE II Directives:*

- Energy certification of buildings. The certificate must as a minimum provide information concerning the energy efficiency of the building.
- Billing of heating and hot water on the basis of actual consumption of each occupier of a dwelling – if supplied with heat and hot water from a collective installation.
- Thermal insulation of new buildings – depending on climate and intended use of the building.
- Regular inspection and energy labelling of boilers. The regulation covers all heating installations of an effective output of more than 15 kW.

It is important to note that the above requirements have to be incorporated in Lithuanian legislation if the country decides to join the European Union. It is a demand that national legislation is in compliance with EU legislation from the first day of membership. All the above-mentioned EU requirements have been incorporated in the Lithuanian Draft Law on Energy Conservation. This proposed law would be introduced to the Parliament in early 2001.

3.7 Overview of Legal Framework to be Introduced to the Parliament by October 2000.

The Lithuanian Government continues to make improvements of legal framework that regulates issues of the housing sector - in particular to solve

- Urgent problems of operation and maintenance of common property in privatised multi-apartment residential buildings (Law on Maintenance of Construction Works)
- Property relations (Civil Code)

- Harmonisation with EU legislation (Law on Amendment of Law on Construction)

For proper administration, operation and disposal of the common property of multi-apartment houses a new version of the *Civil Code* is in its finalising phase. For adjustment with relevance for the housing relations are Book IV "Property Right" and Book VI "Liability Law" with proposed amendments of legal framework for individual home owner's responsibility for communal properties.

A draft *Law on Maintenance of Construction Works* is prepared and presented to the Government. The draft law proposes standards and requirements for maintenance of construction works including residential houses; obligations and responsibilities for owners of the construction works. After adoption of the law, detailed technical and organisational regulations and rules for the construction works maintenance will be prepared.

A draft of the *Housing Law* has also been prepared. The purpose is to solve special items of adjustment of the housing management and operation – not covered by Civil Code and other laws. However, abolishment of the draft proposal was decided. Instead the proposed provisions will be incorporated into new version of the Civil Code and other drafts law proposals.

3.8 Legal and Regulatory Barriers

A main legal/regulatory barrier is the lack of appropriate framework for HOAs. The problems derived from this barrier comprise; lack of clear ownership rights and management structures in communal buildings; administration and maintenance is the responsibility of the – often –- inefficient municipal maintenance enterprises; difficult to implement common projects in a building.

It is a serious problem that there is no legal framework to enforce maintenance and repair of buildings. Absence of clear fields of responsibilities of maintenance of buildings is a serious problem as buildings can dilapidate unnecessary. The pending Law of Maintenance will address this problem.

4 TARGET GROUPS

This section will analyse the target groups for the building renovation and energy efficiency process. The target groups are in principle all people living within Lithuanian borders, categorised as follows:

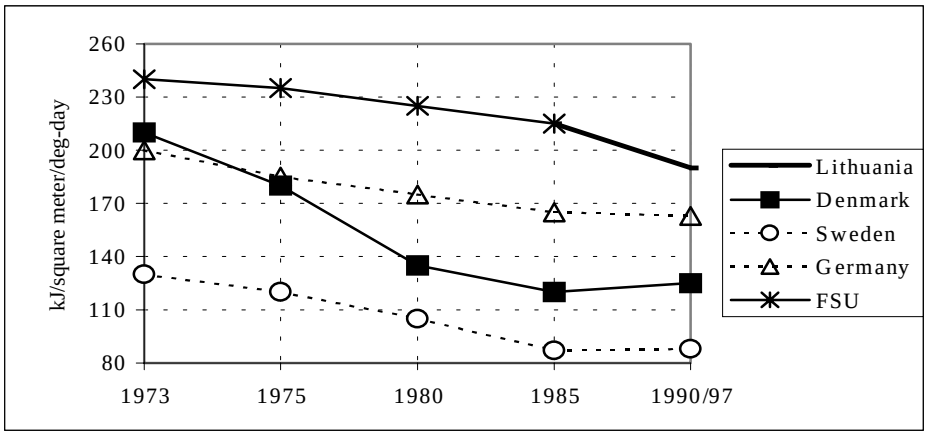
- Apartment owners in multi-apartment buildings - without a Homeowner Association (HOA) established;
- Apartment owners in multi-apartment buildings – with a HOA established;
- Owners of single family houses;
- Tenants of municipality owned dwellings.

4.1 Short Overview

By the end of 1998 the housing stock of Lithuania consisted of 1,3 million housing units, with an average ratio of 353 units per 1,000 thousand inhabitants, and average useful floor space of 21,1 square metre per capita. More than 97% of all dwellings are privately owned and about 65% are located in urban areas. About 80% of Lithuanian urban households live in two-three room apartments of four to nine floor multi-apartment buildings. Nearly three quarter of the dwellings was build during the period 1961 – 1996. Only 3% of the dwellings were built before 1918 and 11% between 1918 – 1940.

The soviet norms permitted heat transmission values much higher than that in Germany, Great Britain or Sweden. In addition, actual design and installation of building assemblies did not always meet the established norms, and due to poor or absent maintenance, building performance has continued to deteriorate. As result space-heating intensity in Lithuania is much higher compared with that of Western European countries (cf. figure 4.1). Most recent decline of Lithuanian space heating intensity can be attributed to reduced average indoor temperatures. Final heat consumption in the residential sector went down from 9478 GWh in 1995 to 7018 GWh in 1998 (Lithuanian Energy Institute 1999).

Figure 4.1 Residential space-heating intensities in Lithuania and other countries



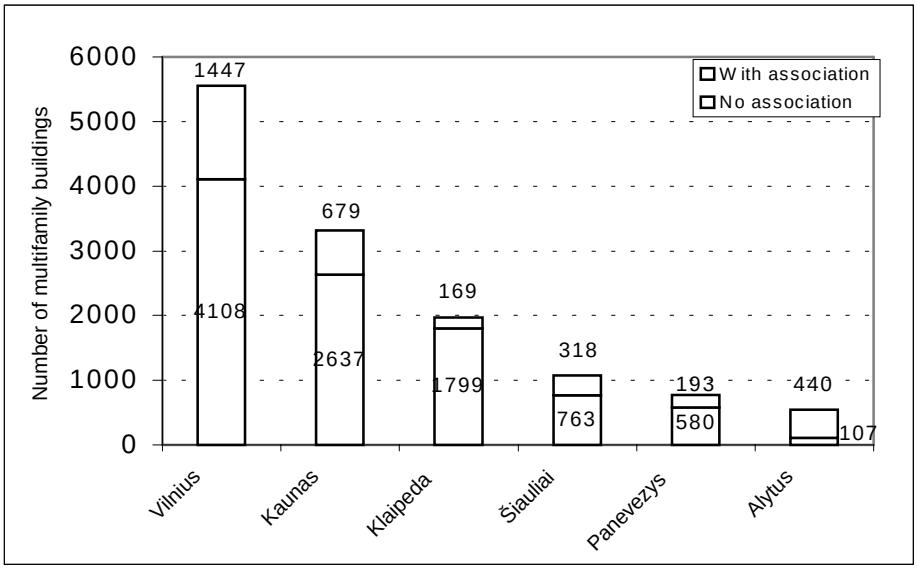
Since 1992 all newly constructed multi-apartment buildings had to comply with new building code regulations (according to the regulation RSN 143-92 "Thermal Technique of Envelopes of the Buildings" (issued in 1992 and amended in 1994), that imposes strict requirements on thermal performance of building envelope. There are no thermal standards for older buildings, so that it is up to apartment owners to decide whether it needs an upgrade or not.

Residential building construction dramatically declined during the latest few years. Furthermore it has become a political objective to renovate the existing building stock instead of construction of new buildings.

4.2 Apartment Owners with no Homeowners Association Established

According to the Association of Municipalities, (Lietuvos Savivaldybiu Asociacija) there were 29.5 thousand multi-apartment buildings in the country in 1998. Roughly half of all multi-apartment buildings are located in major Lithuanian cities and the rest are located in small towns and rural areas. With one exception, in Alytus major part of apartment owners in Lithuanian cities are still not organised in Homeowners Associations (HOA) (cf. figure 4.2). Overall there were approximately 25 thousand multi-apartment buildings with no homeowners associations formed by 1998 (Association of Lithuanian Municipalities).

Figure 4.2 Number of multi-apartment buildings with and without homeowners associations formed in major Lithuanian cities, 1998



4.2.1 Ownership and Legal Issues

Legal aspects that are related to apartments of multi-apartment buildings are in particular regulated by Civil Code, Law on Restitution (1991), Law on Privatisation of Dwellings

(1991), Law on Real Estate Register (1997) and Resolution on Standards and Tariffs (1995) (Cf. chapter 3). Because of massive privatisation campaign in early nineties more than 97% of Lithuanian dwellings became owner occupied by 1998. All common areas and constructions of a building belong to apartment owners as shared property (Law of HOA). In some cases separate apartments in multi-apartment buildings can belong to municipalities. Owners can sell, rent and mortgage their property. The UN, Economic Committee for Europe study on Lithuanian Housing Sector (UN ECE 2000) indicated that only 5-8% of owner occupied apartments are used as private rental. There are no effective laws regulating the rental sector in the country.

4.2.2 Maintenance

If a homeowners association is not formed, responsibility for maintenance of a multi-apartment building is vaguely defined and shared between apartment owners and municipal maintenance enterprises (MME). MMEs collect minor fees and perform only the most urgent repairs, i.e. this does not ensure proper building maintenance. As a result multi-apartment housing stock in the country continuously deteriorates.

The Draft Building Maintenance Law states that apartment owners own the building as a whole and are fully responsible for proper building maintenance. The same law will provide clear regulations concerning actual arrangement of compulsory building maintenance. Approval of the law should improve maintenance of Lithuanian residential housing stock.

4.2.3 Financial Resources

Quantitative data on income levels of homeowners has not been located but homeowners should represent an average Lithuanian household. Average Lithuanian family, living in bigger cities, spent LTL 342 per month for household investments (consumer durables, securities and loan repayments) in the first half of 1999 (Lithuanian Free Market Institute 1999). If half of this investment were spent for home improvements then in 10 years this would amount to approximately LTL 20 thousand per homeowner.

Families in multi-apartment buildings are very different in their financial resources. Therefore low-income households often limit investments. If costs of foreseen renovation are to be shared equally among apartment owners then low-income families set the maximum contribution of the amount they can afford.

Apart from surplus monthly incomes and personal savings, apartment owners have very few opportunities to finance building retrofits. They can obtain bank loans only by mortgaging their apartments but that is very difficult to arrange in practice. Only HOAs are eligible for ETB-loans (Energijos Taupymas Buste) provided by Housing and Urban Development Foundation (HUDF) in the framework of the Energy Efficiency Housing Pilot Project.

4.2.4 Awareness and Willingness to Invest

There only exist specific data on attitudes of apartment owners that are organised in HOAs. A number of more general studies (Ramboll 1998, Vine et al. 1999) indicated that major part of homeowners (up to 95%) considered saving of energy to be important,

mainly due to potential cash savings. However, a significant number of households did not have a clear idea on how these savings could be achieved.

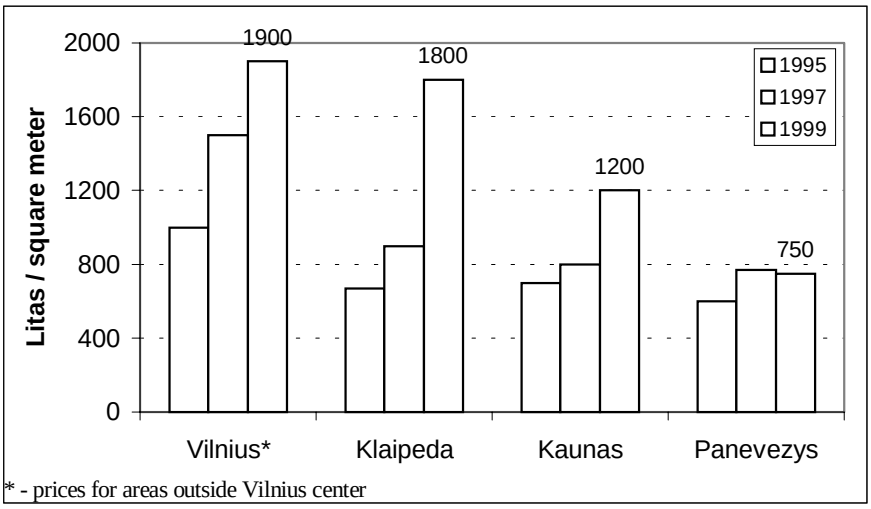
If compared with owners of individual houses, apartment owners are less informed about their actual energy consumption due to lack of individual metering.

Vaguely formulated responsibilities coupled with limited opportunities to perform proper building maintenance, significantly reduce homeowners' willingness to invest in energy efficiency and building retrofit measures.

4.2.5 Real Estate Value

Value of apartment depends on location thus influencing homeowners' decisions regarding investments into building renovation (wall and roof insulation, new windows). However, investments in energy efficiency improvements (mainly heating system retrofits) are less dependent on market value of premises, because energy saving measures offer reduced energy consumption and thus reduced monthly energy bill independent of location. Most expensive premises are in Vilnius and Klaipeda followed by Kaunas and other smaller cities (cf. figure 4.3). High real estate value was one of the reasons why nearly 75% of all renovation works made in the framework of the EEHP project were performed in Vilnius and Klaipeda.

Figure 4.3 Prices of dwellings in multi-apartment buildings, 1995-1999



Prices of newly constructed apartments were relatively uniform throughout the country in 1999 (around LTL 2000 per m^2). Therefore investments in building retrofit could result in different increase of real estate value in various cities. In Vilnius there was up to 10% difference between new and old construction dwellings of similar size and location in 1999 (Šukys, interview). As result building upgrades could increase real estate value somewhere within this 10% limit. In smaller cities there is more room for raising dwelling value through building improvements therefore growing demand for higher quality housing should expand building renovation market in these areas.

4.2.6 Heating

87% of urban housing stock and 39% of rural housing stock receive heat from district heating networks. The rest (mainly individual houses) use local boilers or stoves. Households living in multi-apartment buildings connected to district heating networks have little control over their energy consumption because apartment level heat controls often are absent. In a number of cities (Vilnius, Alytus, Šiauliai and others) local district heating companies started gradual replacement of old heat substation with new ones with automatic controls. New substations will allow flexible building level regulation of consumed heat depending on outdoor conditions and household preferences. District heating is often not competitive due to higher tariffs and therefore a certain number of newly constructed buildings have individual heating systems using natural gas. Because of restrictions and requirements, besides technical characteristics (i.e. no regulation of heat supply) of the system, it is very difficult for individual apartment owners to disconnect from district heat and install individual systems.

4.2.7 Energy Tariffs and Costs

Municipalities set district heat tariffs but before becoming effective they must be approved by the National Control Commission for Energy Prices and Energy Activities. Prices for coal, wood, liquid gas, furnace and other fuels are free of the government's control. District heat tariffs varied from LTL 0.10 to LTL 0.18 per kWh in most of urban areas in 1999 (cf. figure 2.3 for district heating tariffs in major cities). Gradual introduction of VAT for district heat increased tariffs by 9% in January 2000 and another 9% will be added in July 2000.

4.2.8 Subsidies

A number of municipalities, where district heating costs are extremely high (for example in Nida), still subsidise tariffs in order to make district heat more affordable for consumers. Apartment owners are also eligible for subsidy if heating bill exceeds 25% of their monthly income and if floor area per household member does not exceed certain limit. Up to 30% of all urban households were eligible for this subsidy in 1998 (UN, ECE 2000).

District heating companies have limits set by the National Control Commission for Energy Prices and Energy Activities regarding maximum charge per m^2 for heating in multi-apartment buildings. If actual consumption exceeds this limit then a utility suffers financial losses. Hence, both households and utilities to some extent share the same interest for reduction of heat consumption in the building.

4.2.9 Common Renovation Practices

Apartment owners had no responsibility for building maintenance during the Soviet times unless they were members of former co-operatives (9% of all dwellings in 1991, (UN ECE 2000)). All renovation works and repairs were performed by state enterprises responsible for residential housing stock. Instant privatisation of separate apartments did not change household attitudes regarding building maintenance. In addition new private ownership remained surrounded by soviet style municipal and monopolistic communal service sector. Municipal housing maintenance enterprises showed few incentives to

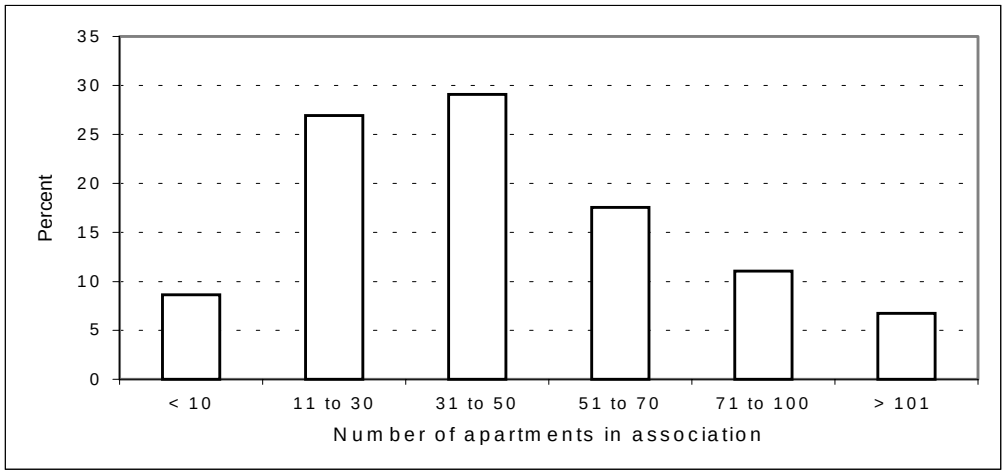
initiate more substantial rehabilitation of multi-apartment premises and limited their activities to minor or urgent repairs.

Apartment owners have an opportunity to perform more extensive renovation through municipal companies but prior to implementation at least 50% of all investments should be accumulated via monthly payments. Households have little formal control over quality of implemented measures and expenditures for specific tasks. In addition lack of financial transparency of municipal structures creates general distrust among households and limits their willingness to make substantial investments.

4.3 Apartment Owners with Homeowners Associations (HOA) established

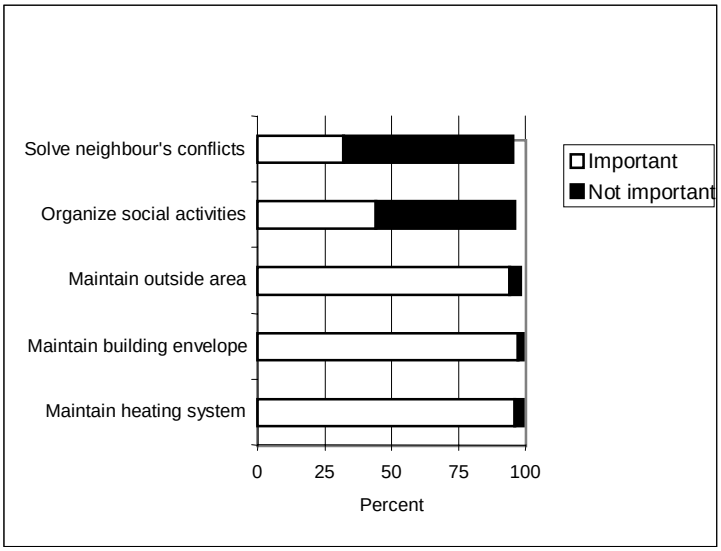
There were more than 4.5 thousand of multi-apartment buildings (out of total 29.5 thousand) with homeowners associations in 1998 (data from Lithuanian Association of Municipalities). That amounts to 15% of all multi-apartment buildings countrywide, but in some areas (for example in Alytus or Vilnius) share of buildings with associations is much higher. More than 3200 associations are located in the major Lithuanian cities and the rest in smaller towns and rural areas. Due to a number of legal, social and institutional problems – which will be elaborated in other sections of this study - there is only marginal growth of the number of associations during the last few years. Most of associations include apartment owners from one building but quite a few associations comprise owners of several buildings (cf. figure 4.4).

Figure 4.4 Distribution of homeowners associations by size, 1998 (Source: Rambøll 1998)



Associations are very diverse in their sizes, performance and capacity to carry out building renovation tasks and implement energy efficiency measures. 52% of associations are re-registered former co-operatives (Ramboll 1998), but numerous associations are formed of apartment owners who lived in the state or municipal owned buildings. As result associations have quite different experience and traditions solving problems of communal life. According to a survey conducted by Baltic surveys/Gallup in 1999, the major task for a HOA is to ensure proper maintenance of a multi-apartment building and its surroundings (cf. figure 4.5), while other tasks are less important. 70% of surveyed members were satisfied with performance of their association (Baltic surveys 1999).

Figure 4.5 Tasks of homeowners associations by importance (Source: Baltic surveys 1999)



Most of Lithuanian multi-apartment housing stock built in 1960 to 1990 consists of standard brick or concrete panel buildings with no significant difference regarding former tenure (municipal, state or co-operative). As a result buildings with associations have similar characteristics compared with ones without. Due to better and more regular maintenance, co-operative housing should have suffered less deterioration during the last decade but no quantitative data has been found to prove that.

4.3.1 Ownership and Other Legal Issues

All issues related to performance of homeowners associations are regulated by the Law of Homeowners Associations of June 2000: All decisions regarding investments in building repair or renovation must be approved by a majority of votes in a general meeting. At least 50% participation of all association members is needed to have legally valid decisions. In a few buildings with associations some apartments belong to municipalities and are rented out. Sometimes that is a problem because when building renovation is planned by the HOA, the municipality often does not have a separate budget line to finance its part.

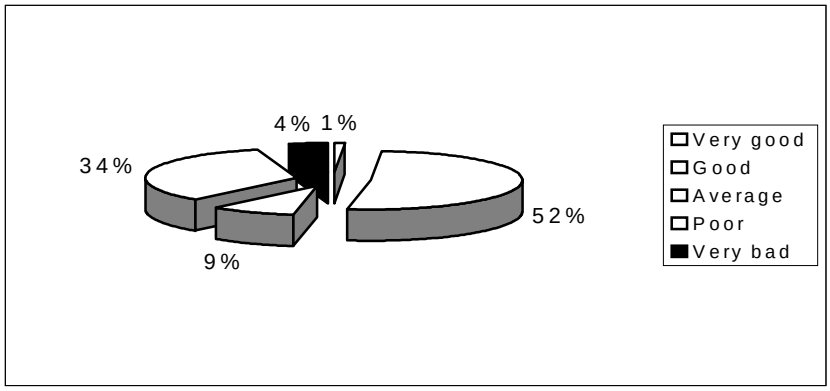
HOAs have quite different traditions and practices in their decision making. According to the Baltic Surveys data (Baltic surveys 1999) 49% of respondents answered that all members influence decisions taken by an association, 22% stated that active people influence decisions, 11% that chairpersons and 8% believed that the association board influence decisions. The remaining respondents had no opinion.

4.3.2 Maintenance

According to Law of Homeowners Associations, apartment owners are fully responsible for maintenance and renovation of their building. Association members can either perform building maintenance by themselves or contract private or municipal maintenance enterprises that could also act on behalf of an association in the process of more extensive building renovation.

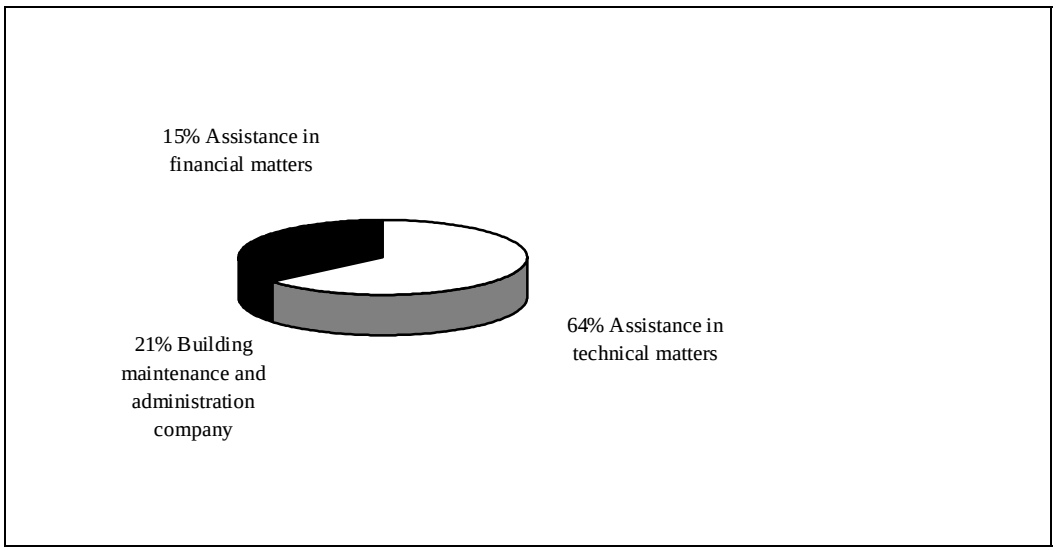
61% of all surveyed members of associations had problems with their building maintenance during the latest two years (Baltic surveys 1999), nevertheless 52% of respondents evaluated building maintenance level as good and very good (cf. figure 4.6).

Figure 4.6 Building maintenance level by homeowners associations (Source: Baltic surveys, 1999)



Most of association chairpersons have limited knowledge and experience to ensure professional maintenance of their living premises therefore external assistance in technical and financial issues are needed (cf. figure 4.7).

Figure 4.7 What would help an association to operate more efficiently? (Source: Lasas and Kazakevicius, 1999)

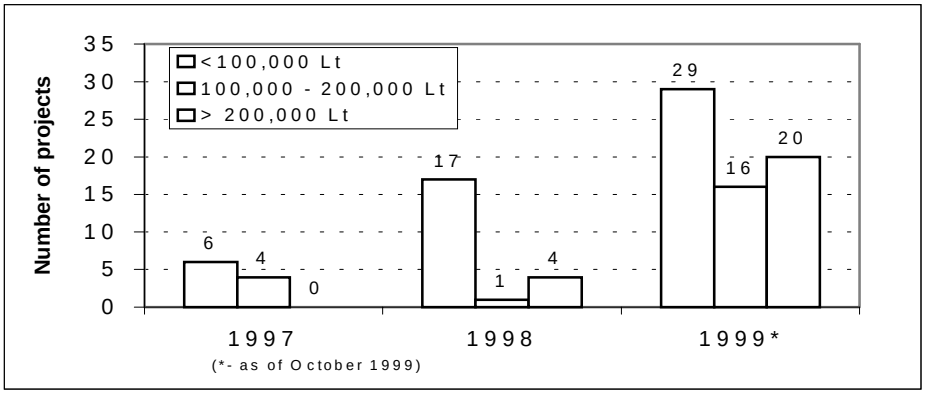


4.3.3 Financial resources

Homeowners associations have an opportunity to receive long term loans for energy efficiency improvements in the framework of the Energy Efficiency Housing Pilot project. Loans with state guarantee are provided for up to 10 years with 11% annual fixed interest rate. Association members do not have to mortgage their apartments and low-income families participating in the project receive state support. Since 1999 participating associations are eligible for up to 30% grant for building renovation provided by the State. Favourable financial conditions and institutional support resulted in a constant rise of the number of participating associations and loan sizes starting from 1997 (cf. figure 4.8).

Figure 4.8 The EEHP projects by size and number of projects, 1997-1999 (Source: Housing and Urban Development Foundation)

The number of projects has increased from 10 in 1997 to 122 by the end of 1999 and the

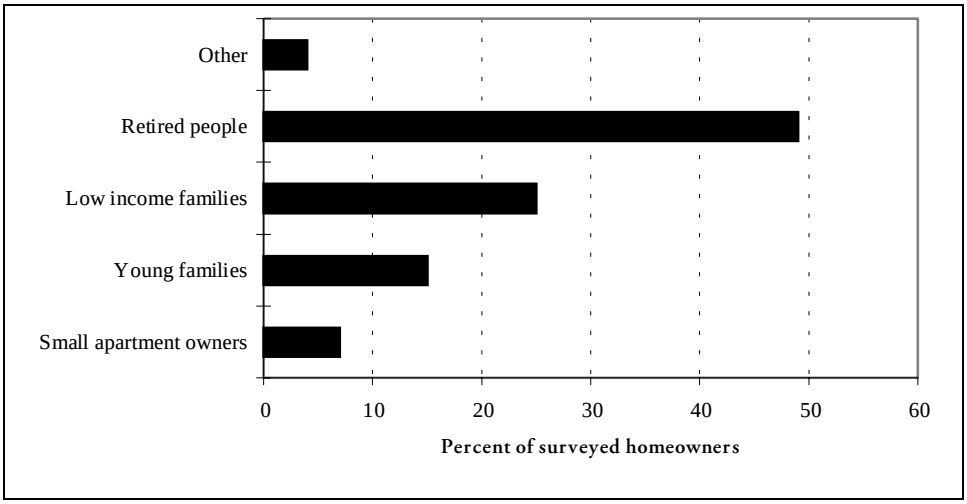


average size of investment per association increased from LTL 90 thousand in 1997 to LTL 170 thousand in 1999. Affordable financing schemes coupled with effective institutional support and targeted public awareness program can significantly enlarge the financial capacity of well-organised apartment owners.

4.3.4 Awareness and willingness to invest

Despite general interest in energy efficiency and building renovation many various household groups tend to hesitate to decide on investments in their own building (cf. figure 4.9). Almost 50% of retired people and about 25% of low-income families are hesitating to participate in the EHHPP.

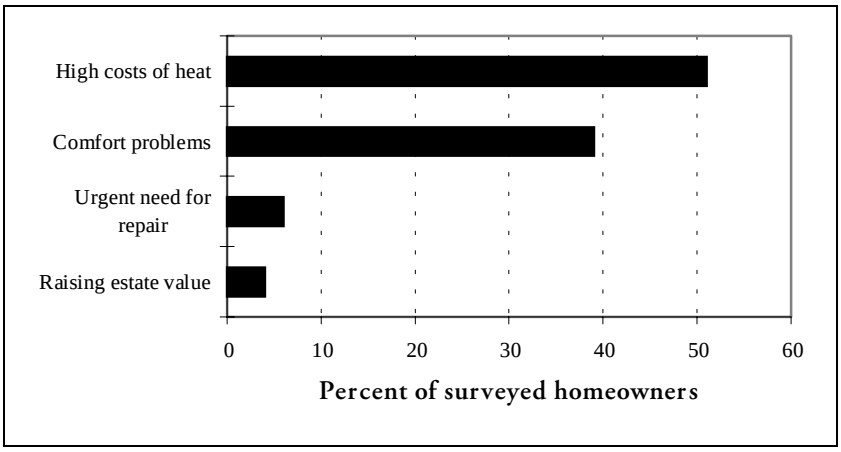
Figure 4.9 The most hesitating household groups regarding EEHPP loan (Source: Lasas and Kazakevicius, 1999)



High costs of heat and comfort problems were the main incentives for association members to apply for the EEHPP loan and implement energy efficiency measures (cf. figure 4.10). It is very indicative that almost 80% of surveyed members of associations that have already implemented building retrofits in the framework of the EEHPP would like to continue building renovation and 90% of them would like to take another EEHPP loan (Lašas and Kazakevicius 1999). Therefore practical experience and actual

successful retrofit projects have very effective motivating impact on hesitating households.

Figure 4.10 Incentives to take the EEHPP loan and implement energy saving measures (Source: Lasas and Kazakevicius, 1999)

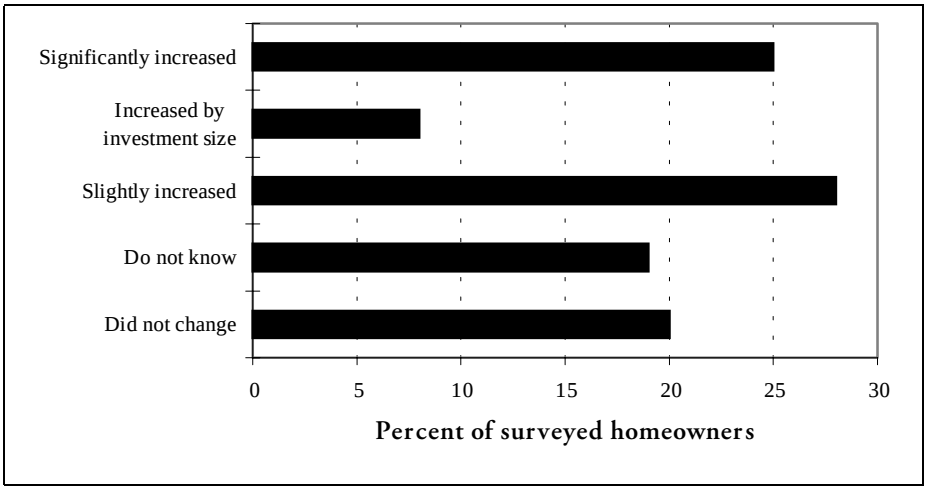


4.3.5 Real Estate Value

Different real estate value most likely influenced the distribution of the EEHPP loans in the country. Out of LTL 20 million in loans disbursed by the end of 1999, LTL 10.4 millions was invested in Vilnius, LTL 4.4 million in Klaipeda and the remaining amount of LTL 4.9 millions were disbursed in other Lithuanian cities and towns.

More than 60% of surveyed households (Lašas and Kazakevicius 1999) had the opinion that performed building renovation and implemented energy efficiency measures increased market value of their apartments (cf. figure 4.11). Therefore a number of building renovation measures, especially these improving building aesthetics (like external wall insulation), could be used by apartment owners to boost value of their living premises.

Figure 4.11 Real estate values after the implementation of EEHP projects (Source: Lasas and Kazakevicius, 1999)



4.3.6 Heating

Modern heat substations improve building level heat regulation. A number of associations participating in the EEHP project installed thermostats and individual heat cost allocators on each radiator, thus introducing individual heat regulation and metering. In these buildings tenants are able to obtain improved thermal comfort and a reduced energy bill.

4.3.7 Energy Tariffs and Costs

Municipalities set district heat tariffs subject to approval by the National Control Commission for Energy Prices and Energy Activities. District heating tariffs do not depend whether end user is a separate apartment or an association. Association members can decide whether each apartment owner should have a separate contract with a utility and should pay for supplied heat separately, or an association should deal with a utility collecting regular payments from all apartment owners. For payment administration, utilities usually charge an additional fee. Therefore some associations reduce heat costs by distributing payments among their members. In that case there is a risk that paying households could be forced to cover debts of other members – but only if stated in the agreement between HOA and utility. Utilities are more interested in dealing with associations rather than separate apartment owners, thus transferring potential debt burden to an association.

Sometimes due to flawed billing practice associations are forced to pay more for domestic hot water supply after building level heat exchanger is installed. Even if actual hot water preparation costs decrease paying households have to cover all building level loses (including possible theft) whereas separate apartment owners usually only pay according to readings of their individual meters.

4.3.8 Subsidies

Members of HOAs, like other households, are eligible for the State subsidy if heating bill exceeds 25% of their monthly income. Lack of thorough control over actual household incomes creates an incentive for families to invest in "filling in forms" rather than in energy efficiency in order to reduce their energy bill.

Low-income association members participating in the EEHPP receive state support if their energy bill together with monthly loan repayment exceeds 25% of their monthly income. The Energy Efficiency Housing Pilot project participants (associations and individual house owners) are also eligible for VAT deductions of 18%. Since 1999 participating homeowners associations can qualify for up to 30% grant provided by the State. So far these are the only subsidies in the country that promote energy efficiency rather than energy consumption. Only LTL 1 million was allocated for subsidies promoting energy efficiency compared with LTL 230 million provided to subsidise energy consumption in Lithuania in 1998 (UN ECE 2000).

4.3.9 Common renovation practices

Association members can either perform building maintenance by themselves (by contracting specialists or companies for specific tasks) or contract a private or municipal

maintenance enterprise that could also act on behalf of an association in the process of more extensive building renovation. Due to insufficient development of housing maintenance market most of associations are forced to take care of their living premises by themselves. Most of association members (including chairpersons) have limited professional knowledge and experience in building maintenance issues. Targeted training programs for chairmen as well as possible certification of energy consultants and contractors could significantly improve the quality of the performed maintenance.

In a number of cities with a better developed maintenance sector (like Alytus) competing companies offer professional and affordable services thus encouraging establishment of homeowners associations.

4.4 Owners of Single Family Houses

About 27% of urban and 66% of rural Lithuanian households resided in individual houses in 1998. Totally that amounts to more than 500 thousand households dwelling in single family houses of the country (p. 12, KPMG 1999). The number of individual dwellers would have reached much higher share but during the soviet times construction of single family houses was dramatically restricted in Vilnius and Kaunas.

Nearly two thirds of all Lithuanian dwellings were built in 1960 - 1990 and 76% of residential building stock in the country are buildings made of bricks (Statyba 2000, UN ECE 2000). No specific and representative data on single family houses could be located but it is assumed that both age structure and construction materials of individual housing stock are quite similar to that of Lithuanian buildings in general.

Typical Lithuanian single family house is one or two storey brick building with sloped roof constructed according to individual or typical designs. A significant number of individual houses built until sixties were made of wood. More than 17 thousand of typical buildings made of light wooden panels insulated with mineral wool were constructed in Lithuanian rural areas from 1976 to 1990. Prior to 1986 floor area of an individual house was limited to 100 square meters (Statyba 2000). Later this limit was extended to 130 square meters and in early nineties all limitations were abolished. As result average floor area of newly constructed individual houses increased from 105 square meters in 1990 to 170 square meters in 1998 (UN ECE 2000).

Despite dramatic decline of residential building construction during the latest few years, construction of single family houses remained relatively unchanged (around 2000 built annually in the period from 1995 to 1998). Modern construction and insulation materials as well as energy efficient designs were introduced in Lithuanian market in early nineties. Since 1992 all newly constructed individual houses had to comply with new building code regulations (according to the regulation RSN 143-92 "Thermal Technique of Envelopes of the Buildings" issued in 1992 and amended in 1994), that imposed strict requirements on thermal performance of building envelope. No data are available for how many of older individual houses comply with new building standards. Nevertheless it is assumed that major part of houses need to be upgraded as there are no compulsory thermal standards for older buildings, so that it is up to an owner to decide whether it needs an upgrade or not.

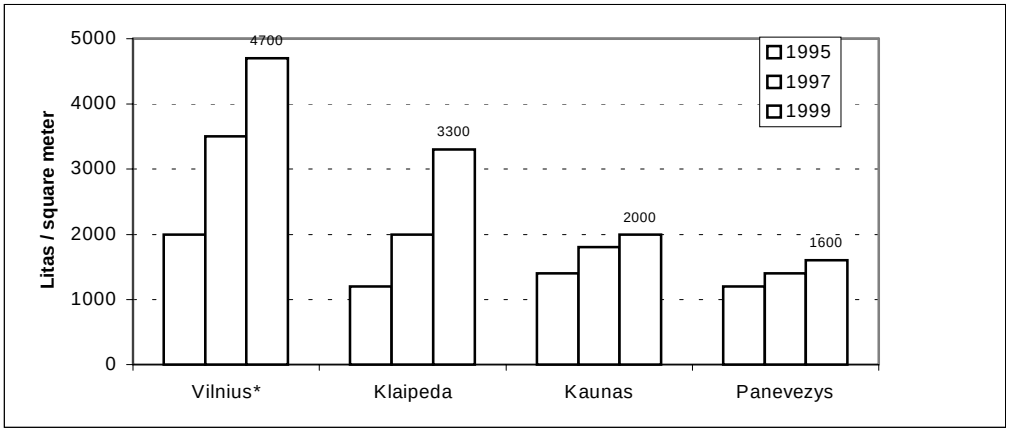
4.4.1 Ownership

Most of single family houses are owner occupied but although lacking quantitative data on how many of individual houses are used for rent, it is assumed that this is a minor number.

4.4.2 Real Estate Value

Value of single family houses depends on location thus influencing owner's decisions regarding investments into building renovation (wall and roof insulation, new windows). However, investments in "invisible" energy efficiency improvements (mainly heating system retrofits) are less dependent on market value of premises, because energy saving measures offer reduced energy consumption and thus reduced monthly energy bill. Most expensive premises are in Vilnius and Klaipeda followed by Kaunas and other smaller cities (cf. figure 4.12). Therefore it is not surprising that half of all individual house retrofits performed in the framework of the Energy Efficiency Housing Pilot project were carried out in these three cities.

Figure 4.12 Prices of individual houses, 1995-1999



4.4.3 Maintenance

Owners of individual house are entirely responsible for maintenance and renovation of his building. The proposed building maintenance law (pending in the Lithuanian parliament as of October 2000) also includes single family houses, therefore owners will have to ensure proper maintenance of their living premises.

4.4.4 Heating

Most individual houses, urban as well as rural, are heated with individual boilers. District heating is becoming less competitive due to higher tariffs (per kWh) and therefore is has been a trend that a number of individual houses connected to district heating network instead will install individual heating systems (Unless municipalities will limit this trend by legal means). Most of old individual boilers are of very low efficiency (below 50% in some cases) and need to be replaced. In early nineties, prompted by increase of energy prices, households started to replace old boilers with modern ones.

4.4.5 Energy Tariffs and Costs

The National Control Commission for Energy Prices and Activities controls electricity and natural gas tariffs. Municipalities set district heat tariffs but they must be approved by the NCCEPA before becoming effective. Prices for coal, wood, liquid gas, furnace and other fuels are free of the government's control. District heat tariffs varied from LTL 0.10 to LTL 0.18 per kWh in most of urban areas in 1999 (cf. figure 2.3 for DH tariffs in major cities). Introduction of VAT for district heat will increase tariffs by 18% in mid 2000**.** As of December 99, indicative heating costs for other energy sources per kWh were LTL 0,07 for natural gas and LTL 0,12 per kWh for night time (23.00-07.00) electricity.

4.4.6 Subsidies/discounts

Individual house owners do not receive any specific subsidies for heating. Till the end of 1999 rural households had special discount for electricity thus part of them could have used cheaper electricity for space heating. In addition households receiving heat from district heating networks did not have to pay VAT. Since January 2000 there are no subsidies for electricity, and district heat users will have to pay 18% VAT beginning with 9% from January 2000 and amounting a total of 18% effective July 2000.

4.4.7 Awareness and Willingness to Invest

A number of general studies on Lithuanian household attitudes (Ramboll 1998, Vine et al. 1999) indicated that major part of homeowners (up to 95%) considered saving of energy to be important, mainly due to potential cash savings. However, a significant number of households did not have a clear idea on how these savings could be achieved. It is assumed that this opinion also covers owners of SFH.

If compared with homeowners in multi-apartment buildings, owners of individual houses should be better informed about their energy consumption due to better metering of consumed or purchased energy resources (district heat, natural gas, coal or firewood). Clear ownership and responsibilities coupled with higher value of individual housing could provide additional motivations to invest in energy efficiency and building retrofit measures.

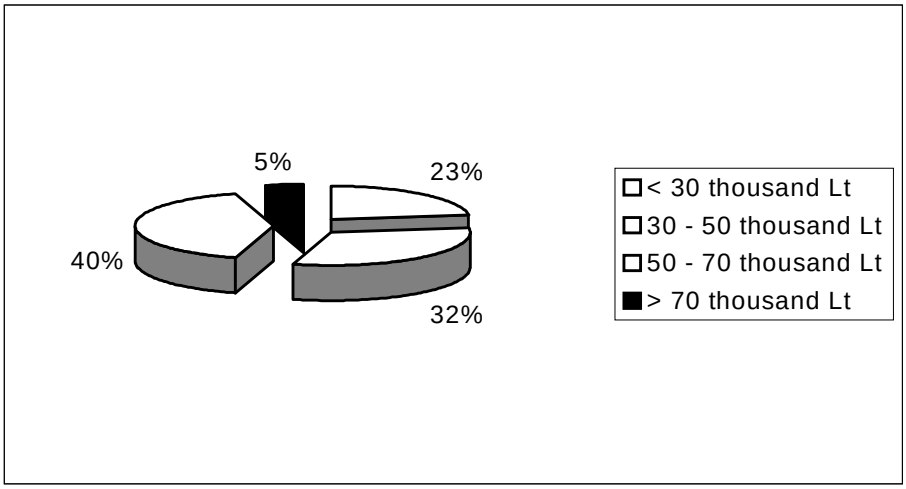
4.4.8 Financial Resources

It has not been possible to locate specific quantitative data on income levels of households living in single family houses. Due to the fact that only wealthier families were able to construct individual living premises, it is believed that owners of single family houses should be wealthier compared with an average Lithuanian household and their investment capacity exceeds that of apartment owners. It should be safe to assume that an average owner of individual house will be potentially able to invest at least similar amount of money mentioned in 4.2.3 during the next ten years if necessary incentives and market capacity will be in place.

Clear ownership and possibility to mortgage their property allows individual house owners to qualify for bank loans and loans provided in the framework of the Energy Efficiency Housing Pilot project. As of December 1999, 22 owners renovated their

single-family houses using the EEHPP loans. Loan sizes varied from LTL 13 to LTL 100 thousand with an average value of LTL 50 thousand (cf. figure 4.13).

Figure 4.13 Sizes of loans for renovation of individual houses in the framework of EEHPP, 1997-1999



4.4.9 Legal Issues

Legal issues with relevance for owners of SFHs are in particular stated by Civil Code that among others specifies that private dwellings can be sold, mortgaged and rented without any restrictions – including setting the rent level. Law on Real Estate Register (1997) and the framework for loans within the EEHPP scheme also apply to owners of SFH.

4.4.10 Building Renovation Practices

Owners were fully responsible for their individual houses before the nineties, therefore recent economic developments and reconstruction of other parts of the housing sector did not introduce any significant changes in their practices. Liberalised market provided more opportunities for building renovation in terms of new technologies (heating equipment, insulation materials, technical expertise, etc.), competitive services (works, financial services, etc.) and financing options (bank loans, consumer credits, deferred payment, etc.). Dramatic increase of energy tariffs and high space heating intensity prompted households to look for energy efficient solutions. Owners of individual houses also have more control on their energy consumption, therefore improvements of building thermal properties can be easily converted into reduced energy bill.

Due to cost saving issues, most of single family house owners are not willing to employ professional energy consultants and often rely on solutions offered by manufacturers or friends/colleagues/relatives. Significant part of construction work is performed by "grey" sector contractors, because owners have little or no incentives to conclude transparent and official contracts.

4.5 Municipal Owned Dwellings

By the end of 1998, 3,3% or 43000 of the total amount of about 1,3 million dwellings in Lithuania were municipally owned rental flats in buildings dominantly occupied by private homeowners. The amount has decreased from 7,8% in 1997 as a number of municipal owned dwellings have been privatised. There is no significant difference in ratio of private/municipal ownership in rural and urban areas.

In theory the remaining part of municipal rental housing could still be privatised but such privatisation would have serious consequences for the provision of social rental housing of Lithuanian municipalities. By the end of year 2000, the share of public rental housing is too low in relation to the need, and by beginning of 1998, more than 14 thousand families were waiting for renting a municipal dwelling – 45% of them are social supportable families (KPMG 1999).

Although no quantitative data is available, the tenants of municipally owned flats often are young people/families, yet without financial means to buy a dwelling themselves.

4.5.1 Legal and Administrative Issues

The Law on Local Self-Government (1994) states that municipalities are entitled to activities, initiatives, and decisions permitted under the Constitution and other laws and regulations of the Republic of Lithuania. Issues considered important to the municipal constituency, for which solutions do not fall within the competence of State institutions, shall also be the responsibility of the municipality.

The Law therefore places specific power and responsibility for housing issues on the Municipal Council (the elected representative institution) and the Board (the executive institution).

The Council shall:

- form Committees and resolute on their recommendations;
- establish prices and rates for services rendered to residents by municipal enterprises, including electricity, central heating, gas, hot and cold water;
- approve plans and programs for the development of the municipality – including municipal housing.

The Board shall:

- execute decisions of the Council;
- analyse and prepare proposals for general long-term development programs covering social, cultural and economic development, investment plans and other activities;
- organise construction and use of residential premises;
- organise rent and sale of municipal housing property (according to the laws);
- administer lists of people waiting for state housing support.

Within the rights of municipalities in Lithuania there seems to be no principal limit to the way local authorities handle the housing sector. First, the law obliges the municipality to define and act on issues of importance to the residents (e.g. housing policies). Second,

the municipality can independently decide on the structural way it chooses to address housing politically - including the choice of administrative instruments. Third, the municipality is free to enter into co-operation with the private sectors in an overall approach to the housing sector.

However, limitation in setting rental fees for municipal housing is a barrier for the municipalities' freedom to act in the housing sector.

No Lithuanian municipality today has a permanent Committee or Sub-Committee with specific overall responsibility for housing. Such responsibility is normally distributed among a number of Committees. As a consequence of such fragmentation, the full Council is responsible for housing. As the Council is not presented with an integrated housing policy, its opportunities to effectively carry out its responsibilities are limited. Another barrier for accelerated development of the housing sector is the lack of political priority given to housing policies at municipal level. This is reflected in the weak political/executive institutions responsible for housing at the municipal level.

Vilnius, on the other hand, upgraded its policies regarding housing issues at the municipal level. In 1998, the City Council established a permanent Sub-Committee with overall responsibility to propose Housing Programs for Vilnius and to implement the Council's decisions on such Programs. As part of a fundamental revision of housing policy, the City Council passed a resolution on a City Housing Program. The Municipality of Vilnius has changed both its political and administrative institutions in the field of housing policies to advance implementation of these programs. However, the Sub-Committee was abolished after the 19 March 2000 municipal election.

4.5.2 Maintenance

The municipal maintenance enterprises maintain the public rental stock. The quality of services and tariffs are established without any adjustment to market prices and household preferences. Maintenance fees in municipal rental sector are low, which constrains systematic maintenance and improvement activities – including "preventive" maintenance. Municipal Maintenance Enterprises estimate their monthly costs at LTL 0,80 per m^2 while only LTL 0,25 is charged for maintenance of municipal rented dwellings.

It is estimated that the "hidden" subsidies to the MMEs accounted for LTL 250 million in 1998 (Ramboll 1998). Consequently, these subsidies allow municipal maintenance companies to undercut market tariffs for maintenance services thus imposing a barrier for entry of new participants and creation of a competitive market.

4.5.3 Financial Resources

Low monthly rental fee from LTL 0,20 to LTL 1,70 per m^2 does not allow the municipalities to recover costs for management and maintenance works. The deficit between actual income and required expenditure is currently being managed by simply not carrying out necessary long-term maintenance work.

If the owners plan a renovation of their multi-apartment building, municipalities sometimes lack budgetary funds to pay their share (according to the apartments owned by the municipality) and can therefore hinder the process. One explanation for this is

borrowing limits – imposed by the government – which set barriers for comprehensive building renovation projects in municipally owned dwellings.

4.5.4 Awareness and willingness to invest

The municipalities are without doubt aware of the bad conditions of their dwellings. Housing is a basic need and the local politicians will often be blamed for bad housing conditions. Municipal investments in building improvement and energy efficiency are in particular hampered by the fact that renovation costs after improvement cannot be fully reflected in the rental fees, as the Municipality can not determine the rent fully to cover the investment.

4.5.5 Heating

Cf. section 4.2.6

4.5.6 Energy Tariffs and Costs

Cf. section 4.2.7

4.5.7 Subsidies

Although rental fees of municipal dwellings remain very low the rental subsidies are slowly shifting away from general support irrespective of income towards support dependant on more individual factors. A minimum monthly income of LTL 135 per person forms the basis for rent allowances. For those households receiving less than twice this amount per person rent allowances are paid. According to Ramboll 1998, the indirect support of tenants in public rental buildings is estimated to LTL 375 million for the year 1997.

4.5.8 Building Renovation Practices

Due to lack of funding and borrowing limits set by the Government, the municipally owned dwellings often are in worse condition compared with privately owned dwellings and the backlog of urgent repairs and improvements in public housing is increasing.

4.6 Barriers for Target Groups

For all four of the categories of the previous sections, there are barriers hindering investments in energy efficiency and building renovation in the respective types of housing.

4.6.1 Barriers for Apartment Owners Without Homeowner Association Established

- *Lack of institutional development.* Unless apartment owners are formed in association, they do not have a representative acting legally on behalf of all owners. All decisions

regarding substantial investments in building renovation must be approved by 100% of apartment owners. Some limited renovation works can be implemented through municipal maintenance enterprises (homeowners need to accumulate 50% of needed funds prior to renovation) but in this case households have no formal control over quality of implemented measures and expenditures for specific tasks.

The new HOA Law proposes introduction of a building administrator position. If apartment owners do not form a Homeowners Association or conclude a joint activity agreement then the municipality assigns a building administrator who acts on behalf of and is paid by homeowners.

- *Undeveloped housing maintenance market.* Monopolistic arrangement of municipal maintenance enterprises limits apartment owners' opportunities regarding building maintenance and renovation. In many urban areas households (especially if they are not formed in associations) are not able to choose best quality and affordable services on a competitive basis.
- *Lack of financial means*. Most of apartment owners do not have surplus funds (cash savings or surplus monthly incomes) to pay up-front for significant renovation of their living premises. Absence of alternative financing opportunities (long-term bank loans, consumer credits, etc.) that could create a positive cash flow for energy efficiency improvements seriously limit the building renovation process of this target group. Homeowners can receive bank loans only by mortgaging their apartments and that is a significant barrier provided there are limited legal controls over expenditures if no association is established.
- *Low income households.* Despite ongoing re-distribution of households by income and housing quality there still is a significant number of low-income families in almost each multi-apartment building. Being limited by their financial resources low-income households are not able to participate in building renovation process on equal terms unless financing scheme for energy efficiency improvements ensures a positive cash flow from the beginning.
- *Lack of confidence in cost-effectiveness of energy efficiency measures*. Numerous households are not sure about feasibility of energy efficiency measures (potential energy savings and future energy prices) and quality of implemented works (actual energy savings).
- *Lack of awareness and knowledge regarding energy efficiency opportunities*. Significant part of homeowners does not possess necessary skills to choose optimal solutions. Many apartment owners do not find it necessary to contract professional energy consultants to perform energy audits and prepare investment projects.
- *Lack of confidence in new technologies*. Numerous Lithuanian households are rather conservative as to new technologies and materials including energy efficiency measures. They often implement measures that are either widely accepted, or heavily promoted.
- *Lack of confidence in Lithuanian banking system.* 1995/96 banking crisis resulted in household's mistrust concerning banks and their services. In addition very few households (less than 10% according to the study performed by Rambøll 1998) have experience dealing with bank loans. As result homeowners are hesitant to use bank loans thus limiting funds available for building retrofits.

4.6.2 Barriers for Apartment Owners with a Homeowner Association Established

- *Low number of Homeowners Associations***.** Due to a number of legal, social and institutional problems there is only marginal growth of the number of associations during the last few years. Only 15% of multi-apartment buildings have homeowners associations formed. The new HOA Law states introduction of a building administrator position. This move would encourage apartment owners to form an association as a cheaper alternative to an appointed administrator.
- *Lack of professional knowledge and experience.* Most of association members (including chairpersons) have limited professional knowledge and experience in building maintenance issues. That could compromise quality of performed maintenance if an association decides to perform all tasks by itself. Targeted training programs for chairpersons and board members as well as certification of contractors and energy consultants could significantly improve the quality of performed maintenance.
- *Undeveloped housing maintenance market.* Monopolistic arrangement of municipal maintenance enterprises limits opportunities for homeowners associations to obtain professional building maintenance services. A number of apartment owners decide not to form an association because they do not have professional specialists to ensure proper maintenance of their buildings and are not able to purchase good quality and affordable services on the market.
- *Lack of financial means.* Most of apartment owners do not have surplus funds (cash savings or sufficient monthly incomes) to pay for significant renovation of their living premises. Lithuanian banks are not willing to extend loans for homeowners associations due to problems with collateral. Therefore the Energy Efficiency Housing Pilot project remains the only financial source for associations investing in energy efficiency and renovation of multi-apartment buildings.
- *Subsidies for heat consumption***.** Lack of thorough control over actual household incomes creates an incentive for families to "invest in paper work" rather than in energy efficiency in order to reduce their energy bill.
- *Low income households.* Being restricted by financial resources and having limited interest due to the current subsidies low-income households are not able and sometimes not willing to participate in building renovation process on equal terms. The State assistance, provided in the framework of the EEHP project, encourages low-income families to participate in energy efficiency retrofits. After the project completion some form of energy efficiency subsidy for low-income families should remain (at least as long as direct and indirect energy consumption subsidies remain).
- *Lack of confidence in cost-effectiveness of energy efficiency measures.* Numerous households are not confident in feasibility of energy efficiency measures (potential energy savings and future energy prices) and quality of implemented works (actual energy savings). Members of associations that successfully implemented some energy saving measures are much more positive about energy efficiency investments. Therefore demonstration projects, positive examples (so-called "first try" – and "Neighbour effect") and the dissemination of results are very important.

- *Lack of awareness and knowledge regarding energy efficiency opportunities.* Significant part of homeowners does not possess necessary skills to choose optimal solutions for energy efficiency improvements. Some associations tend to save money and perform renovation works without professional investment projects. In some areas there is limited capacity for energy consulting services.
- *Lack of confidence in new technologies.* Numerous Lithuanian households are rather conservative as to new technologies and materials including energy efficiency measures. They often implement measures that are either widely accepted, or heavily promoted.
- *Lack of confidence in Lithuanian banking system.* 1995/96 banking crisis resulted in household's mistrust concerning banks and their services. In addition very few households (less than 10% according to the study performed by Ramboll 1998) have experience dealing with bank loans. As result many homeowners are hesitant to use bank loans thus limiting funds available for building retrofits.

4.6.3 Barriers for Single Family House Owners

- *Lack of awareness and knowledge regarding energy efficiency opportunities.* Despite general interest in energy efficiency most of homeowners do not possess necessary skills to choose optimal solutions. Many owners do not find it necessary to contract professional energy consultants to perform energy audits and prepare investment project.
- *Lack of confidence in cost-effectiveness of energy efficiency measures.* Numerous households are not sure about feasibility of possible measures (potential energy savings and future energy prices) and quality of implemented works (actual energy savings).
- *Lack of confidence in new technologies.* Numerous Lithuanian households are rather conservative as to new technologies and materials including energy efficiency measures. They often implement measures that are either widely accepted, or heavily promoted.
- *Lack of financial means.* Despite relative wealth, most of single family house owners do not have surplus funds to perform significant renovation of their living premises. A number of houses constructed in early nineties were too big for families to ensure proper maintenance.
- *Lack of confidence in Lithuanian banks.* 1995/96 banking crisis resulted in household's mistrust concerning banks and their services. In addition very few households (less than 10% according to the study performed by Ramboll 1998) have experience dealing with bank loans. As result many homeowners are hesitant to use bank loans thus limiting funds available for building retrofits.

4.6.4 Barriers for Tenants of Municipal Owned Dwellings

- *Weak political/executive institutions* at municipal level are barriers for coherent housing policies – including rental housing issues.

- *Lack of funding* for building renovation of municipally owned flats in multi-apartment buildings dominantly owned by private homeowners, sometimes is a barrier for the building renovation process if the municipality cannot pay their share of the total project and thus hinders the process.
- *Borrowing limits*, imposed by government, are barriers to the municipal involvement in building renovation process.
- *Limitation in setting the rental fees* in municipal dwellings is a barrier for building renovation and energy efficiency as the "pay back" of the investment will not fully be reflected in the rental fee after renovation.
- *Low maintenance fees* – not covering actual costs - is a barrier for building renovation process in municipal dwellings – including "preventive" maintenance.

5 EXISTING SUPPORT NETWORK

The focus of this chapter is how the existing support network can support and facilitate the building renovation and energy efficiency process. An overview of the existing support network is provided as well as information about the different actors in order to evaluate their contribution to the building renovation and energy efficiency process.

The support network comprises of the following participants: *The Housing and Urban Development Foundation (HUDF)* which is a key actor and is closely related with the five *Advisory Centres for Homeowners Associations (AC)*, which has a function of regional offices of HUDF. The *municipalities* – being local authorities – have a key role in providing the overall framework for the housing sector. This includes maintenance and administrative services & subsidies to the homeowners. The *Energy Efficiency Centre (EEC)* provides information of general energy efficiency issues as well as carrying out energy audits. Finally *research institutions* have a role in research and development on new solutions and methodologies within building renovation and energy efficiency

5.1 Housing and Urban Development Foundation (HUDF)

The Housing and Urban Development Foundation (HUDF). (Housing Credit Foundation (HCF) until 8 January 2000) is a non-profit public institution taking part in re-shaping of Lithuania's urban and housing environment. HUDF consists of three divisions: Housing (renovation, energy, homeowners associations), Urban development, Financing. The activities of all three divisions are relevant for building renovation.

The Ministry of Construction and Urban Development in February 1996 established the Housing Credit Foundation. The objectives of HCF was to motivate and encourage homeowners to form Homeowners Associations; invest in building renovation and energy efficiency; administrate loans allocated from the national budget and other financing sources for construction and energy efficiency, and finally to co-ordinate and implement projects in these fields of activities. After abolishment of the Ministry of Construction and Urban Development in 1998, supervision for the Housing Credit Foundation was transferred to the Ministry of Finance.

In 1999 the activities of Housing Credit Foundation was extended to cover projects related to Urban development and the name was changed to Housing and Urban Development Foundation effective as of 8 January 2000.

The superior managing body of HUDF is the Council.

As of October 2000, HUDF has 20 employees, including a few foreign consultants working as advisors for ongoing projects and financed externally.

In addition, the staff of Advisory Centres for Homeowners Associations are from 1 January 2000 employed in HUDF and their activities co-ordinated and managed by HUDF in agreement and supported by the Danish Ministry of Housing and Urban Affairs. The Advisory Centres will later be registered as independent public institutions.

5.1.1 The Current Activities of HUDF

The main activities of HUDF are the involvement in preparation and implementation of the *Energy Efficiency Housing Pilot Project*, the *Mortgage Credit Development projects* and the Lithuanian *Municipal Development Program*. Activities of HUDF are financed by incomes from loans provided from the national budget and from foreign donors supporting ongoing projects.

Energy Efficiency Housing Pilot Project (EHHPP)

(See chapter 2)

Lithuanian Municipal Development Programme

To support the development of municipal financing mechanisms for infrastructure investments in environmental, water supply, district heating, solid waste management, transportation and street lighting sectors, the Lithuanian government has requested assistance from the World Bank and the Nordic Investment Bank. From this followed the preparation of Lithuanian Municipal Development Program and HUDF is responsible for the program implementation.

The program provides training, technical assistance and investment support to about 40 Lithuanian municipalities through a credit line operation. The number of subprojects is expected to be about 50. The total program cost is estimated to USD 67 million, and the investments are estimated to be USD 58 million. Financial support from Denmark, Finland and Sweden is received for municipal training and institutional capacity building.

In March 2000 the first subproject was due to be initiated.

Mortgage Credit Development Programme

With assistance of the Danish Ministry of Economy and Danish Ministry of Finance, the Mortgage Financing Development project is currently under preparation. The overall objective of the project is to initiate the development of an affordable mortgage credit system that could generate local financial resources for housing construction and refurbishment. The Housing and Urban Development Foundation co-ordinates activities related to the ongoing development of this project.

Two comprehensive feasibility studies have been performed and negotiations between the Lithuanian and Danish partners about the model for the mortgage financing system is still ongoing as of October 2000.

5.1.2 Target Groups

The scope of activities for HUDF is housing and urban development and the target groups are therefore very broad. The direct target groups for the ongoing projects are private homeowners and municipalities.

Private homeowners

In the EEHPP the main target groups are the homeowners and the objective is to assist and encourage them to improve their housing situation, organise Homeowners Association, save energy and improve thermal comfort.

The main objective with the Mortgage Finance project is also directed towards private homeowners, to provide affordable long time financing schemes for buying and renovation of dwellings.

Municipalities

Municipalities were the target group for the part of the EEHPP, which aimed to provide financing for renovation of schools with energy efficiency in focus. During this project, HUDF gained experience with project implementation and World Bank procurement and a demand for further financing for other projects in the municipalities were identified. These projects were one of the starting points of the Municipal Development Program.

5.2 Advisory Centres for Homeowners Associations

Advisory Centres for Homeowners Associations (AC) were established as a part of the Energy Efficiency Housing Pilot Project and implemented by the Housing Credit Foundation HCF. In total five centres were established: A centre in Kaunas and Vilnius in the beginning of 1997 and three additional in Alytus, Klaipeda and Panevezys in beginning of 1998.

From end of 1998, a technical advisor (engineer) was employed in all centres enabling them to provide a more comprehensive support in the initial phases of an energy efficiency project. The staff of the Advisory Centres consists of an office manager, a financial and a technical advisor – totally about 15 persons are employed in the five centres. Until end of 1999 a legal advisor was employed on part-time basis in some of the centres. A central unit in HUDF co-ordinates the activities of the Advisory Centres and produce information material for mass distribution.

Advice and assistance from the Advisory Centres have been free of charge due to financial support from the Danish Ministry of Housing and Urban Affairs. The Danish Ministry financed 100% of expenses until end of 1999. In a three-year transition period from 2000 until 2002, the Danish contribution will gradually be reduced with 90%, 60% and 30% of expenses covered. From 2003, the Advisory Centres should be 100% locally financed.

The assistance from staff of Advisory Centres is regarded as "non-professional" advice, which is assistance without professional responsibility - in difference to the service from private consultants. The Advisory Centres get on average one hundred enquiries per month.

5.2.1 The Current Role of Advisory Centres

The main tasks of the Advisory Centres are to provide financial, organisational, technical and legal advice to Homeowners Associations. All HOAs can receive advice on all above-mentioned issues. However, the Advisory Centres are mainly dealing with HOAs who want to finance investments in building renovation and energy efficiency using the so-called ETB (Energijos Taupynas Buste) loan, which is provided through commercial banks as a part of the EEHP project (cf. chapter 2).

The Advisory Centres participate in a Public Information Programme with the aim to motivate and encourage HOAs to invest in energy efficiency. An important part of this program was until the end of 1999 distribution of newspapers directly to all individual homeowners, who were members of a HOA.

After employment of a technical advisor in 1998, the Advisory Centres took over a large part of the support previously provided by private Energy Consultants as a part of EEHPP financed by the Dutch Government. By end of 1999, the Advisory Centres assist HOAs with preparation of Investment proposals to present to the bank as part of a loan application.

By October 2000 HOAs and individual homeowners have signed loan agreements for LTL 34 million. The numbers of undergoing projects as of September 2000 are shown in table 5.1.

Table 5.1 Number of projects with HOAs in different stages

HOAs registered as interested	590
Number of investment proposals prepared	254
Number of loan agreements signed	191

5.2.2 Target Groups for the Advisory Centres

The target groups for the activities of the Advisory Centres are: Homeowners and Homeowners Associations; Public institutions involved with Homeowners Associations (mainly municipalities) and the public in general.

Homeowners and Homeowners Associations

Initially the Advisory Centres should provide organisational, financial and legal advice to HOAs. The objectives were to

- Encourage the establishment of HOAs and Associations of HOAs
- Support effective management of HOAs and their activities
- Promote investments in building renovation and energy efficiency
- Practically the Advisory Centres, assisted by the central unit located in HUDF, are promoting the ETB loan in two ways:
- Public information campaign in form of television appearance, articles in newspapers and seminars arranged for the target groups (HOAs)
- Direct support by Advisory Centre staff to HOAs expressing interest in a ETB loan

The following table illustrates the steps in implementation of an energy efficiency project financed by the ETB loan and the support to HOA.

Table 5.2 Steps in implementation of an energy efficiency project and the development over time of who performs the steps.

Activity	1997-1998	Ultimo 1998 to ultimo 1999	From ultimo 1999
Motivation of HOAs (Public Information Programme)	Mostly central unit and HCF staff	Central unit and AC staff.	AC staff and central unit
Registration of interest from HOAs	HCF	AC	AC
Project preparation (initial discussion and preparation of energy audits/inspection)	Energy Consultants together with AC Free of charge.	AC. Energy Consultants for some projects. Free of charge.	AC Free of charge.
Investment Proposal (project description for decision in HOA and for loan application)	Energy Consultants. Free of charge.	Energy Consultants. Free of charge.	AC. Free of charge.
Submission of loan application.	HOA with assistance from AC	HOA with assistance from AC	HOA with assistance from AC
Approval of loan	Bank. First projects by HCF and World Bank.	Bank	Bank
Procurement of works	HOA with assistance from Energy Consultants. Free of charge	HOA with assistance from Energy Consultants. Free of charge	HOA with assistance from Energy Consultants. Not free of charge
Approval of project and procurement, no objection for Min. of Finance.	HCF	HCF	AC check documents. HCF makes formal approval.
Implementation of works	Contractor	Contractor	Contractor
Supervision of works	Energy Consultant. Free of charge.	Energy Consultant. Free of charge.	Energy Consultant. Not free of charge.

The division of the support is in two lines (technical advice on one side and financial/legal on the other) carried out by different actors in the beginning of the EEHP project period turned out in an unfavourable way. Assistance from Energy Consultants was often delayed and this discouraged HOAs to continue project preparation. Advisory Centres had often the first and most continuos contact with the HOAs and technical questions came up from the start. Introduction of a technical advisor at the Advisory Centres to assist in the initial phases of a project improved the situation.

During 1998, Advisory centres' technical advisors assisted mainly with initial project description to be used by the HOA to make the decision to apply for the ETB loan. The private Energy Consultants prepared Investment Proposal to present to the bank. Towards the end of 1999 the financing for Energy Consultants assistance by Dutch Ministry of Economics terminated and Advisory Centres took over the preparation of Investment Proposals. These investment proposals constitute a key element in the loan applications.

A question is, whether the Advisory Centres are able to provide investment proposals of a sufficiently high standard. A related – and important – problem is that the development of a private consulting business (private maintenance companies) could be hampered,

when the service of the Advisory Centres, which is provided for free, includes writing of investment proposals.

Municipalities

Apart from the direct involvement in the ETB loan and general support to HOAs, the Advisory Centres also interact and have established network with local partners including municipalities and heating supply companies etc. to promote energy efficiency and organisation of homeowners in HOAs. Municipalities generally appreciate the services of the Advisory Centres and often refer people to the local Advisory Centre.

The public in general

The Advisory Centres participate in a Public Information Program, which is a part of the EEHPP. The aim is to motivate HOAs to invest in energy efficiency and to encourage them to form homeowners associations and take responsibility for their own housing situation. The role of Advisory Centres in this respect has increased gradually and they are today involved in a number of activities.

5.3 Municipalities

The Law on Local Self-Government (1994) states that the 56 municipalities of the country are entitled to activities, initiatives and decisions permitted under the Constitution and other laws and regulations of the Republic of Lithuania. Issues considered important to the municipal constituency and where the solutions do not fall within the competence of State institutions, shall also be the responsibility of the municipality.

The Law therefore places specific power and responsibility for housing issues on the Municipal Council (the elected representative institution) and the Board (the executive institution).

The Council shall:

- Form Committees and resolute on their recommendations
- Establish prices and rates for services rendered to residents by *municipal enterprises*, including electricity, central heating, gas, hot and cold water
- Approve plans and programs for the development of the municipality – including municipal housing

The Board shall:

- Execute decisions of the Council
- Analyse and prepare proposals for general long-term development programs covering social, cultural and economic development, investment plans and other activities
- Organise construction and use of residential premises
- Organise rent and sale of municipal housing property (according to the laws)
- Administer lists of people waiting for state housing support

Within the rights of municipalities in Lithuania there seem to be no principal limit to the way local authorities handle the housing sector.

First, the law obliges the municipality to define and act on issues of importance to the residents (e.g. housing policies). Second, the municipality can independently decide on the structural way it chooses to address housing politically - including the choice of administrative instruments.

Third, the municipality is free to enter into co-operation with the private sector in an overall approach to the housing sector. In Alytus the private sector has been very active for several years, and the engagement of the private sector is about to be increased in several larger cities.

5.3.1 The Current Role of the Municipalities

The Municipal Maintenance Enterprises (MMEs) operate according to procedures set by municipalities. Private homeowners remained surrounded by soviet style municipal service sector as the municipal housing maintenance companies were established for maintenance and repair of municipal building stock and public areas.

The privatisation of the housing sector has not been paralleled by a similar privatisation of the maintenance sector. The MMEs operate as municipal owned monopolies within municipal districts and their main functions are still administration, maintenance and repair of multi-apartment buildings, maintenance and repair of municipal owned housing stock and public buildings, and finally cleaning of public areas (UN ECE 2000).

MMEs keep housing maintenance fees below the level that could ensure proper housing maintenance and therefore companies perform only minor and urgent repairs. Monthly fees paid to municipal maintenance enterprises rarely exceed LTL 0.30 per m^2 in 1999. Faced with revenue shortages MMEs often neglect their core activities and get involved other businesses (like car parking services, markets of agricultural products, etc.). Revenues from these additional services are sometimes used to subsidise core activities thus creating tariff distortions and undercutting possibilities for private companies to enter the market. In major Lithuanian cities municipal maintenance enterprises still dominate the market as of December 1999. It is estimated that the "hidden" subsidies to the MMEs accounted for LTL 250 million in 1998 (Ramboll 1998).

5.3.2 Target Groups

Maintenance and repair of private owned dwellings are still a monopoly of the municipal maintenance enterprises (MME) - except where Homeowners Associations are established. This can only be changed by the municipality, which can decide to engage the private sector.

Another target group is the municipal owned dwellings (3% by October 2000).

5.4 Energy Efficiency Centre (EEC)

Energy Efficiency Centre of the Lithuanian Energy Agency, Lithuanian Ministry of Economy is financed by the National Budget. For the year 2000, LTL 2,5 millions are allocated for the activities and a minor part of the income of EEC is payment by users.

The activities of EEC are laid down in the National Energy Efficiency Programme. This programme is revised each fourth year, next time effective by autumn 2000.

The EEC began its activities in April 1995 in the centre of Vilnius. A subsidiary of Lithuanian Energy Institute (Kaunas) was set up in 1994. EEC has a staff of 5 fulltime employees with a relevant updated technical background. About 25 energy auditors are on a free lance basis associated with EEC.

5.4.1 The Current Role of EEC

In the Vilnius Centre there is a permanent exhibition of different heat saving measures, i.e. examples of insulation, different types of energy efficient windows with double glass, reflectors, radiators with valves, meters etc.

In addition leaflets and small books describing all kind of heat saving measures are available – including calculations of the saving's potential. An experienced and well-educated staff is present to assist the visitors and to answer enquiries. In the conference room seminars and meetings are held.

EEC also organises nation-wide information campaigns on radio, TV and newspapers or participates with stands and staff at fairs and exhibitions.

Finally, EEC carries out energy audits in industry and for municipalities (schools, hospitals, kindergartens, municipal buildings and dwellings) – and organises training courses for future energy auditors.

In 1999 EEC received about 1,000 enquiries (by visits, telephone, letters, or e-mail via homepage) and carried out seven extensive energy audits in public buildings and industry plus 50 minor energy audits; organised one seminar and four training courses for energy auditors. The total number of energy auditors trained by now exceeds one hundred.

5.4.2 Target Groups

The target groups for the activities of EEC are private households/homeowners; municipalities and industry.

Private households

80% of the total number of enquiries originate from private households and the major part of the questions are about heat savings, insulation, new windows and heat supply systems including thermostatic valves. There is a peak of questions just before the heating season begins – or when a price rise is announced. An explanation of the great interest in information about heat savings could be the fact that private household in reality has no possibilities to save heat by regulating the heat supplied to the apartment (by thermostatic valves).

EEC has issued leaflets for private households giving information about different methods of heat savings in a reader friendly and pedagogical way and as mentioned above different examples of heat saving devices are shown in the exhibition room. Heat savings techniques have also been a topic in nation wide information campaigns.

Municipalities

About 10-15% of the total number of enquiries originates from the Municipalities and concern energy audit of public buildings (schools and kindergartens). The energy audit is free of charge as EEC is funded by the National Budget – but municipalities often have no funding to implement the recommendations as a result of the audit.

Industry

The remaining 5-10% of enquires originate from industry and is about energy audits and thermo-visual control services. It should be noted that energy audits in industry normally include more aspects than heat reduction. However, also industry lacks financing to implement the recommendations.

5.5 Research Institutions

The research institutions can contribute to the continued development of solutions and methodologies concerning the renovation of buildings.

5.5.1 Vilnius Gediminas Technical University (VTU)

The VTU educates master of sciences, bachelors, and engineers according to 104 programmes of studies, including humanities, social, technical and natural sciences and engineering courses. The university also organises doctoral studies in 13 areas (including technical and natural sciences). The structure of VTU is:

- 8 faculties - among them the faculties of Environmental Engineering, Architecture, Civil Engineering, which work in field of building renovation and energy efficiency;
- 56 departments - among them the department of Heating and Ventilation, department of Building Structures, department of Construction Technology and Management, which activities are related to building renovation and energy efficiency;
- Centre for Continuing Education;
- 2 research centres;
- 7 research institutes (one of them – Innovatory research centre for special structures);
- 14 research laboratories (one of them – thermal techniques laboratory).

The university has 9230 students (1981 first year students), 1682 staff members (1263 of them working full-time). Teaching staff numbers 689, while 51 are research fellows. The number of professors reaches 127 (of who 86 work full-time). There are in addition 364 associated professors (255 are full-time employees). Lecturers and senior lecturers make a staff of 198.

Research interests of VTU departments working in building renovation and energy efficiency:

The research field of department of Heating and Ventilation:

- Systematisation of building codes and regulations for Lithuania (heating and ventilation, materials of construction);
- Energetic evaluation and optimisation of buildings and their microclimatic systems;
- Research, development and application of building materials, structures and technologies, estimation and optimisation of energy supplying and energy using systems;
- Evaluation and optimisation of buildings and their engineering heating systems in the aspect of energy consumption.

The research field of department of Building Structures:

- Reliability of buildings and structures;
- Methods of qualitative analysis in building and architectural design;
- Rehabilitation and development of architectural complexes;
- Renovation and regeneration of buildings.

The research field of department of Construction Technology and Management:

- Creation of a system of standards for Lithuanian building needs;
- Reliability, restoration and strengthening of building constructions;
- Building systems and their forecast;
- New composite material development of local raw materials and industrial waste;
- Modelling of construction industry;
- Total quality management;
- Expert systems in construction;
- Reliability of energy supply to construction projects;
- Improvement of study courses.

5.5.2 Kaunas Technological University (KTU)

KTU has 20 branches of study for Bachelor's and Master's students. Specialised professional study programmes offer 31 specialities for those seeking specialised diplomas. For Doctoral students, the University offers 17 branches of scientific study. The structure of KTU is:

- 11 faculties - one of them is Civil Engineering and Architecture faculty (it works in the field of building renovation and energy efficiency);
- 58 departments - one of them is Department of Building Structures, which activities are in the process of building renovation and energy efficiency;
- International Studies Centre;
- 6 institutes (one of them – Institute of Environmental Engineering);

- 14 centres of science and technology (2 of them are Innovation Centre and Construction Reliability Centre);
- 62 training and 18 research laboratories (one of them – Building structures testing laboratory).

Over 12 thousand Bachelor's and Master's Degree students and 290 Doctoral students study in 11 KTU faculties. The staff of KTU numbered 2984, of which 974 were pedagogues and researchers, 103 Professors and habilitated Doctors, 528 Associate Professors, 208 Senior Assistants, 135 Assistants, and a great number of research staff.

Research interests of KTU department working in building renovation and energy efficiency:

The research field of Department of Building Structures:

- Researches of efficient energy resources use for dwelling and public buildings heating;
- Monitoring of energy saving measures in dwelling and public buildings.

5.5.3 Institute of Architecture and Construction (IAC)

IAC is a state research institute without teaching obligations for students. The structure of IAC is:

- 11 research divisions - among them are Department of Building Structures and Department of Modified Building Materials;
- Testing centres – among them Heating Technique testing centre;
- Laboratories. – among them Laboratory of Building Thermal Physics.

Staff of IAC is 150 employees, 6 of them – doctors habilitates, professors; 40 of them – doctors, associated professors; 10 of them – doctoral students; 39 – engineers, technicians.

Research interests of IAC divisions working in building renovation and energy efficiency:

The research fields of the Heating Technique testing centre:

- Optimisation of heating process in buildings;
- Foundation of better technologically developed energy systems, the use of alternative heating sources.

The research fields of Laboratory of Building Thermal Physics:

- Investigation of energy consumption in buildings;
- Building envelope moisture behaviour and forecast of weather durability at complex climate effect.

5.5.4 Lithuanian Energy Institute (LEI)

Lithuanian Energy Institute is a state research institution without teaching obligations for students. The structure of LEI is:

- Department of scientific and technical information;
- Department of Computer Service;
- About 10 laboratories (among them - Heat equipment research and testing laboratory, which activities are in buildings renovation and energy efficiency);
- Energy Efficiency Research and Information Centre, which works with buildings renovation and energy efficiency;
- Gas Technical Centre.

Total number of researchers is 136, of them are 80 scientists and among them 6 habilitates doctors-professors, 2 habilitates doctors-assistant professors, 21 doctors-assistant professors, 51 doctors, 56 other scientific workers, 18 doctorates, 56 engineers and technicians.

Research interests of LEI divisions working in building renovation and energy efficiency:

The research field of Energy Efficiency research and information centre:

- Works aimed at realisation of National Energy Efficiency Programme;
- Participation in international projects aimed at enhancement of energy efficiency;
- Arranging and carrying out seminars, conferences and training courses on the issues of effective energy consumption.

The research field of Heat Equipment research and testing laboratory:

- Since 1992 the Lithuanian Energy Institute takes active part in establishing system of metrology service for measuring liquid and gas volume, velocity and flow rate in Lithuania. This is a new field of the institute's activities related with State and suppliers/consumers interests in performance of accounting the material and energy resources and in creation of favourable conditions for developing manufacture/trade and energy saving;
- Research in fields of thermal physics, fluid mechanics and metrology related to energy problems.

5.6 Barriers for the Support Network

The support network described in the previous sections experience barriers in relation to facilitating investments in energy efficiency and building renovation. These barriers are described below.

5.6.1 Barriers for HUDF

The present ETB loan schemes terminates. The closing date for disbursement of loans in the EEHPP to Homeowners Associations is 31 December 2000. An agreement regarding part financing of the Advisory Centres, who have a major role in this project, runs until end of 2002. If the future financing of the investments (a part from individual bank loans) in Homeowners Associations only will be based on the revolving fund (cf. 8.2.), the number of energy efficiency projects implemented will be very limited. It is therefore one of the major tasks to define alternatives and one idea in this respect is a new project based on a larger World Bank loan, to start next year.

5.6.2 Barriers for the Advisory Centres

Energy savings potentials are generally smaller than calculated by Advisory Centres, mainly because the evaluation of the energy saving potential is based on a situation with overheating in many apartments. Energy savings are often not the major incentive for investment. Comfort and maintenance/repair are often more important for decision making.

Lack of organisational capacity and capability of HOAs. Many HOAs have problems with accounting, calculation of monthly payments, reporting to tax authorities etc. and are not able to appreciate the services from Advisory Centres.

Additional bureaucratic requirements are a barrier for the activities of Advisory Centres. Additional bank requirements, such as lists with signatures of all reachable homeowners confirming they have been a bureaucratic barrier delaying or hindering project implementation.

The grey construction sector is counteracting the activities of the Advisory Centres because ETB loans in some cases are not competitive as a means of financing building renovation. A problem of the activity of the grey sector is that the renovation performed may not be of appropriate quality, but can even worsen the problems in a building due to implementation of inappropriate measures.

5.6.3 Barriers for Municipalities (MMEs)

Lack of funding. The monthly fees for maintenance and repair – collected from all homeowners – only cover urgently needed repair and do not cover "preventive repair". This is related to another barrier, which is lack of trained managers able to run MMEs efficiently.

5.6.4 Barriers for the Energy Efficiency Centre

No legal basis for compulsory energy audits in Lithuanian legislation. In Energy Conservation Law a number of activities to encourage the Lithuanians to save energy are described but the Parliament and Government do not follow up with necessary funding to carry out the proposed activities outlined in the Programme.

Uncertainty of future funding of EEC activities. In relation to the 1999 National Budget, the funding of EEC for 2000 has been reduced by 15%. There is uncertainty of the funding of EEC of the 2001 National Budget.

5.6.5 Barriers for Research Institutions

Lack of sufficient financing of detailed and purposeful scientific research works, including training facilities for student

Poor material conditions of scientific research institutions.

Lack of society information.

No co-ordination of scientific research works.

6 MARKET PARTICIPANTS

The market participants are the implementing agents, i.e. their motivation and measures are crucial for the building renovation. The market participants contribute in different ways and thus supplement each other in a – ideally – competitive way.

6.1 Banks and other Financial Institutions

The role of the banks and other financial institutions is to finance investments in building renovation and energy efficiency and in particular to provide affordable long term financing schemes for homeowners.

6.1.1 Market Overview

In the following an overview of the financial market and the characteristics are provided.

Laws and regulations

Law on Commercial Banks, No. I-720 of 21 December 1994 – with amendments regulates the Lithuanian banking sector. Bank of Lithuania, the Lithuanian Central Bank, carries out the supervision of the commercial banks and other financial markets.

Market size and share

By October 2000, Lithuania has 11 commercial banks, members of the National Association of Lithuanian Banks. In addition there exist 35 Credit Unions based on commercial and professional interest groups. As of October 2000, three foreign banks have branch offices and five have representation offices in Lithuania but it is foreseen that more foreign banks will begin activities in Lithuania and are expected to get a considerable market share (for update see: www.lbank.lt).

Current business practice

Of the commercial banks only three offer housing financing programmes and the market is dominated by Vilnius Bank with a total market share of 63%. The other banks do not have special housing financing programmes as they grant credit for housing for their clients on an ad hoc basis and normally to wealthy people. The mortgage loan are normally in USD and covers 70% of the market price of the dwelling; the interest rate is between 10-12% p.a., and the pay back period is no longer than 10 years. These procedures are also actual for lending to building renovation, as the crucial factor of the bank's decision making is the borrowers' ability to pay back the loan.

Credit Unions, Insurance Companies, and Pension Funds do not yet play any significant role in the Lithuanian financial market.

Government subsidised soft residential mortgage loans through the State Programme "Bustas", for among other things, renovation or construction of a residential house or apartment. The interest rate is subsidised and the "Bustas" Programme also covers part of the principle.

However, the most targeted loan scheme for improvement of buildings and energy efficiency is the ETB (Energijos Taupymas Buste) loan of Energy Efficiency Housing Pilot Project (cf. the section "Financial Resources" in chapter 4 "Target Groups"). The ETB loans are for Homeowners Associations and organised by the Housing and Urban Development Foundation and canalised through Vilnius Bank. (cf. chapter 2). The loan scheme terminates by 31 December 2000 and all available funds have already been allocated by April 2000. No similar loan schemes will replace the ETB loans after 31 December 2000.

Market restructuring and liberalisation status

By April 2000 two banks are still State-owned (about 90% of shares). The two banks have a market share of about 50% of deposits and about 40% of loan. A privatisation process is under preparation and it is expected that the State will no longer be involved in banking activities by beginning 2001.

6.2 Contractors

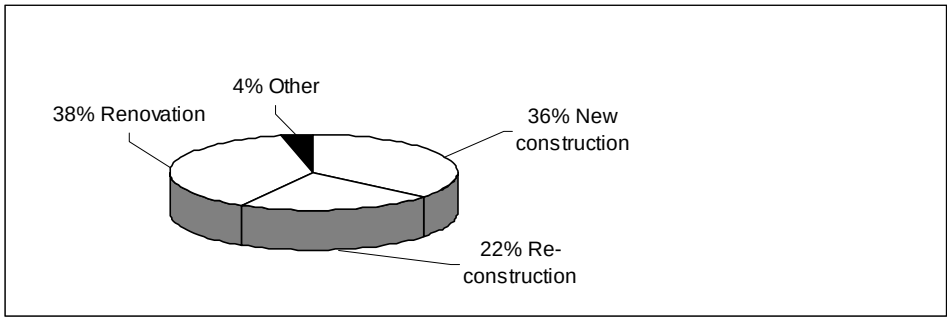
The contractors represent the actual implementing agents. A pre-requisite for their activity is naturally that they get paid for their work. A challenge for the contractors is to ensure an acceptable standard of the work in terms of quality together with competitive prices. The latter aspect relates in particular to the problem of the "grey" sector.

6.2.1 Market Overview

Companies involved in building renovation range from individual plumbers up to construction companies with hundreds of workers. Engineering companies often perform upgrades of heating systems, whereas construction companies usually carry out building envelope improvements

Renovation took the highest share among all construction works performed in the country in the first half of 1999 (cf. figure 6.1).

Figure 6.1 Construction works by type, first half of 1999.

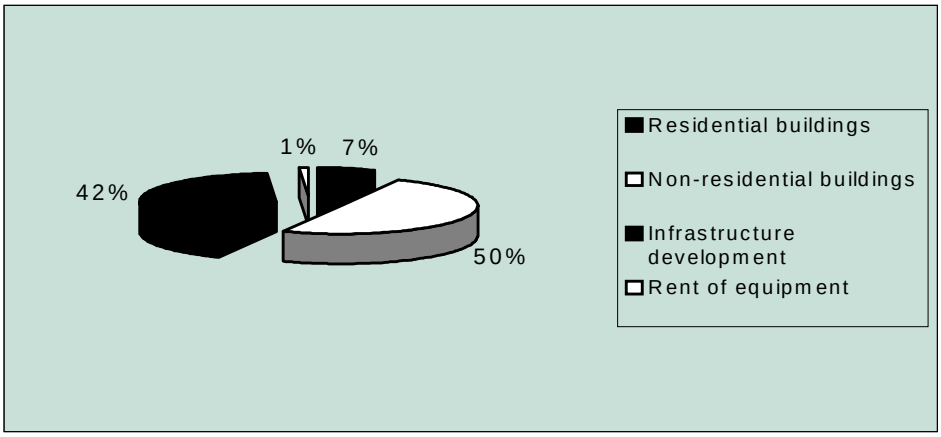


Most of renovation and reconstruction works are performed by medium sized enterprises (see figure 6.2) and share of new construction increases with company's size.

Figure 6.2 Construction works implemented by companies of different size in the first half of 1999

Residential construction (including new construction, renovation and reconstruction) accounted only for 7% of all construction works in 1998 (cf. figure 6.3). It has not been possible to locate specific data on the residential building renovation and energy efficiency improvement markets - partly because some of these works are performed by smaller companies or individual specialists and are not included in the official statistics. Therefore the analysis of contractors acting in these markets will be limited (by scope) to the projects implemented in the framework of the Energy Efficiency Housing Pilot project (see market size and shares below).

Figure 6.3 Construction works by sector, 1998

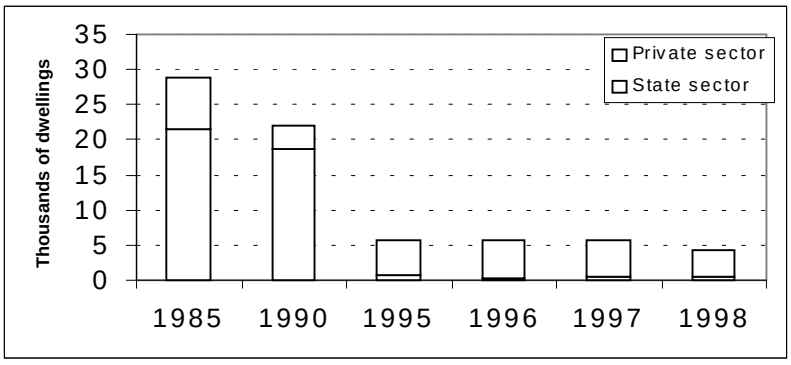


While renovation of public schools and hospitals can attract major construction companies the Lithuanian residential building renovation market seems to be dominated by small companies. More than 75% of all contracts of the EEHP project were won by small sized enterprises with less than 50 employees. By the end of 1999 out of approximately LTL 15 million value of implemented residential building retrofits (both multi-apartment and individual houses) more than LTL 10 million were performed by small companies.

Current business practices

Despite dubious quality Lithuanian construction industry possessed rather substantial capacity before nineties. Economic changes resulted in dramatic decline of new residential building construction (see figure 6.4).

Figure 6.4 Lithuanian residential construction, 1985-1998



Reduction of in-country construction demand and limited export possibilities caused fierce competition among construction companies within Lithuania. Restructuring of the construction sector and more quality-consciousness in choice of materials and techniques improved quality of construction but there is a threat that shrinking business opportunities might tempt companies to cut their expenses at the cost of quality.

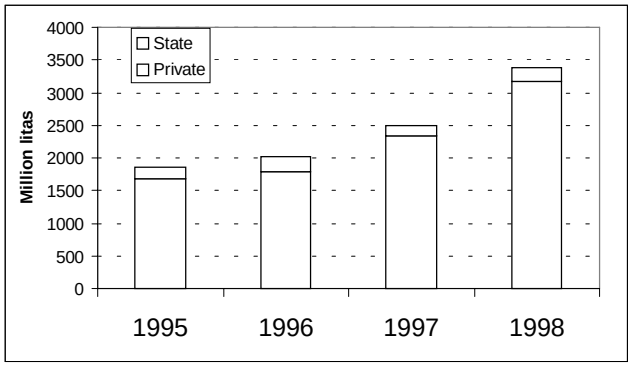
So-called "grey" sector, or unofficial labour may, if not controlled, pose a serious threat to the successful development of rehabilitation of residential buildings. Companies or separate workers not paying taxes or contribution to social security (SoDra), or paying less as they should, have a price advantage and can occupy a significant share of the building renovation market in unfair competition with enterprises with respect for the law. Unofficial labour also reduces the transparency of the renovation process because ordinary homeowners or members of homeowners associations are not able to control expenditures for specific tasks. Works without guarantees and without liability insurance inherently carries with them serious financial risks (for the homeowners) should the building renovation works turn out to be of poor quality.

Market restructuring and liberalisation status

Previously state owned construction industry was privatised in early nineties as a consequence of the Government's program of "voucher privatisation". Out of 474 construction companies employing 113,000 people in 1991 only 40 remained as state owned by the end of 1997 (Statyba 2000, 1999). Privately owned companies accounted for more than 93% of the value of construction contracts in 1998 (cf. figure 6.5).

Overall, Lithuania has a private construction sector able to function in a competitive manner with regard to challenges presented by maintenance and repair of existing housing, as well as a new housing construction (UN ECE 2000). Rapid development of private construction industry led to establishment of professional organisations within the sector. *The Association of Lithuanian Builders* includes the 93 largest construction companies. The *Association of Lithuanian Roofers* has 50 member companies. *The association of Building Industry* unites 37 companies. *The association of Producers of Windows and Doors* unites 22 companies. Professional associations play quite significant role in assuring fair competition and quality control.

Figure 6.5 Construction works performed in Lithuania by state and private sector companies, 1995-1998.



Laws and regulations

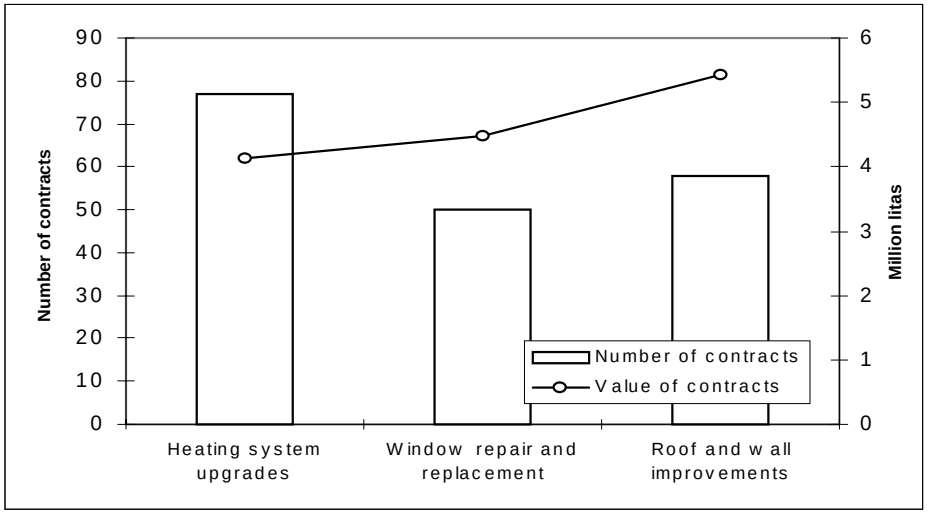
Companies involved in a new construction must respect building codes that specify certain requirements for building thermal performance. There are no mandatory requirements or energy efficiency norms for renovation of existing building stock.

Market size and shares

Due to absence of reliable data on countrywide building renovation and energy efficiency improvement markets in Lithuania, the overview will be limited to contractors participating in EEHPP. Implemented energy efficiency measures can be divided into three groups that are approximately equal by value of investments. The three groups are; Heating system upgrades; window repair and replacement; roof and wall improvements (cf. figure 6.6).

Out of 77 contracts for heating system upgrades, the three biggest participating engineering companies won 31 contracts valued at LTL 1.73 million (out of total LTL 4.13 million). The remaining 46 contracts were shared among 27 smaller contractors.

Figure 6.6 Implemented EEHP-projects by energy saving measures, as of December 1999.



None of 33 companies performing wall and roof retrofits won more than 4 contracts (out of 58). Out of LTL 5.4 millions value of retrofits three biggest companies implemented measures for LTL 2.3 million.

Window replacement and retrofit market seems to be more consolidated. Out of 50 contracts valued at LTL 4.4 million the three biggest companies won 28 contracts for LTL 3 million (almost 70%). The rest was shared among 16 smaller companies.

A number of companies, especially in smaller cities, do not specialise in certain fields and implement a wide range of measures from heating system upgrades to external wall insulation, so that their contracts (30 contracts for LTL 1.6 million) were not included in the previous analysis.

No single company exceeded 15% in both the number and the value of won contracts.

Current market capacity

Lithuanian construction industry has enough capacity to meet anticipated expansion of residential and public building renovation market but quality assurance and "grey" sector problems remain to be solved in the nearest future.

Smaller sized enterprises perform most of heating systems upgrades in the residential buildings. These companies are quite flexible and can rapidly expand their capacities in line with growing demand.

Residential building envelope improvements (window replacements, external wall and roof insulation) are quite rare due to high costs associated with these measures. Potential expansion of this market segment should not create capacity problems during the next five to ten years because the current capacity of Lithuanian construction industry is under-utilised.

6.3 Utilities and Energy Service Companies (ESCOs)

When discussing the building renovation and energy efficiency at the consumer side, relevant actors are also utilities supplying the energy and energy service companies (ESCOs). Especially the utilities have great influence on the technical possibilities for implementing improvements at the consumer side. The ESCOs could have a significant role in the future, as the link between the energy supplier and the energy consumers.

6.3.1 Market Overview

Close to 90% of urban and 40% of rural housing stock in Lithuania receive heat from regional district heating networks. Households consume almost half of the final heat produced by district heating companies. In absolute terms the final heat consumption in the residential sector went down by 26%, from 9478 GWh in 1995 to 7018 GWh in 1998 (Lithuanian Energy Institute 1999).

The rest of Lithuanian households having individual heating systems using firewood, natural gas, coal, or oil products as a fuel. In 1998 they consumed 5470 GWh of

firewood, 2480 GWh of natural and liquefied gas[3], 1120 GWh of oil and 290 GWh of coal for heating purposes as well as for hot water preparation and cooking (Lithuanian Energy Institute 1999).

Prior to 1995 all district heating companies were subsidiaries of the state enterprise - "Lietuvos Energija" (Lithuanian Energy). The government separated the heat supply into six regional heating companies and transferred them to municipalities. On 2 July 1998 the Parliament amended the "Lietuvos Energija Restructuring Law" by an article, stipulating further reorganisation of the sector by dividing regional companies and establishing new utilities in cities and districts. Since then, most of regional companies divided further into smaller municipal level companies. There are no immediate plans to privatise this sector, nevertheless a number of private companies (ESCOs) participate in heat supply businesses by either selling generated heat to municipal networks, or by renting whole municipal companies for extended time periods of 10-15 years.

Laws and regulations

There are no special laws regulating heat supply sector in the country. The National Control Commission for Energy Prices and Activities (NCCEPA) sets district heat tariffs on the basis of the Energy Law, governmental decrees and the National Energy Strategy. The Lithuanian - Danish project group "District Heating Decentralisation" prepares a draft Heating Law, that will describe rights and responsibilities of various actors in this market.

Current business practices

Decentralisation of the heat supply sector encouraged newly established companies to improve their performance. In a number of cities, municipal companies began to implement measures improving supply side energy efficiency and reducing operation costs. Nevertheless, lack of management skills often inhibits radical improvement of economic performance of municipal enterprises. A number of municipal district heating companies in larger cities (Vilnius, Klaipeda) showed some profit on their balance sheets (cf. table 6.7), nevertheless the rest of companies are making losses.

Due to low incomes and weak enforcement, households have arrears of their heating bills. As of December 1999, more than 10% of apartment owners in Vilnius had debts for their previous monthly payment (data from Vilnius district heating company). Non - payments hinder district-heating companies to accumulate funds needed for energy efficiency investments and demand side management.

Market size and shares

Assuming average district heat price of LTL 0.10 kWh (without VAT), the overall value of district heat provided to households would amount to approximately LTL 700 million per year (7000 GWh * LTL 0.10 kWh). Due to a number of direct and indirect subsidies, the actual revenues of district heating companies from the residential customers are smaller (Table 6.7) provides a few indications regarding major district heating companies in the country.

[3] - part of this gas was used for cooking by households receiving heat from the district heating networks

Table 6.7 Major district heating companies. Sources: * - Lithuanian Energy Institute 1999; Verslo žinios (Business news), 3 February 2000, p.p. 7 - 10.

Company	Production of heat in 1998*, GWh	Heat losses in DH networks in 1998*, %	Total revenues in 1998**, million LTL	Profit, or loss (-) in 1999**, million LTL
Vilniaus ŠT	3984	28.7	372	7.4
Kauno energija	2676	34.0	201	- 28.7
Klaipėdos energija	1606	18.4	132	3.9
Panevežio ŠT	1121	24.5	99	- 9.5
Alytaus ŠT	1106	29.1	90	- 4.3
Šiaulių energija	914	29.0	82	- 4.5

Market restructuring and liberalisation status

District heat supply due to technological features remains monopolistic. Therefore the National Control Commission for Energy Prices and Activities regulates heat prices.

Lithuanian Gas company (also predominantly state-owned monopoly) creates limited competition for regional district heating enterprises by offering an opportunity for households and businesses to install local gas boilers. The current tariff structure for natural gas favours this solution. Nevertheless the procedure of disconnection from district heat networks for individual apartment owners is so complicated that it is practically impossible to implement.

Absolute majority of district heating companies operating in Lithuania is municipally owned. Due to higher production costs a significant number of smaller municipalities were forced to subsidise heat tariffs in order to keep district heating affordable for most of the end users. Facing lack of experience and limited financial resources to run district heating companies efficiently a number of smaller municipalities decided to rent these companies on a competitive basis for private operators (energy service companies, ESCOs). End user price and investments are among criteria used for evaluation of bids. A few bigger municipalities are also looking for opportunities to limit their involvement in this sector.

Increase of the transparency of the heat supply, by separating the heat generation and the heat distribution, could be expedient. However, competition implying parallel networks would not be feasible. Hence, certain regulatory framework and regional and municipal energy planning is necessary in order to ensure optimal operation conditions and operation, as well as integrated energy resource planning.

Current investments in building renovation and energy efficiency

With a few exceptions lack of financial resources did not allow municipal companies to perform active demand side management. There is some anecdotal data on free installations of electric water heaters by one of Vilnius region companies in an attempt to cut costs of centralised domestic hot water preparation. Municipal companies in Alytus, Vilnius and Šiauliai are involved in organised replacement of building level heat substations. By transferring preparation of domestic hot water inside a building, companies expect to cut water losses usually incurring in lengthy pipelines. There is a lack of co-ordination between utilities and households in implementation of these measures, because apartment owners could combine their efforts and implement additional measures in their buildings at the same time.

Newly established energy service companies are also more interested in supply side opportunities. By implementing cost saving measures on the supply side of district heating and by maintaining current tariffs, companies expect to generate enough profit to recover restructuring costs and incurred investments. However, energy services aimed at reduction of energy consumption inside a building are very rare (or actually absent). This problem should be dealt with in the regulatory framework, mentioned above.

Current market capacity

Existing municipal companies generally fulfil their role in supplying heat to the residential customers. Private operators of municipal district heating networks should improve economic performance of these companies.

6.4 Housing Maintenance and Administration Enterprises

Housing maintenance and administration enterprises have a significant task in taking care of the maintenance and administration for the homeowners, who are often not aware of the importance of these tasks and lack experience in performing them. In this situation it is expedient to let maintenance and administration enterprises handle these tasks.

6.4.1 Market Overview

Most of public or municipal schools and hospitals have professional staff responsible for proper maintenance of their buildings. Owners of individual houses usually take care of their living premises by themselves. Residential multi-apartment buildings are maintained by either Municipal Maintenance Enterprises, by private maintenance companies or by homeowners associations. Some associations have contracted MMEs for building maintenance and administration services. Therefore about 90% of all multi-apartment buildings are maintained by mainly municipal housing maintenance enterprises.

Laws and regulations

There is no effective housing maintenance law as of October 2000. The draft law is pending in the Lithuanian parliament. Municipal Maintenance Enterprises (MME) operate according to operating procedures set by municipalities.

Current business practices

Starting from the early nineties already private homeowners remained surrounded by soviet style communal service sector. Municipal housing maintenance companies were established for maintenance and repair of municipal building stock and public areas. Their main functions are administration of multi-apartment buildings, maintenance and repair of housing stock and cleaning of public areas, and maintenance of public buildings (UN ECE 2000). These companies operate as municipality owned monopolies within municipal districts.

Due to a number of political and social reasons MMEs are forced to keep housing maintenance fees below the level that could ensure proper housing maintenance and therefore companies perform only minor and urgent repairs. Some of operation procedures (Vilnius municipality 1999) limit investments in a single building or single

repair in order to have more even distribution of collected fees. Faced with revenue shortages MMEs often neglect their core activities and get involved in businesses not related to their primary destination (like car parking services, markets of agricultural products, etc.). Revenues from these additional services are sometimes used to subsidise core activities thus creating tariff distortions and undercutting possibilities for private companies to enter this market.

Market size and shares

Private and MMEs could have more than 800,000 potential clients (families) living in multi- fees apartment buildings. The value of this potential annual market for building maintenance and administration services could exceed LTL 400 million (assuming LTL 0.80 per m^2 fee for regular maintenance and average dwelling size of 54 m^2 in urban areas (UN ECE 2000). Monthly paid to municipal maintenance enterprises rarely exceeded LTL 0.30 per m^2 in 1999. Therefore the actual market size was significantly smaller. In major Lithuanian cities municipal maintenance enterprises still dominate the market as of December 99 (see table 6.8).

Table 6.8 Municipal and private maintenance enterprises in major Lithuanian cities

City	Number of municipal + (private) maintenance companies
VILNIUS	22 + (1)
KAUNAS	3
KLAIPEDA	12*
SIAULIAI	5*
PANEVEZYS	2
ALYTUS	1 + (3)

* undergoing privatisation or planned to be privatised in 2000

Nevertheless ongoing or planned restructuring raises hopes that in a few years this sector will be in line with already private housing sector.

Market restructuring and liberalisation status

Municipal housing maintenance companies exercise full monopoly in districts assigned by municipalities. Households from multi-apartment buildings are not able to chose service provider on free market basis. Even HOAs in some cities, like in Kaunas, have difficulties in finding professional service provider, simply because they do not exist in the local area. Indirect subsidies from non-core activities undercut market tariffs for services thus imposing additional barrier for entry of new players in this market.

Only in Alytus this restructuring occurred in 1994 (UN ECE 2000) and there is a functioning competitive market for communal services. Municipality of Klaipeda is planning to liberalise this market in the year 2000 and Vilnius municipality is preparing privatisation and restructuring plans a part of its Housing Program (UN ECE 2000).

Current investments in building renovation and energy efficiency

Due to a number of political and social reasons municipal companies are restricted from setting tariffs reflecting actual costs for proper maintenance and renovation of residential buildings thus limiting society's investments in improved housing. Current investments based on monthly fees do not exceed LTL 0.10 per m^2 (LTL 50 million per year for 800,000 apartments). Recently some MMEs in Vilnius implemented a number of building roof retrofits by collecting additional fees from households. Nevertheless substantial

improvement of multi-apartment building stock can be achieved only through well-planned and continuous effort.

Homeowners associations are more flexible in investing in their premises. Investments are often limited by financial possibilities of low income members and households' insufficient willingness to invest.

Current market capacity

Municipal maintenance companies often can not meet needs of homeowners in terms of service quality, scope and the transparency of their activities. Lack of competition and municipal interference seriously hampers development of market based service sector. Due to lack of services some target groups are not able to realise their investment potential.

6.5 Energy Consultants

Energy consultants can play an important role in disseminating knowledge on feasible solutions, as well as performing the implementation.

6.5.1 Market Overview

Laws and regulations

The activities of the Energy Consultants follow the general rules outlined in Civil Code. There are no formal restrictions to start an energy consulting business as well as there is no compulsory licensing (formal education and working experience requirements), or liability insurance if a consultant is held responsible for mistakes that caused subsequent losses. However, Energy Agency is preparing guidelines for licensing and liability insurance schemes for energy consultants. It is assumed that the legal framework will pass Seimas by the end of 2000.

Market size and share

Companies providing consulting services on energy efficiency issues in Lithuania are still in their primary formation stage. As of October 2000 these services are provided by:

- Research Institutions and Universities (Lithuanian Energy Institute; Institute of Architecture and Construction; Vilnius Gediminas Technical University; Kaunas Technological University and Klaipeda University). Their activities are more connected with tasks for the governmental institutions and participation in projects under the international support schemes.
- Previous designing institutes that were restructured and privatised. Now there are 20 enterprises specialising in design works, but they are expected to direct their activities towards consulting services.
- Local private consulting companies. These companies target broad extent of consulting services. Currently there are about 10 of them in the country. A branch

organisation has been established and it undergoes the registration procedure as of October 2000.

- Foreign consulting companies – established as branch offices of foreign consulting companies and participating in different programs in Lithuania.

The Housing and Urban Development Foundation and the Energy Efficiency Centre carried out the training programs of the consultants in the field of energy efficiency (Cf. chapter 5)

6.6 Real Estate Agents

6.6.1 Market Overview

Following the privatisation of the housing stock, a real estate market has developed with sales and purchases of dwellings. Real estate agents and certified independent evaluators of real estate property became new players at the housing market.

Legal framework

There are no restrictions for any Lithuanian or foreign entities to own and purchase real estate, including residential properties. However, ownership of real estate in Lithuania is separated from ownership of land - the property right to buildings itself does not create the property right to the land on which these buildings are located. According to Article 255 of the Civil Code contracts for sale and purchase of buildings must be concluded in writing and must be certified by a notary. Lithuania has a Central Real Estate Register and 15 regional offices.

Current business practices

The real estate agents act as intermediaries between buyer and seller of dwellings. They also invest in real estate and provide renovation services of old dwellings to be sold after renovation. The real estate agents communicate with potential clients (sellers and buyers of dwellings) through sales offices in cities as well as in electronic and printed media.

Market size and share

Liquidity of real estate market differs significantly from cities to rural areas. The most liquid marked with the highest prices are in Vilnius, Klaipeda, Palanga, Neringa, and Kaunas. In other cities and rural areas the activity in the real estate market is low.

Market restructuring and liberalisation status

The real estate agents and the certified independent evaluators of real estate property operate in a free competitive market. Some special functions for the certified independent evaluators of real estate property are laid down in actual legal framework. Still many residents look for a buyer or seller on their own through media.

6.7 Barriers for the Market Participants

6.7.1 Barriers Hampering the Banks' Investments

Lack of long term funds in Litas. The banks have not accumulated sufficient savings in Litas for long term lending. No policies are developed to attract private savings and investments in housing sector. The borrower needs longer terms to afford the repayments and with reduced monthly repayments more people will be able to borrow from the banks. In addition the banks will reduce their risk of the current mixture of short-term foreign loans (currency risk) and short-term local deposits.

Very long legal procedures in case of non-payment from the borrower. For debtors with employment, the Court can verdict the debtors to pay up to 20% of their monthly salary, but this is generally not effectuated until after a long period of time. If the item of debt still is not paid after a further six months period, then the legal procedure will have to continue. Furthermore it is practically impossible to evict apartment owners, as another – maybe even worse social problem – will occur of people without a home. Furthermore the Lithuanian Ministry of Justice has requested the Courts to adopt a lenient practice towards debtors.

Legal obstacles for extending loans to HOAs

HOAs do not have collateral other than apartments of separate homeowners, so in order to get a loan every single apartment owner has to mortgage his own apartment. That is difficult to achieve if there are many apartments in the building (100% agreement is required) and transaction costs (legal and service fees, taxes, etc.) can be quite high. From that perspective HOAs do not have any advantages compared with individual apartment owners, because for the mortgage arrangement 100% agreement is required for both groups.

6.7.2 Barriers for Contractors

The relatively small size of residential building renovation market limits interest of bigger and better established companies regarding this market segment and as result it is dominated by small and sometimes volatile companies.

Changing demand forces companies to switch from one activity to another and does not allow them to accumulate financial and technical resources in certain fields over longer time periods.

Lack of experience in new techniques. A certain number of newly established companies lack experience dealing with relatively new energy saving measures, new materials and new equipment. Minor repairs are often performed without proper supervision thus raising quality problems.

Lack of guarantee. Implemented energy efficiency measures are not insured against possible design and construction flaws. As result both consumers and contractors bear serious financial risks related to failure of building renovation.

"Grey sector". Significant share of "grey" sector reduces transparency of building renovation processes.

6.7.3 Barriers for Utilities and Energy Service Companies

Very limited supply of demand side energy services on the market for residential customers. Most of energy service companies acting in the country focus their resources on supply side opportunities.

Non payment of heating bills reduces financial resources of district heating companies thus limiting their capacity for demand side management and investments in energy efficiency measures.

Lack of co-operation among utilities and homeowners in implementation of building level energy efficiency measures that are beneficial for both sides (i.e. installation of heat substations).

6.7.4 Barriers for Housing Maintenance and Administration Companies

Monopoly of municipal maintenance enterprises seriously limits private incentives of homeowners to maintain multi-apartment buildings efficiently (homeowners are not able to buy services they need).

Lack of transparency in operations of municipal companies creates distrust among households regarding use of their monthly fees.

Monopolistic nature of the sector limits market capacity development (by both exercising full monopoly in certain areas and undercutting market prices for certain services due to indirect subsidies).

Lack of trained managers able to run efficiently maintenance and administration businesses (due to limited market capacity).

6.7.5 Barriers Hindering Development of Energy Consulting Services

Absence of certification of energy consultants. The consultants have different education, qualifications, experiences and formal certification is needed to ensure quality of their services.

Absence of liability insurance. Energy consultants do not have clearly formulated responsibilities for their potential mistakes and their clients are not legally protected against possible failures because there is no requirement for compulsory liability insurance.

Lack of awareness of services provided by energy consultants. Their potential clients (i.e. homeowners) and the society as a whole do not understand the role and importance of consulting services in the market

Cases of low quality consulting services. There were a few cases when both local and foreign consultants have made a number of mistakes and that was followed by an increase of frustration of potential clients towards energy consultants and their services in the country

6.7.6 Barriers for Real Estate Agents

Lack of "Energy Labelling". The real estate agents are hindered to promote energy efficiency as a sales argument.

7 BARRIERS HINDERING BUILDING RENOVATION AND ENERGY EFFICIENCY

After the overviews and analysis the identified barriers for building renovation and energy efficiency will been divided in the following five categories:

- Political and Institutional barriers;
- Financial and Economic barriers;
- Legal and Regulatory barriers;
- Capability and Capacity barriers;
- Social and Cultural barriers.

One barrier can originate from more issues and one issue can originate more barriers.

The identified barriers will be starting point for elaboration of the Strategy with proposals and recommendations for possible future policies and approaches to overcome these barriers.

7.1 Barriers

7.1.1 Political and Institutional Barriers

It is of fundamental importance to clarify the fields of responsibilities and role of the various participants of the housing sector, which can be divided between three main partners:

Subject to approval by the Parliament, the *Government* develops overall housing policies and establishes legal, financial and institutional framework for housing sector performance,

The *municipalities* are responsible for implementing of national policies in their regions,

The *private sector* (homeowners, tenants, contractors, advisors, and investors) is the target group for the Government's and municipalities' decisions and policies.

Formulation and implementation of housing policies at State level are divided between several ministries and other institutions.

This barrier cannot be pointed out directly in the previous chapters. However, a split between fields of responsibilities sometimes creates a "superior" barrier for successful development and implementation of well-integrated housing policy. Overcoming the "superior" barrier is a condition for overcoming other barriers.

To reduce the number of ministries, former Ministry of Construction and Urban Development was abolished in 1998 and responsibilities for further development of Lithuanian housing sector were shared between the Ministry of Environment (MoE) and

the Ministry of Finance (MoF). The Housing Policy Department (HPD) of Housing and Technical Regulation Department, MoE, remains therefore the only governmental institution exclusively focusing on housing policies. (Proposes legislation, strategies and programmes on housing and participates in and adjusting other legal aspects related to housing proposed by other ministries, municipalities etc.). Out of MoE's total staff of about 130 professionals, the staff of Housing and Technical Regulation Department makes 25 – and among them only four deal with housing policies in HPD.

The Ministry of Finance is responsible for financial issues related to the country's housing sector. (Funding of State and municipal housing programmes, obtaining and administering international loans for housing sector).

In addition, the Ministry of Social Security and Labour is responsible for formulation of social housing policies.

Furthermore, the Ministry of Public Administration and Local Authorities is formulating and regulating State and municipal policies on housing and provision of municipal services.

Finally, the Public institution, Housing and Urban Developing Foundation, is among others administering the ETB-loan schemes and the five Advisory Centres.

Delegations of competence from Government to municipalities are not accompanied with appropriate supportive measures including financing.

The Law on Local Self Government (1994) assigns specific power and responsibility for housing issues to a Council (the elected municipal representative institution) and a Board (the executive institution). The law obliges municipalities to work on solutions of housing problems in their regions and municipalities are free to decide on means or approaches to be used and partner to be chosen.

- *Borrowing limits* imposed by government are barriers to the municipal involvement in building renovation process;
- *Limitation by Government in setting the rental fees* in municipal dwellings is a barrier for building renovation and energy efficiency as the "pay back" of the investment cannot fully be reflected in the rental fee after renovation.

Lack of political priority given to housing policies at municipal level

No Lithuanian municipality has a permanent Committee or Sub-Committee with overall responsibility for housing or an executive body only dealing with housing issues. Such responsibilities are usually distributed among a number of Committees and therefore an integrated housing policy is absent in most municipalities.

7.1.2 Financial and Economic Barriers

Constant increase of energy tariffs resulted only in very marginal growth of household investments in building renovation and energy efficiency compared with the priorities of increased investments in durables like cars, cellular phones, or home appliances. Insufficient income levels and lack of affordable and long term financing that could

create a positive cash flow from the beginning of an investment seriously hampers implementation building renovation and energy efficiency measures.

Lack of attractive, affordable financing opportunities

- *Absence of long tern loan schemes in Litas supplied by local banks.* The banks have not accumulated sufficient deposits for long term lending. No policies or incentives are developed to attract private savings for investments in housing sector;
- *Absence of loan schemes to continue the successful ETB loans* of the EHHP project. The EHHPP terminates by 31 December 2000 and no similar loan scheme will follow;
- Abs*ence of Lithuanian Mortgage Financing schemes*. Development of Lithuanian mortgage financing system that would generate local long-term financial resources through distribution of mortgage bond. By October 2000 no future development is clear. The two comprehensive feasibility studies which were completed in 1999 have elaborated and analysed different scenarios and advised on proposals for new legislation;
- N*o attractive loan schemes for homeowners - non-members of HOAs.* Only about 15% of multi-apartment buildings have formed a HOAs and are covered by attractive financial schemes for building renovation. The majority of homeowners can only receive bank loans by mortgaging their apartments and that is a significant barrier provided there is limited legal controls over expenditures if no HOA is established.

Absence of schemes to support low income families

- *Low-income families set the limits for building renovation with the maximum contribution they can afford.* Being limited by their financial resources, low-income households are not able to participate in building renovation process on equal terms if costs of foreseen renovation are to be shared equally among apartment owners and they therefore set limits for building renovation with the maximum contribution they can afford. Only within the framework of the EEHPP there is a special scheme allowing lower income homeowner association members to participate in building retrofits on equal terms but this scheme terminates by 31 December 2000;
- *Inadequate basis of calculation of heat subsidies for low-income families does not encourage to energy savings.* Subsidies for energy consumption rather than energy efficiency limit households' interest in investing in energy efficiency measures. Lack of thorough control over actual household incomes creates an incentive for families to invest in "filling in forms" to receive allowances rather than in energy efficiency in order to reduce their energy bill.

Monopoly and subsidies to Municipal Maintenance Enterprises (MME)

- *Monopoly of MMEs.* Municipal maintenance enterprises have from the Soviet time retained their monopoly to carry out repair and maintenance of private buildings without an established HOA. Only a minor fee for maintenance and repair is collected monthly from homeowners and only the most necessitous repairs are normally carried out. The managers of MMEs lack knowledge and experience of a competitive maintenance market.

- *Subsidies of municipal maintenance enterprises* undercut market tariffs for maintenance services thus imposing an barrier for entry of new participants in creating a competitive market,
- *Lack of transparency* in operations of municipal companies creates distrust among households regarding proper use of the monthly fees, which are collected from the homeowners by the municipality to cover repair and maintenance of buildings.

7.1.3 Legal and Regulatory Barriers

Despite much effort of the politicians to remove barriers for investments in the building renovation and energy efficiency, some of the initiatives and part of the legislation have turned out to present new barriers for the homeowners and other participants of the process in stead. Politicians responsible for country's legislation must consider all consequences and side effects of their proposed provisions. Therefore it is important to emphasise the legal barriers limiting household investments in energy efficiency and building renovation, analyse them and elaborate necessary amendments to the effective legal framework that would remove these barriers.

- *Weak legal framework do not hamper "grey sector"* Companies or individuals evading tax and social security (SoDra) gain price advantage and are therefore able to capture market shares in the building renovation sector from enterprises with respect for the law. Unofficial labour reduces the transparency of the renovation process since homeowners/HOA members are generally unable to control and influence expenditures for specific tasks. Work carried out without guarantees, liability insurance etc. bears a serious risks for the owners in case the performed services are deficient or similarly unacceptable;
- *Weak legal framework hampers efficient recovery of unpaid debts*. For debtors with employment, the Court can verdict to pay up to 20% of their monthly salary, but this is generally not effectuated until after a long period of time. Furthermore it is practically impossible to evict apartment owners, as another – maybe even worse social problem – will occur;
- *Unclear division of responsibilities for maintenance of multi-apartment buildings*. Unless apartment owners are formed in a HOA, they do not have a representative acting legally on behalf of all owners and it is not clear who is responsible for maintenance and repairs of the building without a HOA. All decisions regarding substantial investments in building renovation must be agreed on and approved unanimously of apartment owners that are almost impossible in practice.

Inadequate legal framework hinders establishing HOA

- *Constitution and membership of HOA.* Membership of a HOA is neither mandatory nor automatic and only about 15% of all apartment building have established a HOA today with a very low rate of increase. Mandatory establishing and membership of a HOA is stated to be in contrary with the Constitution.
- *Liabilities for HOAs.* A HOA is responsible for unpaid heat bills of single apartment owners if it is stated in an agreement between a utility and a HOA, where the HOA administer the heat bills collectively. Before establishing an HOA no outstanding

arrears for utilities among apartment owners must exist. In addition the HOAs are liable for the payback of loans even if a single homeowner does not pay. DELETE

7.1.4 Capability and Capacity Barriers

Homeowners, HOAs, administrators and technicians do not have the sufficient capability/capacity to plan, implement and optimise energy efficiency investments, and to operate and maintain the investments in a technical and economic optimal way. Private and public maintenance companies and advisors do not meet this demand for professional services in this field.

Moreover there is no network or organisations to concert the interests of the different participants in the building renovation and energy efficiency process, i.e. lobbying the political decision making process; carrying out formalised education and examination programmes, information campaigns promoting their activities; providing professional assistance to its members etc.

- *Maintenance companies*. The market for private maintenance companies, which could participate in the building renovation and energy efficiency process is poorly developed and hampered by the municipal maintenance enterprises. In addition many of the new companies are small and unstable/"volatile" and many lack experience with energy efficiency measures.
- *HOAs and homeowners.* Most of homeowners, members of associations (including chairmen and board members) have limited professional knowledge and experience in building maintenance issues and energy efficiency - and to other tasks related to management of a building, i.e. administrative, legal and financial issues as well s negotiation and presentation techniques.
- *Energy consultants***.** The market for energy consultants is in its mature phase and is hardly developed. Absence of licensing and requirement for compulsory liability insurance for potential mistakes hampers market development.

7.1.5 Social and Cultural Barriers

These barriers are difficult to "measure" and they do not appear in statistical yearbooks. However their influence of the building renovation and energy efficiency process have to be considered important. During the implementation of the Energy Efficiency Housing Pilot project numerous surveys and interviews with participating homeowners were conducted that helped to identify these barriers.

- *No tradition for proper maintenance and repair of multi-apartment buildings.* Prior to the privatisation of dwellings in early nineties about 90% of all apartments in multi-apartment buildings were state owned and municipal housing maintenance enterprises carried out all repair and maintenance works of common areas, pipes and constructions. Therefore the homeowners only have very limited experience and almost no traditions that could ensure responsible and professional maintenance of multi-apartment buildings.
- *No traditions for long term maintenance planning and "preventive" building maintenance.* Most of owners of dwelling in previously state owned multi-apartment buildings were not familiar with a concept of long term maintenance planing and "preventive"

maintenance as the Municipal Maintenance Enterprises have conducted and still conduct these activities for non-members of a HOA. Quite a number of households consider themselves as temporary tenants in their current apartments and hope to be able to purchase a separate house or apartment in a better building – a prevailing attitude during periods with increasing disposable incomes. Therefore they are not willing to invest in improvement of their current housing.

Widespread mistrust and lack of confidence

- *Lack of confidence in cost-effectiveness of energy efficiency measures.* A significant part of households are not sure about feasibility of energy efficiency measures (potential energy savings and future energy prices) and the quality of implemented works (actual energy savings);
- *Lack of confidence in new technologies.* Numerous Lithuanian households are rather conservative and reluctant as to new technologies and materials including energy efficiency measures. They often implement measures that are either widely accepted or heavily promoted;
- *Lack of confidence in Lithuanian banking system.* 1995/96 banking crisis resulted in household's mistrust concerning banks and their services. In addition very few households have experience dealing with bank loans. As result homeowners are hesitant to use bank loans thus limiting funds available for building retrofits. Conversely the banks are not confident in investing in energy efficiency.
- *Lack of confidence in other apartment owners, chairmen, board and other members of associations.* Homeowners are often not confident in efficient management of associations. Suspicions (sometimes grounded and sometimes not) on alleged misuse of association's money while carrying out repairs and regular maintenance are quite often seen. In addition numerous Lithuanian households tend to be less cohesive - even if they share a clear common interest like proper maintenance of their common property. Therefore voluntary formation of homeowners associations and other networks is rather slow.

8 BASIS FOR THE STRATEGY

8.1 Introduction

Before presenting the Strategy for building renovation and energy efficiency in Chapter 9, general strategic considerations and objectives will be discussed below. In addition, considerations of strategic aspects with emphasis of termination of ETB-loans; the future role of revolving funds; aspects of future role of information centres; the compliance with this Strategy and the "superior" National Energy Strategy, and the results of a Macro-economic study will be elaborated.

These general considerations – integrated with the objectives for building renovation and energy efficiency set by the Lithuanian government; the objectives for the EEHP project – and the barriers identified in Part 2 – will be the take-off for the Strategy in Chapter 9.

8.2 Revolving Fund (RF)

The EEHPP foresees the repayments of loans from HOA will go into a Revolving Fund (RF) and be "re-used" for new loans for HOAs. The Revolving Fund is possible because the repayment time for the World Bank loan is 20 years with 5 years grace period but the maximum period of repayment of loans from HOAs only is 10 years.

The Revolving Fund should be managed in accordance with the established schedule for repayment to the World Bank, according to the loan agreement. The calculations made in the Staff Appraisal Report (June 1996) indicate that the RF would be able to operate until about 2010 and that in total LTL 68 millions (in 1995 Litas) could be available for lending.

Many of the preconditions for the calculation have changed. Therefore it has been necessary to carry out new calculations:

Funds used for on-lending to HOA and Single Family Homeowners are as follows:

• World Bank loan	USD 5.2 millions	LTL 20,8 millions
• Counterpart funds (for grant)	USD 2.2 millions	LTL 8.8 millions
• **Total**	**USD 7.4 millions**	**LTL 29.6 millions**

The counterpart funds (30% State grant) are now spent and will therefore not be available for the Revolving Fund. The repayment of the LTL 20.8 millions should go into a special account which should be earmarked for re-lending to HOAs. This is the Revolving Fund, RF.

The new calculation indicates that the funding available from the RF depends heavily on the repayment time for the loan as the following table shows. Details regarding the calculation are provided below.

	Revolving Fund year 2001	Revolving Fund after year 2001	Total disbursed
5 years repayment time for HOA loan	LTL 10 millions	Approx. LTL 8 millions per year until year 2011	LTL 111 millions
10 years repayment time for HOA loan	LTL 6 millions	Approx. LTL 4 millions per year until year 2006	LTL 47 millions

The actual situation is believed to be close to the five years repayment time. In any case, the funds are limited. A lower interest rate than the 11% assumed in the table will give even smaller amounts for lending.

It is foreseen (Staff Appraisal Report) that the local bank will begin lending money from the Revolving Fund as soon as the first disbursement of the money is made. They will continue after the closing date of the EEHPP on 31 December 2000. It also foresees that the local bank will gradually take over the risk for HOAs in the same way as they did from the beginning for owners of Single Family Houses.

The terms and other implementation arrangements regarding the RF is not agreed on with the bank.

8.1.1 Calculations

In the above calculations, only the LTL 20.8 millions from the World Bank loan, which is repaid by HOAs, goes into the RF. Other assumptions are:

- Grace period for HOAs loans approximately 1/2 year
- Interest rate 11% for first disbursement and for RF
- Bank margin, 2% on disbursement, 3% on collected money
- Revolving fund starts by January 2001. All available funds will be lent out again.
- Repayment to World Bank assumes an interest rate of 1.5% per quarter beginning October 2001 and termination April 2016.
- Use of revolving fund ends after a number of years, equal to the repayment time for subloans, before end of repayment of World Bank loan. There will be a positive balance on the RF at end of repayment of the World Bank loan.
- All amounts are in year 2000 Litas

Three factors are important for the RF (in order of importance):

- The repayment time for HOA
- The interest rate paid by HOAs
- The margin or spread taken by the bank

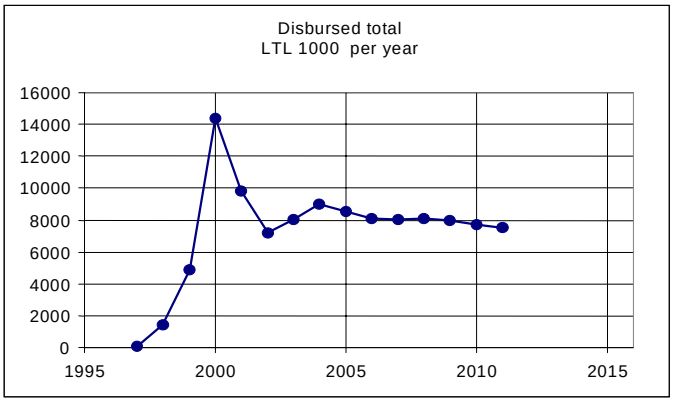
The repayment of the loans by HOAs does not follow the repayment schedule. In fact, a number of homeowners repay their share immediately with the result that a large amount of money is repaid before schedule. The calculations are not considering this.

8.1.2 Financial situation for building renovation and energy efficiency after termination of EEHPP on 31 December 2000

By termination of the EEHPP on 31 December 2000 the only scheme to provide affordable financing for building renovation and energy efficiency will be the revolving fund.

The following graphs shows the annual funds available for the RF on the assumption mentioned above, grant is not included. Note that revolving fund starts in year 2001. The peak in year 2000 is all from the first disbursement of the loan.

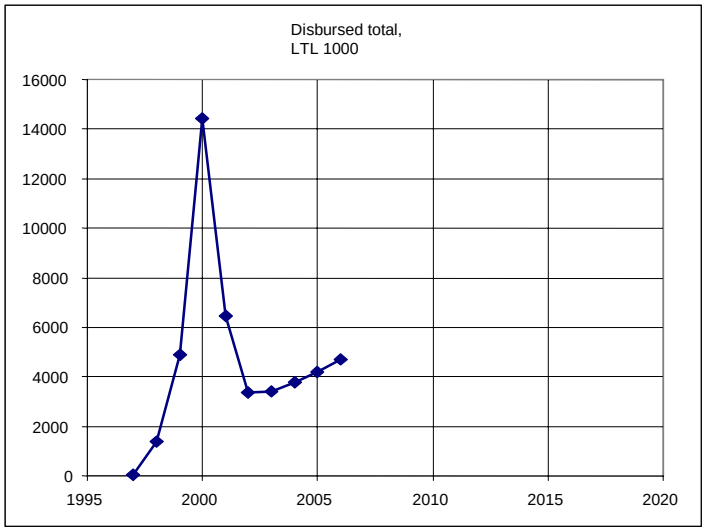
5 years repayment time for loans provided to HOAs



A total of LTL 111 millions has been lent to HOAs including the first disbursement in the period until 31 December 2000. By end of repayment of the World Bank loan, the balance of the RF account is about LTL 13 millions. This model assumes that HOAs pay back their loans faster that according to conditions

From the graphs can be learned, if the HOAs repay their provided ETB loans within five years, the RF can subsequent only provide about 60% of the expected demand for loans. An important assumption is that the demand for loans is the same as by 31 December 2000. The actual lack of supply of loans is the area between the curve and the actual demand curve. The actual demand curve is not illustrated on the graph, but it could e.g. be a horizontal line at 14-16 millions Litas.

10 years repayment time for loans provided to HOAs



A total of LTL 47 millions has been lent to HOAs including the first disbursement in the period until 31 December 2000. By end of repayment of the World Bank loan, the balance on the RF account is about LTL 10 millions.

For 10 years repayment of loans – according to loan conditions - the RF can provide only about 20-25% of the expected demand for loans. The actual lack of supply of loans is the area between the curve and the actual demand curve. However, this figure indicates the most pessimistic scenario.

In spite of introduction of a Revolving Fund it will have serious complications for providing affordable loans for building renovation when the EEHPP terminates by the end of year 2000 and the building renovation and energy efficiency process will be hindered considerably.

8.3 Present objectives

To reiterate the objectives of the government's current housing policies (cf. UN ECE, 2000) are to:

a. Encourage new construction whereas individuals finance their housing;

b. Direct financial markets to provide long-term financing;

c. Differentiate State subsidies to support most needy households;

d. Ensure 2% of the State budget to the '"Bustas"' programme, and to

e. Promote individuals, homeowner associations and public enterprises to save energy by building renovation.

The recently published National Energy Strategy does not go into details as regards specific objectives for the housing sector in relation to energy efficiency as this will be elaborated in the new National Energy Efficiency Programme that is still (October 2000) under preparation and due to be published later. It is expected that the objectives and implementation as regards EE in the housing sector will be influenced by the recommendations of the Strategy.

The EEHPP that up until now has proved to be the most efficient mean to attain progress towards achieving the objectives for building renovation and energy efficiency, have the following objectives:

a. Develop maintenance and housing infrastructure by stimulating private initiative;

b. Achieve greater energy efficiency through demand side activities;

c. Develop private sector;

d. Introduce long term affordable financing schemes.

To improve energy efficiency and increased investments in building renovation the Strategy has identified the existing barriers for building renovation and energy efficiency. These barriers need to be addressed in order to strengthen and diversify the measures, which the overall objectives for energy efficiency in the residential sector are to be attained. The barriers identified in the Strategy are categorised as follows:

- Political and Institutional barriers;
- Financial and economic barriers;
- Legal and Regulatory barriers;
- Capacity and Capability barriers;
- Social and Cultural barriers.

Based on these barriers and the analysis made a number of recommendations to overcome them have been made and elaborated into a coherent strategy compliant with the overall objectives set out in the new National Energy Strategy. The following paragraphs describe the recommended strategy and the main considerations behind.

8.4 General Strategic considerations

When considering possible future developments, there are a number of questions to be dealt with by decision-makers before any policies should be recommended. This section provides some input for these considerations.

Is energy efficiency a private or public matter?

Lithuanian energy sector largely remains a public regulated sector because of dominant public ownership and prevailing natural monopolies in the sector. Transition towards more competitive arrangement of the sector is planned in the framework of the EU accession process. Customers could also choose another form of heating (individual gas boilers, night tariff electricity) if feasible, but this development can be easily influenced by tariffs for different energy sources, or by political decisions based on national and regional energy plans. Energy tariffs for natural monopolies are set by independent public institution, therefore major driving force for energy efficiency – energy price is also publicly regulated. As long as this situation remains unchanged there is a strong rationale for public (the State, the Government, municipalities) involvement in energy efficiency issues.

Another issue is a significant impact of the energy sector for the environmental situation in the region and globally. Provided that long term environmental marginal costs are not

included in energy prices on the market, governmental interference aimed at reduction of environmental damage (i.e. improved energy efficiency) is justified.

Will improved energy efficiency ensure increased energy conservation?

Improved energy efficiency in residential buildings is just a precondition for energy conservation. Actual energy savings will strongly depend on tenants behaviour and proper energy management in a building.

With growing prosperity homeowners might choose higher indoor comfort rather than reduced energy bill. Therefore raised awareness and correct price signals are needed to ensure actual reduction of energy consumption.

To what extent energy efficiency and sound housing policies are political goals for the country's national and regional development compared with other goals?

In monetary terms housing is one of the biggest national assets of the country. The overall market value of existing multi-apartment housing can reach up to USD 10 billion, therefore proper maintenance of this building stock should be included in a list of political priorities.

Lithuania is totally dependent on energy imports, which drain substantially scarce hard currency reserves. Therefore reduction of energy consumption without compromising of living standards, i.e. improved energy efficiency, is of essential significance for the country.

What are the interests of private households and the society as a whole regarding energy efficiency improvements in and proper maintenance of residential buildings?

Individual homeowners and the society as a whole often have different interests. Their priorities are the highest comfort at the lowest price and high market value of their living premises. If energy price signals are distorted (state subsidies, tax reductions for consumption), households can choose higher energy consumption rather than improved energy efficiency to ensure necessary living comfort.

As long as Lithuania is totally dependent on imported fuels and energy efficiency of the building stock is well below that of the Western European countries, it is in the society's best interest to reduce consumption of imported fuels via improved energy efficiency. Besides reduced trade deficit and improved security of energy supply, energy efficiency improvements and building retrofits attract additional private investments, boost local production and increase local employment. Reduced energy consumption and production also leads towards more sustainable environment both regionally and globally.

Interests of individual households and the society could be streamlined by well-designed price policies, targeted subsidies for energy efficiency, or legal enforcement of energy efficiency improvements.

If the State wants to promote energy efficiency and building maintenance then what tools need to be used (legal enforcement, financial incentives, or information campaigns)?

There is a wide selection of tools that could be used for promotion of energy efficiency in the country. Majorities of countries use various combinations of legal enforcement, financial incentives and taxes, voluntary agreements, awareness campaigns to boost energy efficiency. Concrete selection of tools should be specifically tailored for each country and each situation.

Legal and regulatory approaches are faster to implement, but enforcement of laws and standards require budgetary funding. In addition, legal enforcement often causes conflicts between individual and public interests. Market based approaches (taxes and financial incentives) are much more flexible and tend to streamline interests of individual consumers and the society (state, government and municipalities) more efficiently.

Should the State use taxes on energy resources to regulate household behaviour?

A number of the EU Member countries imposed additional taxes on energy consumption thus promoting improved energy efficiency. In Denmark so-called "green tax" on individual's energy (and water) consumption is used to subsidise energy efficiency investments and it proved to be an efficient tool to promote building renovation and energy efficiency.

In Lithuania significant share of taxpayers money is used to subsidise energy consumption through compensations for low-income families and tariff subsidies and this is a part of social policy. As a result, substantial numbers of households have limited interest regarding investments in energy conservation. Therefore either energy taxation should be used, or compensation scheme should be modified in order to boost interest in energy efficiency.

Should the state be directly involved in financing of energy efficiency improvements?

In countries with well-developed banking sector there is very little space for governmental involvement in improvement of private living premises. In Lithuania commercial banks currently do not extend loans to homeowners associations therefore financial resources for energy efficiency projects should be sought elsewhere.

As long as Lithuanian banks are unable or unwilling to finance renovations of multi-apartment buildings there is a rationale for the government's involvement by either providing necessary finances from the budget or securing loans from international and local investors for these purposes. Targeted subsidies for promotion of energy efficiency could originate from either special taxes, or budgetary allocations.

How to organise management of a multi-apartment building with private ownership of separate apartments?

More than 95% of all dwellings in Lithuania are privately owned and owner occupied and it is not likely that the current tenure structure will change in the nearest future. Organised building management with clear rules and responsibilities is an essential precondition for improvement of multi-apartment building stock because only then legally abiding decisions on behalf of all apartment owners can be made. In a number of

countries (like Denmark) there is a mandatory participation of individual apartment owners in joint management (association) of a whole building.

In Lithuania apartment owners in multi-apartment buildings can form homeowners associations and organise management and maintenance of their living premises. Currently homeowners associations remain the only form of organised self-management. Former co-operatives were also re-registered into associations. Due to a number of problems mentioned in the previous chapters of this report the process of establishment of new associations in the country is very slow. Therefore it is very important to significantly boost this process.

What to do with insolvent homeowners?

Most often homeowners associations do not have any collateral and problems associated with slow debt recovery minimises bank's interests in extension of loans to the associations. Thus a significant part of societal financial resources is excluded from financing options of housing renovations. Apartment owners could apply for bank loans individually and then collect money for common purposes, but the risk of loosing an apartment (used as collateral for individual loan) often inhibits this type of arrangement.

If an efficient debt recovery mechanism is established banks could take a risk and provide loans without mortgage to trustworthy associations for energy efficiency improvements. In case of default insolvent homeowners possessing bigger apartments could move to smaller ones thus using the price difference to cover debts, but low-income families residing in one-room apartments have nowhere to move. Municipality could provide social housing for these families but absence of such housing limits wide application of this arrangement in the country.

Another solution is so-called "reverse mortgage" when municipality takes over apartment of insolvent owner, covers the debt (if it does not exceed market value of the apartment) and rents this apartment to the previous owner. The rent could include a subsidy for low-income families using social welfare funds.

Should the support for homeowners and their associations undertaking energy efficiency improvements be arranged through public institutions, or consumer organisations and other NGOs?

Experience gained during the implementation of the EEHP project in Lithuania demonstrated that efficient support network is essential for successful implementation of energy efficiency projects, because majority of homeowners lack skills and traditions in proper maintenance and renovation of their living premises. Five regional advisory centres performed significant work encouraging homeowners to invest in energy efficiency measures and providing advice in legal, financial, technical and administrational issues.

Part of this success can be attributed to the fact that advisory centres were seen by households as an independent and customer oriented institution that was always on "the association's side" dealing with banks, private businesses and state institutions. This confidence can be achieved only if a support institution profiles itself as independent and public institution.

8.5 Function and Significance of the Advisory Centres and Energy Efficient Centres.

In previous chapters, the five Advisory Centres (AC) of the EEHPP, and the Energy Efficiency Centre (EEC) of Energy Agency are described: Their current activities, target groups and their potential role in the building renovation and energy efficiency process.

Very briefly, the Advisory Centres are providing financial, organisational, legal and technical advice to Homeowners Associations' wish to implement building renovation within the framework of EEHPP. In addition the ACs promote the EEHPP and encourage the apartment owners to form HOAs. Currently the ACs are in integral part of the Public Institutions - the Housing and Urban Credit Foundation.

The Energy Efficiency Centres are providing information to the general public about general energy savings and energy efficiency issues. Furthermore the EEC carry out energy audits in industry and public buildings. Finally EEC trains future energy consultants/ auditors. The EECs are part of Energy Agency, Ministry of Economy.

However, target groups and activities of ACs and EECs are different and no examples of overlapping activities have been noticed. A single joint activity has even been carried out together and meetings to plan and to co-ordinate joint activities have been held.

It is therefore recommended that the Advisory Centres continue their task to encourage establishment of HOAs and dissemination of successful projects. In addition they should continue and strengthen their current activities of advising HOAs in implementing building renovations. The more difficult financing opportunities seem, the more important is the advice of the ACs. A new future activity should be carrying out training courses for chairpersons and board members of HOAs, thus indirectly promoting the building renovation and energy efficiency process. If ACs are competing with corresponding private sector, "users" should pay for the AC activity. Public funding of information activities and general advisory services are necessary.

The EECs have a potential for carrying out an increased number of energy audits in Lithuanian industry and in public buildings to comply with requirements of future EU legal framework and national strategies for energy efficiency. The actual number of energy consultants cannot meet this demand and in a longer perspective, private sector energy consultants should carry out energy audits. Therefore a prominent part of EEC's future activities should be training and certification of energy consultants/auditors to be employed in private sector. This activity can justify public financing. The price for energy audits carried out by EECs should reflect market prices in order to secure competition with private sector and to avoid undermining of the market.

EECs should continue nation wide energy saving campaigns on general issues.

The only overlapping functions (activities and target groups) of ACs and EEC are public information campaigns, and if the topic is of common interest for their respective target groups, joint activities will be relevant. Evidence has already proved that both organisations are aware of these considerations.

Any new information/promotion activities within building renovation and energy efficiency should be co-ordinated with the present organisations to avoid duplication of activities.

8.6 Comparison with the Strategy and National Energy Strategy

The Lithuanian National Energy Strategy covers all relevant aspects of future energy sector development. However, the comparison conducted below in relation to this Strategy considers only the sections dealing with energy efficiency (EE) in relation the building renovation. The Lithuanian National Energy Efficiency Programme (NEEP) has been updated by October 1999 and reflects latest achievement, including preparation of an action plan. However, the following shall be based on and lie within the framework of the new "Action Plan for the Energy Sector up to 2005 to Implement the National Energy Strategy" (NES) approved in May 2000.

The chapter on energy efficiency in the NES is divided into main sections covering Policy, Legislation and Taxes that are summarised in lists of priorities and proposed actions. The following comparison follows this structure and attention will of course be paid to issues in the Strategy not specifically covered by the NES.

The objectives of the NES related to improvement of energy efficiency are:

- To reduce consumer's energy costs;
- To reduce CO_2 emissions in order to meet the provisions of the Kyoto protocol;
- To delay the need for new generating capacity.

Furthermore NES aims implementing a large part of EU legislation as well as to improve cross-ministerial policies.

These objectives of NES compare well with the objectives of the present Strategy. The objective to improve cross-ministerial co-ordination in particular in accordance with the recommendations of this Strategy to establish a Task Force with participants of all relevant actors in the building renovation and energy efficiency sector to co-ordinate these activities.

The priorities related to energy efficiency stated in the NES are as follows:

(a) Energy audits for energy intensive industries, companies and buildings with large energy consumption;

(b) Energy conservation demonstration projects for the public sector and industry;

(c) Monitoring of the implemented energy conservation projects;

(d) Energy management courses for industry and commerce;

(e) Certified training of energy managers;

(f) Incorporation of energy management into higher education courses;

(g) Public information campaigns, including implementation of requirements of the EU Directives.

Some of these priorities are clearly formulated with a wider set of objectives in mind than in the present Strategy for building renovation and energy efficiency in residential buildings. Priorities (c) and (f) are for instance not considered here. Still the two strategies are not in conflict with each other, which merely exemplify the differences in scope, and targeting - i.e. the NES has been given a broader formulation than the present Strategy, which on the other hand is aimed specifically at the residential housing sector.

Priority (a) is more concrete formulated than the recommendation of this Strategy, which recommends that local consultants, energy auditors, contractors etc. do not meet the demand for professional services in respect of implementation and optimisation of energy investments and operation & maintenance activities related to these investments. It is, however, safe to conclude that there is no contradiction but that the correspondence is of an indirect nature.

Priorities (b), (d) and (e) conform very well with the suggestions and recommendations made in the Strategy, where it is proposed to "set an example" to pave the way for private sector investments in energy efficiency measures by demonstrating the effect in municipal buildings. To arrange Energy Management courses correlates well with the statement that there is a significant lack of expertise and energy awareness in the private (and public) sector. To remedy this it is recommended to arrange training courses for the various actors involved in the residential housing sector. The NES mentions only energy management training whereas the Strategy suggests a more varied array of required training issues, i.e. also for HOAs. Both the NES and this Strategy agree that there is a need for training activities. The differences relate, again, to the differences in objectives, target groups and degree of detailing.

Priority (g) to stage public information campaigns conforms directly to this Strategy where it is recommended to commence with well targeted public information campaigns to create a positive environment for energy efficiency and building renovation investments. In particular focus on the "neighbour's effect" should be taken into account. (Many successful projects within the EEHP Project have been carried out in the same street).

As regards legislation, the NES requirements correspond well with the provisions set out in the present Strategy, although not all mentioned activities in the NES are reiterated in the Strategy as they fall outside the scope of a strategy targeted specifically on the residential housing sector. The requirement of the NES urgently to revise the National Energy Efficiency Programme by early 2001 is of course desirable for the entire energy sector, thereby also the residential housing sector. In this Strategy it is recommended that supportive measures should continuously be developed and introduced to eliminate barriers and create incentives for the municipalities and the private market operators to act in accordance with the desired development (legal, economic and fiscal tools) and create their own strategies. The requirement in the NES is therefore, as mentioned previously, in good accordance with the present Strategy although more broadly phrased.

In relation to taxes the NES mentions:

1) Development and implementation of common national taxation policy promoting energy efficiency;
2) To identify and implement possibilities and solutions to disburse part of the green taxes on imported fuel through the Energy Conservation Fund for introduction of energy conservation means.

The first issue above conforms well to the recommendations of the present Strategy, which recommends to revise the financial support to e.g. individual heat bills and to promote attractive financing arrangements for homeowners. The two strategies are in conformance although expectedly the NES is more general in appearance.

The second of the listed taxation issues of the NES does not have a direct parallel of the present Strategy either but could be a way of promoting measures in the residential

housing sector. However, the issue of green taxes has been discussed among the Working Group members.

To conclude, the Strategy and the NES agree very well as regards Energy Efficiency. The differences noticed are mostly due to the difference in scope and target groups - i.e. the NES has a much broader aim and thus deals with a larger number of topics, some of which are of limited consequence to the residential housing sector. Correspondingly this Strategy goes into more details in relation to residential housing issues and also treats a number of particular aspects not specifically dealt with in the NES.

With this in mind, however, it can be concluded that there are no contradictions between the two strategies and that therefore they augment each other in the effort to achieve improved energy efficiency.

8.7 Feasibility Study on macroeconomic consequences

The paragraph below gives a brief summary of the main findings of the feasibility study. For a full account please refer to the feasibility study in appendix 2.

The study has documented that it is possible to put together an energy efficiency package, which can be implemented in district heating supplied multi-apratment buildings, at almost no costs for the individual apartment owner.

The analysis has documented that package 1 (cf. appendix 2) - consisting of measures to replace existing building substations, installation of thermostatic valves and heat cost allocators as well as roof insulation - is able to generate savings, where the savings alone will be able to cover the payments for the loan.

It has also been documented that the economic feasibility of the package is depending on the fact that the favourable conditions within the EEHP project are maintained. This means 30% grant for the initial investment and the possibility to obtain loans at a minimum duration of 10 years with 10% interest rate.

It should be noted that all prices are with VAT included. Should it be decided to give VAT exemption, it can be considered as similar to increasing the grant-percentage with 18%. E.g. will VAT exemption and 12% grant have the same economic impact for the end-users as 30% grant.

Without these conditions the individual homeowner will be suffering a net loss for the years where he has to pay instalments and interests on the loan. The economic conditions for households in Lithuania today taken into account, this will most likely reduce the market potential with almost 100%.

It has in the study been estimated that if the favourable conditions for providing capital are maintained, then the realistic market potential will be in the area of LTL 30-80 millions annually or LTL 150 to 400 millions for the considered five-year period.

The expected level of investments will cover between 600,000 m^2 and 1,500,000 m^2 of useful living area per year. This will during the five-year period cover up to 20% of the total building stock of multi-apartment buildings in urban areas.

The fact that the grant for these packages is maintained will cost the state between LTL 9 and 24 million annually during the period where the targeted support programme is maintained.

However, the Lithuanian society will benefit from a reduction in fuel imports, and thus, experience a positive impact on the trade balance of app. LTL 13 million per year after a five years period where the present support programme is maintained.

Furthermore, as shown the support programme has been assumed maintained for five years, whereas the savings and the coherent reduction in imports will be valid for app. 15 years.

Transforming the different time-scales of expenses and income into an annuity gives us an opportunity to estimate of the average net profit for the state, where only import reduction and expenses for grants are included. The estimated net profit is approximately LTL 4 Millions annually.

In the study we have listed some of the advantages that the Lithuanian society gets for this investment.

It has been estimated that the renovation will generate rather more than 1000 new full-time jobs over the next five years.

Lithuania could experience an increase in the level of technical know-how, both in terms of conducting the renovations, and in terms of developing energy related equipment (assumed that domestic products can be used for the measures included in package 1).

An increase in technical know-how might lead to an increase in exports, to countries facing similar problems as Lithuania.

Conclusively, it can be established that the selected energy saving measures can be implemented in such a way, that the end-users are not affected negatively. Similarly, the impact on the public budgets is positive when including reduction in energy imports.

In continuation of the feasibility study additional calculations have been carried out to further substantiate the findings (cf. appendix 3). The renovation package found most feasible has been subjected to further analysis in respect of different possible development scenarios concerning e.g. the rate of investment, number of renovations per year etc. The main conclusion of these supplementary calculations is that it would be desirable to promote a rapid escalation of the investments in order to profit from a correspondingly swift recovery of the investment. By rapid investments is meant that all buildings have been basically renovated by the year 2010. Such a development is based on the assumption that the private investments from 2004 will amount to LTL 440 million annually, or 1% of the GDP in 1999, and that the government grant is maintained at 30% corresponding to LTL 130 million annually. It is estimated that around 6000 jobs could be created in the construction sector in the period 2006-2010, as well as some 400 full time jobs for consulting engineers and the like. The accumulated saving in terms of reduced fuel imports will from year 2013 and onwards be higher than the accumulated grant.

There will be four major problems related to the realisation of the above scenario:

1) To motivate homeowners to take action 2) To build up the capacity for project implementation, 3) to find the money for grant in the state budget, 4) To finance the private investment.

The financing of the grant via the state budget could be realised in three different ways:

1) From tax on energy for heating (gas and/or district heating);
2) Reduced subsidies for district heating;
3) International donor money for investments in energy efficiency.

If the grant should be financed from tax on energy for heating and hot water for the same households as those receiving the grant, the percentage of tax should be about 8% in the period 2006-2010. In reality the tax could not be limited to this group and the percentage would be lower.

Financing of investments in the scope of LTL 400 million annually could not be based on foreign loans and it is necessary to develop a Lithuanian mortgage financing system. In the recommended scenario there is a gradual increase in the private investments in the period 2001-2003. These investments could conceivably come from foreign loans in relation to an extension of the ETB project as the first step.

8.8 Strategic choices

Possible future choices for the government's selection can be placed into three groups (see table 8.1 below). First choice in this table (left column) implies little government involvement in the sector, second requires active and continuous governmental involvement and the third choice (right column) is a certain combination of the previous two.

It would be ideal for any country to have an efficient market based scheme that requires no governmental intervention and ensures both optimum energy efficiency and environmental sustainability. Market prices for energy resources, which incorporate costs for long term environmental consequences of energy production, would be the major driving forces behind energy efficiency improvements. However, this concept has not yet been fully developed. The EU Member countries, as well as the United States, are only in the initial stages of this challenging task.

Governmental interference though sometimes proves to be very effective tool for energy efficiency improvements (cf. Koomey et al 1996) and without governmental interference these improvements would not have happened.

Table 8.1 Strategic choices for improvement of energy efficiency in the housing sector:

Energy efficiency improvements	**Private / energy tax, or price driven**	**Compulsory with governmental enforcement**	**Private with limited governmental support**
Targets	Set by private homeowners, such as reduction of energy bill and increase of real estate value.	Centrally established and enforced targets for energy efficiency improvements.	Centrally established targets for energy efficiency improvements, met via private initiative.
Role of the Government	Ensure competitive market, possible taxation of energy consumption.	Set realistic targets for energy efficiency improvements; enforce implementation of energy efficiency measures.	Ensure competitive market, provide guidelines and targeted subsidies, or tax incentives for homeowners undertaking energy efficiency. Improvements
Project initiation	Private initiative supported by public information and awareness campaigns.	Mandatory, financial sanctions apply if homeowners take no action.	Private initiative supported by targeted subsidies, or tax brakes and support network (public advisory centres, information campaigns).
Financing	Private only, from commercial loans, private savings, monthly fees.	Private, commercial loans, private savings, monthly fees, or soft loans provided by the state institutions.	Private, including state support. Commercial loans, private savings, monthly fees, or soft loans provided by the state institutions.
Implementation	All stages of project implementation are performed by market participants, i.e. energy consultants, maintenance companies, contractors. Homeowners choose the quality they need and can afford.	All works are performed by authorised and licensed market participants to ensure uniform quality.	All works are performed by authorised and licensed market participants to ensure uniform quality. If governmental support is involved procurement should be arranged via tendering procedures.
Major pros	If price signals are correct and market capacity is adequate then energy efficiency improvements are sustainable and no budgetary allocations are needed.	Quick implementation, effective quality control, uniform improvement of building stock.	Societal goals are achieved through private initiative; renovation process can be adjusted by fine financial corrections.
Major cons	Market barriers, distorted price signals and limited institutional capacity can result in a very slow pace of building renovations and energy efficiency improvements.	Enforcement requires budgetary funding, could be inefficient and could lead to social tensions.	Budgetary allocations for subsidies or tax incentives are needed.
Major risks	Due to slow renovation process majority of buildings will continue to deteriorate causing public safety problems.	Non-sustainable if effective enforcement ceases.	If cost-effectiveness of budgetary allocations is not monitored, taxpayer's money can be misinvested.

9 STEPS INTO THE FUTURE – RECOMMENDATIONS TO OVERCOME THE BARRIERS

9.1 Strategic objectives

For Lithuania with its public energy supply sector and regulated energy prices there is a strong rationale to select the 3rd choice - "*Private with limited governmental support*" shown in the right column of table 8.1 above. This choice encourages and supports private initiative, which is guided via a fine set of financial interventions to maximise societal benefits. The working group members also favoured the same choice. Implementation of this approach requires a number of objectives to be achieved during the next few years. The objectives originate from the issues elaborated in chapter 8 (Basis for the Strategy), including: Objectives for national housing policy, the National Energy Strategy, EU harmonisation objectives and from the Working Groups' considerations:

- Efficient political management of the housing sector using market based approaches;
- Successful implementation of agreed measures to be carried out in co-operation between authorities, homeowners and private businesses
- Efficient and transparent legal framework that would ensure successful implementation of market based housing policies and continuous improvement of quality and energy efficiency of housing;
- Clear housing ownership, organised management of multifamily buildings and clear responsibilities for housing maintenance and administration;
- Competitive market for housing maintenance, energy consulting and construction services and products;
- Mature banking sector able to provide sufficient and affordable financing in Litas for residential building retrofits and energy efficiency improvements;
- Development of sufficient market capacity of professional and licensed construction companies, energy consultants, and housing maintenance companies able to meet expanded market demand in order to implement established policy goals;
- Efficient and flexible taxation system able to provide targeted tax incentives with marginal administration costs for support of housing, social and energy efficiency policies;
- Well-developed support network that could assist homeowners in their undertakings to improve energy efficiency and quality of their housing;

- Harmonisation of legal framework with future EU requirements and other international obligations.

9.2 Strategy Measures

The working groups held a number of meetings to develop a set of recommendations that would ensure removal of market barriers for building renovation and energy efficiency discussed in Part 2 of this study and accomplishment of the strategic objectives during the next five years.

In this section a number of strategy measures are proposed based on the recommendations of the Working Groups that should lead to accomplishment of the strategic objectives. The structure of the section follows the categories of the barriers. "Immediate measures" mean that proposed measures can be implemented immediately. "Short term measures" mean that proposed measures should be implemented within a period of up to 2 years. For "medium term measures" the implementation period is up to 5 years.

9.2.1 Political and Institutional fields

Objective: Efficient political management of the housing sector using market based approaches and effective implementation of approved housing policies.

Barriers: Unclear division of responsibilities at the State level.

Strategy measures:

Immediate measures:

1. Establish a Task Force involving representatives from governmental institutions, municipalities and the private sector directly involved in housing issues in order to streamline political decision-making. This Task Force could co-ordinate development of the sector and improve dialogue between different actors and levels. The Task Force should be given a strong and precise mandate as well as clear deliverables should be defined. The Working Groups – participating in preparation of this Strategy – could form the basis of the Task Force which should invite other members on an ad hoc basis depending on issue for elaboration.

Activities of the Task Force could include the following

- Continuous review and improvement of policies of the national housing sector - including quantified analysis in relation to implementation of building renovation and energy efficiency measures in accordance with this Strategy;
- Participate in the preparation of a study on adequacy of distribution of competence and responsibilities among governmental institutions regarding housing policies;
- Improvement of organisational capacity of various governmental institutions in accordance to recommendations of the performed study;

- Assessment and improvement of political and institutional structures in the municipalities, involved in the solution of housing issues at the local level including assessment of adequacy of subsidies for rental fees and energy supply;
- Implementation of measures aimed at the growth of Homeowners Associations' numbers, including various aspects of financial opportunities i.e. subsidies, debt recovery, financial schemes);
- Involvement in preparation of supply-side management measures in co-operation with District Heat Task Force;
- Involvement of Research Institutions and other experts on ad hoc basis;
- Involvement in elaborating support schemes for training and education of energy consultants.

2. Activities aimed at the implementation of energy efficiency measures in housing should be co-ordinated with the National Energy Strategy (Energy Agency of Ministry of Economics). The Task Force could be responsible for this co-ordination – although the final decision on energy efficiency issues lies in the Ministry of Environment and Energy Agency - depending on issue in question;
3. Co-ordinate housing sector development with the development of other sectors.

Short term measures (1-2 years)

4. Attribute the responsibility for preparation of housing legislation to one of the Committees of the Parliament, e.g. to the Committee of Economics; or even to form a Parliamentary Sub-Committee of Housing Policy;
5. Concentrate as much responsibility as possible for formulating of housing policy (i.e. assessment and preparation of legal frameworks, co-ordination etc.) in one institutional entity to streamline the policy making process. The Task Force can assist with memorandums as they represent their ministries and organisations.

Barrier: Lack of municipal initiatives in housing

Strategy measures:

Short term measures (1-2 years)

6. Ask and encourage the municipalities to prepare local strategies for implementation of energy efficiency measures in the housing sector;
7. Recommend establishment of Housing Policy Committees or sub-committees in the Councils of municipalities (following the example of Vilnius Municipality), which should prepare programs for municipal activities in the housing sector and supervise their implementation;
8. Recommend establishment of Housing Policy Divisions in the municipal executive structures, which could implement the housing strategies and programs prepared by the Council.

Barrier: Limited number of Home Owners Associations

Strategy measures:

Short term measures (1-2 years)

9. Intensify establishment of homeowners associations through issuing guidelines for legal and organisational support to HOAs, (establishment, activities, tax incentives, training of chairpersons and board members, improvement of legal and economic environment for HOAs - including simplified bookkeeping rules);
10. Ensure equal economic conditions for both members of homeowners associations and apartment owners in residential buildings maintained by municipal companies regarding maintenance of territories surrounding their buildings by amending municipal by-laws. So far, HOAs pay for this service twice: firstly by themselves (cause municipal companies refuse to take care of these territories without additional payment) and secondly through municipal taxes that are meant to cover these activities.

Barrier: Lack of organised management of multi-apartment buildings

Strategy measures:

Short term measures (1-2 years)

11. Establish clear rules and procedures for collective decision making in multi-apartment with no homeowners associations formed;
12. Define in the legal acts how municipalities could take over responsibilities for administration and maintenance of multi-apartment building if homeowners are reluctant to make any decisions.

9.2.2 Financial and Economic fields

Objective: Mature banking sector able to provide sufficient and affordable financing for the residential building retrofits and energy efficiency improvements.

Barrier: Lack of long term financing for housing renovations

Strategy measures:

Immediate measures

1. Maintain the financing scheme (soft loans for homeowners associations) for energy efficiency improvements in multi-apartment buildings, developed in the framework of the EEHP project. Financing of this scheme could be arranged through operations of the revolving fund, budgetary funds and potentially additional loans from international financial institutions until a mortgage financing system, able and willing to provide loans for multi-apartment building renovations, is developed.

Medium term measures (3-5 years)

2. Establish and develop the mortgage financing system using local liquid assets for financing building renovation. Granting of government guarantees for mortgage bonds would help to attract private savings to the housing sector. Lithuanian and foreign experts have carried out comprehensive documentation for establishing a mortgage finance system – including proposal for legal framework;

3. Encourage the private banks to introduce special saving programs (when a customer accumulates money in a special account in course of 3 – 5 years and then is able to borrow an extra amount of money) which could prove the solvency of HOAs and banks could render loans at lower risk;
4. Initiate an Insurance Scheme (private or State) for loans given for renovation of multi-apartment buildings and implementation of energy efficiency measures in case of absence of property mortgage. That needs clear and rapid debt recovery procedure in case of default. The Task Force should monitor experiences from the actual insurance scheme for purchase of new property that can be extended to cover building renovation.

Objective: Efficient and flexible taxation system able to provide targeted tax incentives with marginal administration costs.

Barrier: Absence of targeted tax incentives or subsidies for energy efficiency improvements.

Strategy measures:

Immediate measures

5. Ensure continuity of the tax incentives and state support developed in the framework of the EEHP project for homeowners associations undertaking energy efficiency investments. VAT exemption could be terminated and could be replaced with a grant system, which is less bureaucratic for the involved parties. In addition, annual budgetary implications of a grant are easier to assess for the Government.

Medium term measures (3-5 years)

6. Develop a well-planned system of subsidies and tax privileges, supporting transparent building renovation, which could decrease the part of the illegal market and increase budget revenues. In order to get tax privileges or subsidies, a customer (HOA) should present all bills for the performed works, therefore illegal businesses would not be able to participate in implementation of such projects.

Objective: Reasonable and motivated measures that could be achieved by joint efforts of the state authorities and individuals and be adjusted if necessary using fine financial interventions (financial incentives)

Barrier: Heat consumption subsidies for low-income families do not stimulate energy efficiency improvements.

Strategy measures:

Immediate measures

7. Maintain the support system for low-income families investing in energy efficiency measures developed in the framework of the EEHP project. In the Law of Financial support for low-income families the expenses related to the repayment of the state rendered loans for energy efficiency measures should be included in the requirements for compensated expenditures for housing. These complicated and comprehensive issues should be further elaborated within a new, independent study. The Task Force should be involved in co-operation with the group of experts preparing proposal for the new Heat Law.

Short term measures (1 – 2 years)

8. Norms of compensated resources for low-income families could be reduced to the average consumption levels. The municipalities, responsible for setting these norms, are recommended to take the energy saving perspective into consideration.

Objective: Competitive market for high quality housing maintenance, energy consulting and construction services and products.

Barrier: Building maintenance and administration markets are monopolised by municipal companies.

Strategy measures:

Short term measures (1-2 years)

9. Ensure that the secondary legislation following the new HOA Law will liberalise housing maintenance and administration markets and enforce fair competition of private and municipal enterprises;
10. Ensure that the secondary legislation following the new HOA Law will separate services for housing maintenance and administration;
11. Ensure that the secondary legislation following the new HOA Law will enforce transparency of activities of municipal maintenance enterprises and repeal any direct or indirect subsidies to them.

9.2.3 Legal and Regulatory fields

Objective: Efficient and transparent legal framework that would ensure successful implementation of market based housing policies and continuous improvement of quality and energy efficiency of housing

Barrier: Absence of enforcement and regulation of residential building maintenance

Strategy measures:

Short term measures (1-2 years)

12. Housing Maintenance Law that is under the preparation should include a set of compulsory requirements for building maintenance. Organised owners of the multi-apartment buildings (e.g. HOAs) could buy maintenance services in the market. Non-organised apartment owners should pay for the services to the enterprises having won tenders arranged by municipalities;
13. Legal acts should enforce financial sanctions to homeowners for improper maintenance of their buildings. This issue will be covered by the proposed Maintenance Law;
14. Establish financial procedures for utilisation of accumulative amortisation funds for future building renovation works for homeowners that have not established an home owners association. The monthly fee collected by apartment owners should "follow" the building and guidelines for administration and use of the money should be elaborated.

Barrier: Grey sector hampers transparency of building renovation market.

Strategy measures:

Medium term measures (up to 5 years)

15. Reinforce the legal basis for fighting the "grey sector" problems.

Barrier: Lack of effective measures for debt recovery.

Strategy measures:

Medium term measures (up to 5 years)

16. Investigate – by the proposed Task Force – what is required to amend Civil Code in order to reduce the difficulties of debt recovery and how to reinforce the legal basis related to possible sanctions applied to the persons trying to avoid debt payment

Objective: Clear housing ownership, organised management of multi-apartment buildings and clear responsibilities for housing maintenance and administration.

Barrier: Vague responsibility for maintenance of private buildings and lack of promotion of organised management of multi-apartment housing.

Strategy measures:

Short term measures (1-2 years)

17. Clearly define rights and responsibilities of municipal institutions and homeowners in the maintenance of private multi-apartment buildings when issuing by-laws complementing the new HOA Law.
18. Ensure that heat consumption inside the building is controlled by home owners (or companies in behalf of the home owners), not by utilities;
19. Clarify the legal basis for the management of common property of apartment owners when issuing by-laws complementing the new HOA Law.

20. Issue guidelines for management of common property when issuing by-laws complementing the new HOA Law.

Medium term measures (up to 5 years)

21. Ensure that future Lithuanian laws and housing development policy promotes organised management (HOAs) of multi-apartment residential buildings.

Objective: Harmonisation of legal framework with future EU requirements and other international obligations.

Barrier: Lack of harmonisation with legal acts and practices of the EU Member countries.

Strategy measures:

Medium term measures (3 - 5 years)

22. Investigate what is required to harmonise Lithuanian legal acts on housing issues with requirements and practices of the EU and other international obligations.

9.2.4 Capacity and Capability fields

Objective: Well-developed support network that could assist homeowners in their undertakings to improve energy efficiency and quality of their housing

Barrier: Lack of skills and traditions among homeowners associations to undertake substantial building renovations and energy efficiency improvements.

Strategy measures:

Immediate measures

1. Give a priority to training for chairpersons and board members of associations in issues related to building maintenance and administration as well as in preparation and implementation of energy efficiency and building renovation projects.

Barrier: Insufficient awareness of households regarding energy efficiency and housing maintenance issues.

Strategy measures:

Immediate measures

2. Maintain support network (regional Advisory Centres) developed in the framework of the EEHP project – but ensure that ACs do not compete with private consultants if the latter are able and willing to provide the services in question.

Short term measures (1-2 years)

3. The proposed Task Force should investigate how to expand support network and, in particular, how to involve municipalities - that could accumulate experience on building renovation and energy efficiency issues and support homeowners and other stakeholders in their undertakings.

Furthermore, the establishment of an Internet based database with all relevant data for the building renovation and energy efficiency process should be investigated by the proposed Task Force – including financial aspects of its operation.

4. Intensify public information campaigns on building renovation and energy efficiency issues. Successful demonstration projects should be extensively used for public information campaigns (the neighbour's effect).

Objective: Sufficient market capacity to implement established measures (professional and licensed construction companies, licensed energy consultants and housing maintenance companies able to meet expanded market demand).

Barrier: Limited capacity of energy consultants/auditors.

Strategy measures:

Immediate measures

5. The proposed Task Force should elaborate support schemes for energy consultants for their professional training and education purposes.

Medium term measures (3-5 years)

6. Establish a licensing system of energy consultants/auditors;
7. Introduce a liability insurance scheme for energy consultants/auditors

10 IMPLEMENTATION PROGRAMME

This final chapter outlines the implementation of the strategic measures presented in the Strategy - following the structure of section 9.2 but with focus on "*Responsible*" for implementation; the "*budgetary implications*" of the recommended measures and finally a "*deadline*" for implementation.

In principle the government is *responsible* for deciding on implementation of strategic measures regarding subsequent measures to be carried out by the various ministries. The government has in addition influenced scope of both the municipal and private sector activities. In *responsible* below states the executing institution(s).

The *budgetary implications* for recommended measures are raw estimates. In some cases below, an estimate of future cost (non-recurring or annual) of implementation of a proposed measure is stated. In other cases state the actual allocation of national budget for 2000 but without indication of the "future" of the budget line as the national budget for 2001 is still not discussed. In yet other cases the private sector is responsible with limited influence on public budgets. Most measures, however, has no budgetary implications as it is assumed, that implementation of the measure lies within the actual tasks of the present staff. Finally some budgetary implications are impossible to predict as different measures interact. After a short period experience can be gathered.

When considering scope of budgetary implications it is important to compare future budgetary allocations with potential energy savings, increased tax income and employment, reduced imports etc.

However, after political approval of the Strategy (or parts of the Strategy according to the political priorities) more quantified data and detailed budgets should be carried out. The Task Force should be involved in co-ordinating and advising on this.

Deadlines follow the structure from section 9.2: "Immediate" – measures to be implemented before 31 December 2000; "short term measures" should be implemented within 2 years and "medium term measures" within 5 years.

10.1 Measures to be taken within the Political and Institutional fields

10.1.1 Immediate measures - prior to 31 December 2000

1. Establish a Task Force at governmental level chaired by Ministry of Environment - with additional participants from Ministry of Finance; Ministry of Social Security and Labour; Ministry of Public Administration and Local Authorities; Energy Agency; HUDF; Association of Lithuanian Municipalities and from Private Sector involved in building renovation and energy efficiency.

Responsible: Government.

Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

Deadline: 31 December 2000.

2. Co-ordinate this Strategy with National Energy Strategy and other plans/programs with influence on the building renovation and energy efficiency process.

   Responsible: Ministry of Environment, Energy Agency.

   Budgetary implications: None, as it is assumed that the institutions' actual staff will carry out the activities.

   Deadline: 31 December 2000.

3. Intensify establishment of homeowners associations through legal and organisational support to HOAs.

   Responsible: Ministry of Environment, Ministry of Finance, Ministry of Public Administration and Reforms

   Budgetary implications: Depends on scope of support outlined in guidelines following from of the new HOA Law.

   Deadline: 31 December 2000.

10.1.2 Short term measurers (1-2 years)

1. To suggest the assignment of the responsibility for preparation and co-ordination of housing legislation to one of the Parliament Committees.

   Responsible: Seimas (Lithuanian Parliament).

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 2 years.

2. Ask and encourage the municipalities to prepare local strategies for implementation of energy efficiency measures.

   Responsible: Government, Ministry of Environment; Energy Agency.

   Estimated future annual budgetary implications: LTL 500.000 from municipalities' budgets – a total of LTL 1 million.

   Deadline: Within 2 years.

3. Set a clear and transparent decision making mechanism in multi-apartment buildings with no HOA formed.

   Responsible: Government; Ministry of Environment.

   Estimated future annual budgetary implications: LTL 20,000 from municipalities' budgets – a total of LTL 40,000

   Deadline: Within 2 years.

4. Concentrate as much responsibility as possible of formulating housing policy (i.e. assessment and preparation of legal frameworks, co-ordination etc.) in one institutional entity to streamline the policy making process. The Task Force can assist with memorandums as they represent their ministries and organisations.

   Responsible: Government.

   Estimated future annual budgetary implications: LTL 200,000 from State budget – a total of LTL 400,000.

   Deadline: Within 2 years.

5. Recommend establishment of a Housing (Sub) Committee in the Council of Municipalities (like in Vilnius) that could prepare policies for housing policies – and supervise the implementation.

   Responsible: Government; Ministry of Public Administration and Reforms; Association of Lithuanian Municipalities.

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 2 years.

6. Recommend establishment of housing policy divisions in municipalities that could execute the decisions of the (Sub)Committee.

   Responsible: Government; Ministry of Public Administration and Local Authorities; Association of Lithuanian Municipalities.

   Estimated annual future budgetary implications: LTL 600,000 from municipalities budgets – a total of LTL 1,2 million.

   Deadline: Within 2 years.

7. Make economic conditions of homeowners equal regarding payment for maintenance of territories around multi-apartment buildings by changing the municipal by-laws.

   Responsible: Government; Ministry of Environment; Ministry of Finance; Ministry of Public Administration and Reforms; Association of Lithuanian Municipalities.

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 2 years.

10.1.3 Medium term measures – up to 5 years

1. Ask and encourage the municipalities to prepare housing development programs.

   Responsible: Government; Ministry of Public Administration and Local Authorities.

   Estimated future annual budgetary implications: LTL 400,000 from municipal budgets – a total of LTL 2,0 million.

   Deadline: Within 5 years.

10.2 Measures to be taken within the Financial and Economic fields

10.2.1 Immediate measures – prior to 31 December 2000

1. Maintain the financing scheme (soft loans for homeowners associations) for energy efficiency improvements in multi-apartment buildings, developed in the framework of the EEHP project. Financing of this scheme could be arranged through operations of the revolving fund, budgetary funds, and potentially additional loans from international financial institutions until a banking system (mortgage financing) able and willing to provide loans for multi-apartment building renovations, is developed.

   Responsible: Ministry of Environment; Ministry of Finance; HUDF.

   Budgetary implications: Future budgetary implications depend among others on funding source, demand for loan, role of revolving fund, decision of future grant. However, LTL 3,3 million have been allocated for grants to participants of the EEHPP by 31 May 2000. An increase from LTL 1,8 million from 1 January 2000, which indicates the importance of the grant in the building renovation and energy efficiency process.

   Deadline: 31 December 2000.

2. Maintain the support system for low-income families investing in energy efficiency measures developed in the framework of the EEHP project. These complicated and comprehensive issues should be further elaborated within a new, independent study. The Task Force should be involved in co-operation with the expert group preparing the new heat law.

   Responsible: Ministry of Environment; Ministry of Finance; HUDF.

   Budgetary implications: The Task Force should quantify the budgetary allocations in co-operation with the expert group preparing proposals for the new Heat Law.

   Deadline: 31 December 2000.

3. Continue the tax incentives in the framework of EEHPP for HOAs undertaking energy efficiency investments. VAT exemption could be terminated and could be replaced with a grant system, which is less bureaucratic for the involved. In addition the annual budgetary implications are easier to assess by the Government.

   Responsible: Government; Ministry of Environment; Ministry of Finance; HUDF

   Budgetary implications: VAT exemption of EEHP Projects has been calculated to make LTL 4,5 million.

   Deadline: 31 December 2000

10.2.2 Short term measures (1-2 years)

1. Render targeted privileges to the households investing in energy efficiency measures.

   Responsible: Government; Ministry of Environment; Ministry of Finance; HUDF.

Budgetary implications: - Total amount of income tax will be reduced.

Deadline: The Government is currently preparing new legal framework for the targeted privileges.

2. Reduce the norms of compensated energy resources for supportable families to average consumption levels.

   Responsible: Government; Ministry of Social Security and Labour; Ministry of Environment, Ministry of Finance; Association of Lithuanian Municipalities.

   Future budgetary implications: From the measure follows savings on public budgets.

   Deadline: Within 2 years.

3. Liberalise housing maintenance and administration markets, insuring fair competition of private and municipal enterprises. Repeal any direct or indirect subsidies to municipal companies.

   Responsible: Government; Ministry of Public Administration and Local Authorities; Ministry of Finance; Association of Lithuanian Municipalities.

   Future budgetary implications: The measure will have a positive effect on public budgets.

   Deadline: Within 2 years.

10.2.3 Medium term measures – up to 5 years

1. Establish a mortgage financing system using local liquid assets for financing building renovation. A number of performed studies should be used for the design of Lithuanian mortgage system.

   Responsible: Government; Ministry of Economics; Ministry of Finance; Ministry of Environment; Bank of Lithuania; Private banks and other institutional investors

   Estimated future annual budgetary implications: LTL 50,000 from State budget – a total of LTL 250,000.

   Deadline: Within 5 years.

2. Introduce an insurance scheme (private or State) for the loans given for renovation of multi-apartment buildings in absence of the mortgage after lessons are learnt from the actual insurance scheme for new property acquisitions.

   Responsible: Government; Ministry of Economics; Ministry of Finance; Bank of Lithuania; Private banks and insurance companies

   Estimated future annual budgetary implications: LTL 3,0 million from State budget – a total of LTL 15 million.

   Deadline: Within 5 years.

3. Introduce well-planned system of subsidies and tax privileges, supporting transparent building renovation that could decrease the share of the illegal labour market.

   Responsible: Government; Ministry of Finance; Inspection of Taxation; Ministry of Environment.

Budgetary implication: Depends on increased tax income exceeds subsidies/tax incentives.

Deadline: Within 5 years.

4. Encourage the private banks to introduce special saving programs which could prove the solvency of HOA or individual flat owners.

   Responsible: Private Banks; Bank of Lithuania.

   Estimated future annual budgetary implications: None - Decisions depends on private banks.

   Deadline: Within 5 years.

10.3 Measures to be taken within the Legal and Regulatory fields

10.3.1 Short term measures within 1-2 years

1. Enforce and regulate maintenance of residential buildings.

   Responsible: Government; Ministry of Justice; Ministry of Environment.

   Estimated future annual budgetary implications: LTL 20,000 from State budget – a total of LTL 40,000.

   Deadline: Within 2 years.

2. Impose financial sanctions to owners for improper maintenance of their buildings.

   Responsible: Government; Ministry of Justice; Ministry of Environment

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 2 years.

3. The by-laws complementing the new HOA Law should ensure proper management of common property in multi-apartment buildings and clearly define the rights and responsibilities of apartment owners and municipal institutions in maintenance of these buildings.

   Responsible: Government; Ministry of Justice; Ministry of Environment.

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 2 years

4. Elaborate in the by-laws complementing the new HOA Law on how local municipal institutions could take over responsibility for building maintenance and administration if a homeowners association is not formed.

   Responsible: Government; Ministry of Environment; Ministry of Public Administration and Reforms; Association of Lithuanian Municipalities.

Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

Deadline: Within 2 years.

10.3.2 Medium term measures – up to 5 years

1. Future Lithuanian laws and housing development policy should promote organised building management.

   Responsible: Government; Ministry of Environment; Ministry of Public Administration and Reform; Association of Lithuanian Municipalities.

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 5 years.

2. Reinforce the legal basis for fighting the "grey sector" problems.

   Responsible: Government; Ministry of Justice; Ministry of Finance; Inspectorate of Taxation, Ministry of Social Affair and Labour.

   Budgetary implications: Positive – depending of success of measures.

   Deadline: Within 5 years.

3. Investigate – by the proposed Task Force – what is required to amend Civil Code in order to reduce the difficulties of debt recovery.

   Responsible: Government; Ministry of Justice

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities.

   Deadline: Within 5 years.

4. Investigate what is required to harmonise Lithuanian legal framework to EU requirements and to fulfil other international obligations.

   Responsible: Government; Ministry of Foreign Affairs; Ministry of Environment; Energy Agency.

   Budgetary implications: None, as it is assumed that the institution's present staff will carry out the activities. In addition these measures are expected to financed by the Dutch financed project to be launched in 2001.

   Deadline: Within 5 years.

10.4 Measures to be taken within the Capacity and Capability building fields

10.4.1 Immediate measures prior to 31 December 2000

1. Maintain the support network established in the framework of the EEHP project (i.e. advisory centres) and Energy Efficiency Centre of Energy Agency - but ensure that centres do not compete with private consultants if the latter are able and willing to provide the services in question.

   Responsible: Government; HUDF.

   Annual budgetary implications: The annual budget for one AC is LTL 200,000 – totally LTL 1 million for the present 5 ACs. Until 31 December 1999 this sum was covered by Danish assistance – but Danish financial assistance is for 2000 reduced to LTL 900,000; in 2001 to LTL 600,000 and for 2002 to LTL 300,000. To continue level of activities means contributions from other side: from State and/or municipal budgets or payment for services by users of Acs.

   For 2000, LTL 2,5 million has been allocated from the National Budget for activities of the EECs.

   Deadline: 31 December 2000.

2. Give priority to training for chairpersons and board members of HOAs in building maintenance and administration.

   Responsible: Ministry of Environment; HUDF; Private sector.

   Budgetary implications: None – A Danish financed project is expected to be launched early 2001.

   Deadline: 31 December 2000.

3. Support consultants in their professional training and education.

   Responsible: Private sector, including LECA.

   Budgetary implications: None – Technical Assistance Funds at the beginning and subsequent training on commercial basis.

   Deadline: 31 December 2000.

10.4.2 Short term measures within 1-2 years

1. The proposed Task Force should investigate how to expand support network to accumulate experience in building renovation and energy efficiency. In particular to investigate how to involve the municipalities.

   Responsible: Ministry of Environment

   Budgetary implications: None - Technical Assistance Funds at the beginning and subsequent activity on commercial basis.

   Deadline: Within 2 years.

2. Intensify public information campaigns on building renovation and energy efficiency – including establishment of a single database covering housing renovation and energy efficiency issues.

   Responsible: Ministry of Environment; Energy Agency; HUDF.

   Budgetary implications: Budgetary impact depends on scope of activities and to which degree businesses are expected to co-finance the activities.

   Deadline: Within 2 years.

10.4.3 Medium term measures up to 5 years

1. Establish a system for certification or licensing of energy consultants.

   Responsible: Energy Agency; Private sector.

   Budgetary implications: The cost for public licensing is considered limited and can be carried out within the normal duties of the Energy Agency staff.

   Deadline: Within 5 years.

2. Introduce a liability insurance scheme for energy consultants.

   Responsible: Ministry of Justice; Energy Agency; Private sector.

   Budgetary implications: None. The involvement of Ministry of Justice is considered of limited scope.

   Deadline: Within 5 years.

10.5 Potential Roles of the Institutions in the implementation of the Strategy

In order to implement the measures to be taken to achieve the objectives within the building renovation and energy efficiency process, combined efforts by a range of stakeholders will be necessary.

In this section an overview of the potential role of various institutions in this undertaking is elaborated - including short-term objectives that could facilitate the achievement of established objectives.

Government

Role: The role of the Government is of crucial importance for fulfilment of the objectives of this Strategy. The Government can in a targeted way "fight" a barrier as they decide on future legislation and set the framework for the Lithuanian society in general. The Government should take initiative to form a Task Force with representatives from all involved parties in the building renovation and energy efficiency process. The Task Force should report to their respective ministers, among others to submit basis for the relevant ministers' subsequent decisions on future measures. Therefore the Task Force should have strong and precise mandate as well as clear deliverables.

Short term measures:

- To form a Task Force with participants from ministries, municipalities and private sector involved in the building renovation and energy efficiency process. The Working Groups – participating in elaborating this Strategy – should form the basis of the Task Force.
- To decide on establishment of formalised procedures to review improvements and co-ordination within the building renovation and energy efficiency process.
- To decide on the future role of municipalities.

10.5.1 Support network

Housing and Urban Development Foundation

Role: The HUDF should continue its involvement in initiation and implementation of new projects within housing sector with homeowners and the municipalities as the main target groups. The experience gained during the implementation of ongoing projects makes the HUDF very suitable for such activities. In collaboration with other stakeholders, the HUDF should initiate the revolving fund that was foreseen in the EEHP project and should ensure sustainable financing of energy efficiency improvements of the residential housing stock.

The undergoing Municipal Development Program will provide additional opportunities for the municipalities to upgrade urban infrastructure and remove some of supply side inefficiencies. The Mortgage Finance Project is designed to propose and initiate Lithuanian mortgage credit system that is essential for financing of future building renovation and energy efficiency developments. In collaboration with other institutions the HUDF should advance development of this project.

Short Term Measures:

- Advancement of the Mortgage Finance project;
- Initiation of the revolving fund;
- Search for international investors and donors (the World Bank, etc.) willing to contribute to the follow-up initiatives of the EEHPP.

Advisory Centres

Role: The Advisory Centres proved to be very efficient in initiating building renovation projects and promoting energy efficiency among households. Therefore it is important to maintain and expand their activities. Targeted information campaigns aimed to encourage formation of new HOAs and disseminate information about the successful energy efficiency projects also remains an important activity for the advisory centres.

The Advisory Centres should introduce and carry out training programmes for chairpersons and board members of HOAs on administrational, legal, financial and technical issues, negotiation and presentation techniques. Advisory Centres should not compete with private sector in providing similar services.

Short Term Measures:

- Ensure continuity and possible expansion of their advisory services through modification of their activities and search for additional projects and financing options;
- Introduce training programmes for chairpersons and board members of homeowners associations;
- Continue targeted information campaign on energy efficiency, housing maintenance and administration issues.

Municipalities

Role: In the final report of a study of the municipal maintenance enterprises in Vilnius and Kaunas (Opus Bergen, Oct 1997) there is an important and crystal clear recommendation: "The present system of city-owned housing maintenance companies in Vilnius and Kaunas should be terminated as quickly as possible" (p.8). As suggested by Opus Bergen, the municipal companies should only be responsible for management, repair and renovation of municipal housing stock although private companies often can do it better and cheaper.

Therefore municipalities should restructure and liberalise housing maintenance and administration markets immediately.

In addition municipalities could play a very positive role in promotion of homeowners associations by both removing existing barriers and providing targeted support. The Municipalities should allocate annual budgetary earmarked for this purpose.

Municipalities could continue their support for the existing Advisory Centres that proved to be efficient in initiating and supporting homeowners associations.

Short Term Measures:

- Liberalise and restructure housing maintenance and administration markets;
- Support and initiate homeowners associations;
- Support advisory services provided by Centres.

Energy Efficiency Centre

Role: The EU accession will set a number of requirements for energy efficiency in buildings. Therefore there is need for expansion of awareness of energy efficiency issues among households and this is the place where the EEC could be the most efficient.

The Draft Law on Energy Conservation, which will be introduced for the Parliament in 2001, proposes a new organisation of Energy Agency with at least four Energy Efficiency Centres in Lithuania. Their main task will be providing information and advice to local enterprises, municipalities and consumers in general, and carrying out energy audits. The Centres should work closely with all departments of the Energy Agency and should utilise outside specialist knowledge and experience if necessary. However, the proposed Law is still under consideration by October 2000.

The EEC should also be involved in training of energy consultants working on energy efficiency issues. There is also a need for better co-ordination of various projects and activities aimed at improvement of energy efficiency, therefore the EEC could streamline and support activities of various actors in the field.

Short Term Measures:

- Ensure efficient co-ordination of domestic and foreign financed activities aimed at improvement of energy efficiency;
- Continue its involvement in public awareness campaigns on energy efficiency issues;
- Continue its involvement in training of energy consultants/auditors.

Research Institutions

Role: The Research Institutions should continue their research on energy efficiency topics specific to Lithuania and its residential building stock. They could be also involved in public information campaigns, development of legal acts, standards, professional training programs and implementation of demonstration projects.

Short Term Measures:

- Continue participation preparing the normative documents related to energy efficiency in housing;
- Perform monitoring of Lithuanian housing stock, assess energy efficiency potentials, provide necessary expertise for decision makers;
- Prepare guidelines, manuals and other information material on energy efficiency issues for various stakeholders (households, energy consultants, contractors, municipalities, etc.);
- Participate in training of specialists dealing with energy efficiency issues in residential buildings.

10.5.2 Market Participants

Banks

Role: In a market economy commercial banks should fill the essential role in financing building renovation and energy efficiency retrofits of the residential building stock.

Currently the banks do not offer financial products specially tailored for homeowners associations due to a number of economic, institutional and legal problems mentioned in the previous chapters. Providing additional opportunities for banks to get involved in this market should change this situation. The banks could initiate these changes because they know the best, which are the prerequisites to introduce new products.

Banks should in addition participate in the development of a Lithuanian mortgage financing system through distribution of mortgage bonds. Pension funds (not available as of October 2000) and insurance companies could together with banks be investors in mortgage bonds.

Short Term Measures:

- Introduce new financial products tailored to the needs of homeowners residing in multi-apartment buildings;
- Participation in the development of Lithuanian mortgage financing system.

Contractors

Role: Development of more affordable financing schemes will expand the residential building renovation market thus providing more opportunities for private businesses. Lithuanian construction industry has enough capacity to meet anticipated expansion of building renovation market but it is of crucial importance to solve the quality assurance and "grey" sector problems in the nearest future.

Short Term Measures:

- Market capacity building (accumulation of financial resources and market consolidation);
- Quality assurance (proper supervision of works; effective certification of specialists, materials and equipment);
- Reduction of "grey" sector share (assurance of financial transparency, refinement of legal environment and improved operation procedures for homeowners);
- Consumer protection (effective regulations; liability insurance).

Utilities and ESCOs

Role: Utilities upgrading building level heat substations could combine their efforts with homeowner associations and separate apartment owners and include other measures (individual heat cost allocators, thermostatic valves, etc.) thus improving both supply and demand side energy efficiency.

Due to environmental concerns utilities should be encouraged (by tax breaks, or subsidies) to invest in environmentally sustainable technologies on the building level, so that they would be able to offer subsidies, or heat tariff breaks to homeowners investing in energy efficiency.

Introduction of competition (where possible) in the heat supply market could facilitate capacity building for energy service businesses. Energy service companies could participate in this competition by offering complete energy solutions (including higher energy efficiency) rather than just energy supply options.

Short Term Measures:

- Co-operation among utilities and homeowners in implementation of energy efficiency measures, that are beneficial for both sides;
- Market capacity building for energy service businesses on the demand side (consumer education, staff training, and accumulation of financial resources and service diversification).

Housing Maintenance and Administration Companies

Role: Housing maintenance companies could play a central role in building renovation process by mobilising household's financial resources. Once market is liberalised and fair competition is enforced, homeowners will be able to purchase services according to their needs and financial means. Households united in homeowners associations will be able to contract companies for certain tasks on a competitive basis instead of performing maintenance tasks by themselves.

Short Term Measures:

- Market liberalisation (de-monopolisation) and enforcement of fair competition;
- Restructuring of municipal companies (financial transparency, core activities and no subsidies) and their services (periodical building inspections and long term financial management);
- Market capacity building (consumer education, staff training, certification, accumulation of financial resources and service diversification);
- Consumer protection (refined regulations, clear responsibilities and liability insurance);
- Consumer awareness improvement (to ensure informed decisions on housing maintenance and renovation issues) and targeted support (environmentally sustainable investments, promotion of energy efficiency).

Energy Consultants

Role: The energy consultant should participate in the development of building renovation and energy efficiency market by pointing out opportunities for other participants (households, contractors, manufacturers, designers, utilities, administration and maintenance companies) to make cost effective investments. As the activities of the energy consultants develop, dissemination of information about their services is important for promoting of their role in implementation of energy efficiency measures.

Consultants could also implement training programmes for stakeholders and organise continuos training of other energy consultants in order to maintain and develop their professional skills. They could also establish an Internet based database on performed, or ongoing renovation projects, research and professional tools, analyses, comparative indicators, uniform system of energy efficiency statistics that could be easily accessible for all interested parties.

Short Term Measures:

- Establishment of a system for certification or licensing of energy consultants;
- To introduce a liability insurance scheme for energy consultants;
- Ministry of Environment or other relevant ministries should monitor developments in the branch in order to make energy consultants tools for promoting building renovation and energy efficiency.

Real Estate Agents

Role: Some real estate agents are investing in real estate and are renovating buildings for subsequent sale. Higher quality – including reduced energy bill - means higher sales price.

Another activity of the real estate agents could be introduction of a "Declaration of the condition of the dwelling". This declaration could include an examination of all aspects relevant for the condition of the house – including insulation, energy supply system, annual energy consumption etc. – and should be issued by an independent, certified person, i.e. an energy auditor. An "Energy Label" known from electrical equipment could be introduced for dwellings and the "energy labels", i.e. proven low energy consumption, could be used as an important sales argument by the Real Estate Agents.

This "declaration of the condition of the dwelling" could in the beginning be introduced on a voluntary basis and later become mandatory each time a dwelling is for sale.

Short Term Measures:

- Initiate "Declaration of the condition of the dwelling" that would include the "Energy label" for a certain apartment or building;
- Ministry of Environment or other relevant ministries should monitor developments in the branch in order to make Real Estate Agents tools for promoting building renovation and energy efficiency.

Appendix 1

Reports and articles

Arthur Andersen and Law Firm LPV & P Vilnius: *"The Path to Affordable Mortgage Finance: A Report on the Development of a Self-Sustainable Mortgage Lending System in Lithuania"*, October 1999.

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Formalised interviews conducted with

Dr. Sidzikauskas, Vice Chairman of the National Control Commission for Prices and Energy,

Mr. Franckevicius, Director of Energy Agency, Ministry of Economy

Mr. Zabarauskas, Senior Consultant, District Heating Decentralisation

Mr Jarasunas, Head of Energy Efficiency Centre,

Mr. Kristoffersen, PHARE Resident Advisor, Ministry of Finance

Other sources

Informal talks with homeowners, consultants, officials and experts