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BONN OFFICE**

# Housing and health regulations in Europe.

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## ABSTRACT

The aim of the review was to look into the possibilities given by regulations to improve or protect health through improving housing conditions in seven European countries (Germany, Italy, Lithuania, Portugal, Hungary, The Netherlands and United Kingdom). Two questionnaires have been developed by WHO/Euro for gathering the information on a) the main principles of the regulation regarding housing and health as well as the actors involved in its design and b) on specific housing threats. Based on the results gathered through these questionnaires, this report identifies where the regulatory framework could be improved or is lacking and formulates policy options that could help the European Ministries responsible for health and for housing to design their future regulation and/or action plans in the field of housing.

### Keywords

HOUSING - legislation and jurisprudence - standards  
PUBLIC HEALTH - legislation and jurisprudence  
RISK FACTORS  
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## **Executive Summary**

The quality of housing conditions plays a decisive role in the health status of the residents. Many health problems are either directly or indirectly related to the building itself, due to the construction materials that were used and the equipment installed, or the size or design of the individual dwellings.

The Declaration of the Fourth Ministerial Conference on Environment and Health in Budapest, June 2004, reaffirmed that the existing housing stock, the lifestyles of our population, the immediate environment of dwellings and the social conditions of the inhabitants should all be considered when developing healthy and sustainable housing policies and that WHO should provide guidance to the Members States in order to develop these policies and regulations in the field of housing and the built environment.

In this regard special attention has to be given to the legal point of view as it offers to governments and local authorities a wide range of possibilities to improve the housing conditions and thus the health of European citizens. Furthermore, responsibilities for housing issues are still mostly out of reach for many ministries of health, as housing is a traditional work field for independent ministries of construction or housing, or falls under the mandate of the ministry of environment. Due to this allocation of authority, a large amount of health-relevant decisions are assumed by the development and enforcement of urban planning guidelines, building regulations and other relevant legal frameworks and policies directed at the various actors and stakeholders in the field of housing construction and maintenance.

Based on this evidence and following the commitments taken by the Budapest declaration the WHO Housing and Health Program reviewed, with the cooperation of the French Ministry of Health, housing and health regulations in seven European countries. The countries surveyed were Germany, The Netherlands, England, Italy, Portugal, Hungary and Lithuania.

The aim of this project was to:

- give a review of the main principles underlying the existing regulations in the field of housing and health;
- identify the administrative structure involved in designing, implementing and monitoring the regulations;
- highlight some of the most innovative and efficient regulations; and
- identify where the regulatory framework could be improved or is lacking.

The first part of the review was dedicated to an overview of the legal background existing in the field of housing and health, and identified the main principles of the regulation and the actors involved in its design. Answers of a general nature were analyzed. Special emphasis was given on the analysis of different approaches used by the single countries for designing and implementing regulations in the field of housing and health focusing on four dimensions of housing: dwelling conditions, dwelling and building features, the immediate environment and the social aspects of housing.

The second part consisted of an analysis of seven specific examples of regulations in the field of housing and health (asbestos, lead, carbon monoxide, home safety, fire safety, social net, noise from trains and railways and pests).

The review showed that in all analyzed countries housing aspects are taken into account by many different regulations. The range of legal interventions in this field is considerable: from market

regulation to technical norms or guidelines and medical monitoring. From the analysis salient points that seem relevant for the design and implementation of housing and health regulations have been derived. These salient points are: level of intervention; type of standards; local-regional level; types of building to which regulations refer to; distinction between existing buildings and new buildings; addressees of the regulations; urban-rural level; social changes taken into account by the regulations; ways of enforcement of the regulations.

It seems evident that current approaches to the regulation of housing standards vary across Europe and that more emphasis has to be given to the protection and promotion of health and safety in housing standards.

The analysis has shown that:

- The health sector does not seem to be a leading sector in the design and implementation of the regulation related to housing and health.
- There is very little and most often no intersectoriality in drafting the regulations.
- Each country has its own priorities and its own specificities for developing its regulatory framework. There is very little or no international cooperation in this field.
- The degree to which the regulations are compulsory is very different from country to country.
- For the same topic, different standards follow different approaches.
- Good regulatory systems are fundamental for achieving health promoting results: a series of examples have proven it (e.g. regulations on carbon monoxide exposure and fire safety).

Based on the above mentioned conclusions and the discussions held during an expert meeting two general kinds of policy options were set up: suggestions to follow up the work started by the present project (1-6) and proposals aiming at presenting those aspects that should be taken into account when drafting housing and health policies (7-9).

1. Develop and sharing of good practice;
2. Encourage and disseminate research on the efficiency of policy and housing interventions;
3. Develop intersectoriality in housing and health management;
4. Develop evaluation mechanism of efficiency policies;
5. Strengthen the role of the EU;
6. Harmonization in assessing housing conditions and setting standards;
7. Housing and health policies have to take in consideration social aspects;
8. Pay attention to vulnerable people and
9. Use incentives for enforcement.

## I. INTRODUCTION

### *A. Problem statement*

The quality of housing conditions plays a decisive role in the health status of the residents. Many health problems are either directly or indirectly related to the building itself, due to the construction materials that were used and the equipment installed, or the size or design of the individual dwellings. Representing the spatial point of reference for each individual, the home also has a broad influence on the psychosocial and mental wellbeing by providing the basis for place attachment and identity as well as a last refuge from daily life. To live in an adequate shelter means more than a roof over one's head: It means to have a home, a place which protects privacy, contributes to physical and psychological well-being, and supports the development and social integration of its inhabitants – a central place for human life. Evidence has shown that those that have the least resources at their disposal suffer the worst housing conditions. Dealing with poverty will thus remain a most important element in any housing policy, either through specific housing programs, or through specific economic policies.

“Healthy housing” must be a comprehensive concept taking into consideration a variety of factors contributing to the quality of housing and housing environments. A healthy home is not a specially designed house, but is also represented by a residential setting that is capable to fulfil the expectations of the residents.

Reflecting the widespread requirements for housing to fulfil the high expectations, housing is a complex construct that cannot be represented merely by the physical structure of the home. The WHO understanding of “housing” is therefore based on a four-layer model of housing, taking into consideration the physical structure of the dwelling as well as the meaning of home (for a family and each individual), and the external dimension of the immediate housing environment and the community with all neighbours. It is important to realize that each of the four dimensions of housing has the capacity to affect individual health status through physical, mental or social mechanisms, and that the four dimensions are interlinked with each other. Adequate housing therefore depends on the sufficient provision of services and conditions on all four domains. If this requirement is accomplished, housing provides human beings with satisfaction of physical and mental health needs. Therefore, it is clear that housing conditions play a relevant role for individual as well as for public health.

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Housing is the conjunction of the dwelling, the home, the immediate environment and the community.

The role of public health is to provide the circumstances under which people can be healthy.

In summary, the consequence of these three statements is that housing is a topic for consideration to ministries of health, as well as for ministries of environment, social affairs and construction.

Looking into the available knowledge in housing-health relationships, the WHO Regional Office for Europe established a programme on housing and health in 2001 and carried out a review of evidence on selected housing and health issues. The Regional Office’s European Centre for Environment and Health, Bonn (ECEH) offers scientific support to identify effective, evidence-based policies on the environment and health, and provides recommendations for decision-making

and legislation. Under the overarching theme of the urban environment and health, housing and health has been defined as a priority issue.

The "Housing and Health" programme has two main objectives. On the one hand, it intends to highlight the relationship between housing conditions and the health status of European citizens. On the other hand, it aims at proposing the most relevant possibilities to improve the housing conditions of the Europeans in order to ameliorate their health.

This second aspect can be considered - among other viewpoints - from a legal point of view. The efficiency of housing laws is admittedly limited since it is exposed to the major constraint that a dwelling belongs to the private sphere, because the health status partly depends on lifestyle, which can seldom be regulated by the law and because the responsibilities are very much fragmented in this area.

However, the legal point of view should not be neglected as it offers to governments and local authorities a wide range of possibilities to improve the housing conditions and thus the health of European citizens.

Furthermore, responsibilities for housing issues are still mostly out of reach for many ministries of health, as housing is a traditional work field for independent ministries of construction or housing, or falls under the mandate of the ministry of environment. Due to this allocation of authority, a large amount of health-relevant decisions are assumed by the development and enforcement of urban planning guidelines, building regulations and other relevant legal frameworks and policies directed at the various actors and stakeholders in the field of housing construction and maintenance.

## ***B. Aim of the project***

It is for this reason that with the cooperation of the French Ministry of Health the housing and health programme established a project on the review of housing and health regulations in selected European countries. Emphasis in this project is given to the comparative viewpoint and, as a consequence, to its usefulness for the European Ministries of Health.

This project emphasizes on the possibilities given by law to improve housing conditions in the widest sense, that is to say the home, the dwelling, the community and its immediate environment. This wide acceptance of the notion of housing allows considering to what extent regulations can have positive influences on lifestyle and to what extent a regulation can have positive influences on mental and social health.

The aim of this study is to:

- give a review of the main principles underlying the existing regulations in the field of housing and health;
- identify the administrative structure involved in designing, implementing and monitoring the regulations;
- highlight some of the most innovative and efficient regulations and
- identify where the regulatory framework could be improved or is lacking.

The surveyed countries are Germany, Hungary, Italy, Lithuania, The Netherlands, Portugal and England. The analysis of the regulations is gathered in this reasoned document and gives an overview on the state of the regulation in the field of housing and health in the seven countries. The general conclusions of the document will propose a comparison of the regulation implemented in the different countries and will point out the salient points which should be taken into consideration when drafting housing and health regulations. This document should help to inform the European Ministries responsible for health and for housing to design their future regulation and/or action plans in the field of housing.

The first part of the review is dedicated to an overview of the legal background existing in the field of housing and health, and identifies the main principles of the regulation and the actors involved in

its design. Answers of a general nature are analysed. The second part consists of an analysis of seven specific examples of regulations in the field of housing and health.

The information gathered have the aim of providing information on the possible lack of regulation in regard to certain items but also of bringing to the fore the attempts of the countries to design innovative regulations in areas such as lifestyle, promotion of healthy behaviours through awareness-raising campaigns for the public etc. Special emphasis is put on the analysis of different approaches used by the single countries for designing and implementing regulations in the field of housing and health.

Nevertheless caution should be taken in interpreting the collected results. The collection of the housing and health regulations has been undertaken with the support of national focal points who have been in charge of providing the requested information or to forward the questions to representatives of national/regional/local authorities or relevant institutions. The collected information may therefore not be comprehensive and in some cases even contradictory according to the person / institution providing the information. The aim of this study nevertheless is to give an overview of the main existing regulations in the field of housing and health and to use this overview to detect how health is taken into account by housing regulations. The study doesn't claim to provide with an exhaustive overview of all regulations in the seven countries analysed.

In addition while section II of the report deals with standards and controls that are clearly housing specific, section III deals with specific topics (asbestos, noise, etc) and the controls directed at those topics. This means that, for example, the controls relating to asbestos apply to asbestos in all buildings including housing; and those relating to noise apply to noise generally. While these controls will affect housing conditions, the aim is to control the specified topic. Again, using asbestos, the standards and procedures may be different depending on the use of the building (workplace, school, public building, and housing). The degree of impact of these controls on housing will vary - controlling noise in the environment will have an impact on housing, but this is not a housing specific control. This has to be taken into consideration when reading the proposed analysis.

### *C. Description of the steps*

In the following subchapter the steps undertaken during the project implementation will be described.

**October – December 2004:** Preparation of the first draft of the questionnaires by WHO in cooperation with Warwick University (England) and the French Ministry of Health.

In order to discuss the first draft of the questionnaire and the timetable for sending out the questionnaire to the participating partners and analysing the data, WHO has organized a meeting on the 12th of November 2004 in London. The purpose of the meeting was also to agree on the content of the report answering the commission of the French Ministry of Health to the WHO Bonn office.

The meeting has been attended by:  
Stephen Battersby, University of Warwick  
Xavier Bonnefoy, WHO  
Hélène Ducaté, WHO  
Didier Louis, French Ministry of Health  
David Ormandy, University of Warwick

**October – December 2004:** During this period the main contact persons representing the seven countries and collecting the information have been identified.

The identified contact persons are (cf. detailed information in Annex A):

Italy – Rossana Giacomoni, Department of Social Affairs of the Municipality of Forlì

England – David Ormandy, University of Warwick

Portugal – Claudia Weigert, Portuguese Ministry of Health

Germany - Ludwig Müller, Ministry of Employment, Women, Health, Youth and Social Affairs  
Bremen

Lithuania – Robertas Urbanavicius, Vilnius

Hungary – Peter Rudnai, Fodor Jozsef National Center for Public Health, Budapest

The Netherlands – Piet van Luijk, Ministry of Housing, Spatial Planning and the Environment

**January 2005:** Piloting of the questionnaires in two countries: Italy and Portugal. In the two countries the focal points have collected the answers to questionnaire one aiming at the main principles on housing and health and on selected topics of questionnaire two.

In order to discuss the results of the piloting and for finalizing the questionnaires, WHO has organized a meeting on the 24<sup>th</sup> and 25<sup>th</sup> of January 2005 in Paris. During this meeting national experts and some national focal points have reviewed the questionnaires and have discussed in details following topics: lead, carbon monoxide, social cohesion.

The main achievement of the meeting was the finalization of the questionnaire in the light of the fruitful comments of the participants.

The meeting has been attended by:

Joëlle Carmes, French Ministry of Health

Nicolas Grénetier, French Ministry of Health

Rosella Ibba, Department of Social Affairs of the Municipality of Forlì

Didier Louis, French Ministry of Health

David Ormandy, University of Warwick

Julius Ptashekas, Lithuania, Vilnius

Cécile Somarriba, Regional Health and Social Services, France

Claudia Weigert, Portuguese Ministry of Health

Xavier Bonnefoy, WHO

Hélène Ducaté, WHO

**January – February 2005:** Finalization of the questionnaires taking into account the experiences made during the piloting and the comments of the reviewers (cf. final questionnaires in Annex A).

**February 2005:** On the 18<sup>th</sup> of February 2005 both questionnaires have been sent to the national focal points. The deadline for filling out the questionnaire was set for the 18<sup>th</sup> of April 2005.

**April - May 2005:** All questionnaires have been filled out by the national focal points and sent back to WHO.

**May – June 2005:** A first analysis of the answers collected through the questionnaire has been undertaken. The national representatives made a first analysis of the main principles of housing and health regulations.

**14.-15. June 2005:** In cooperation with the Municipality of Forlì (Italy) and the Region of Emilia-Romagna (Italy) WHO organized a meeting to present the results of the questionnaire. The purpose of the meeting was to review and discuss the answers. The meeting gave the opportunity to the country representatives who carried out the collection of information to discuss the results of the main principles of housing and health regulations. Selected experts made in depth analysis of the

eight specific topics of questionnaire 2 (asbestos, lead, carbon monoxide, noise, pest, social net, fire safety and domestic accidents). The national representatives and the experts formulated recommendations that could help the European Ministries responsible for health and for housing to design their future regulations and/or action plans in the field of housing. These recommendations are integrated in the last part of this report.

The meeting has been attended by:

Alberto Arlotti, Region Emilia-Romagna (Italy)  
Loretta Bertozzi, Municipality of Forlì (Italy)  
Rossana Giacomoni, Municipality of Forlì (Italy)  
Rosella Ibba, Municipality of Forlì (Italy)  
Didier Louis, French Ministry of Health  
Pierluigi Macini, Region Emilia-Romagna (Italy)  
Brigitte Moissonnier, Regional Health and Social Services, France  
Ludwig Müller, Ministry of Employment, Women, Health, Youth and Social Affairs Bremen  
Marinella Natali, Region Emilia-Romagna (Italy)  
David Ormandy, University of Warwick  
Anna Paldy, Fodor Jozsef National Center for Public Health Budapest  
Julius Ptashekas, Lithuania, Vilnius  
Peter Rudnai, Fodor Jozsef National Center for Public Health Budapest  
Franco Rusticali, Fondazione Myriam Zita Sacco Forlì (Italy)  
Manfred H.J. Schmitz, German Ministry of Health  
Cecile Somarriba, Regional Health and Social Services, France  
Robertas Urbanavicius, R.A.C.H.E.L. UAB, Vilnius, Lithuania  
Piet van Luijk, Netherlands Ministry of Housing, Spatial Planning and the Environment  
Claudia Weigert, Portuguese Ministry of Health  
Xavier Bonnefoy, WHO  
Célia Rodrigues, WHO  
Nathalie Röbbel, WHO  
Kevin Sweeney, WHO

**June – July 2005:** Analysis of the results provided by the Member States, preparation of first draft of the report by Mrs Cecile Somarriba, representative of the French Regional Health and Social Services, in cooperation with the WHO office. Missing answers were filled out by consulting the national focal points.

**August 2005 – March 2006:** Final draft of the report, in depth analysis of the answers given to the different topics, formulation of conclusions and recommendations, preparation of comparative excel sheets containing all answers given and organized by topic, validation of the report by the national representatives and the experts who have participated to the project meeting and preparation of an overview of all partners involved into the project.

#### ***D. Organisation of the data collection (methodology, choice of topics...)***

The working tool, which has been designed by an administrator from a national ministry of health, an architect and a staff from WHO, is organized in two questionnaires: the first part provides an overview of the main regulatory principles dealing with housing and health. The second part is dedicated to a thorough analysis of seven detailed examples (questionnaires: Annex A).

Concerning the detailed examples following topics have been analysed in detail: asbestos, carbon monoxide, fire safety, home safety, lead, noise, social net and pests. Questionnaire two has the aim

of gathering information about the reference of the regulation, the year of promulgation, the year it came into force, the standards that may be referred to in this regulation, the authorities involved in its design and implementation, the research institutions consulted for its design, the penalties/sanctions/incentives associated with non compliance and finally a short evaluation of the efficiency of the regulation. The question of the promulgation of the regulation is an important aspect as it happens that a regulation is passed without being enforced at a later stage.

The guiding principle for drafting the questionnaires is the WHO definition of health, covering the physical, mental and social well-being. For each state of well-being is has been determined which are the threats of the housing environment that can be controlled and influenced by housing regulations, which are the groups more at risk and what diseases are frequently related to housing conditions and standards. The identification of threats has been based on the existing scientific evidence about the relation between housing and health, especially the evidence gained through the WHO LARES (Large Analysis and Review of European Housing and Health Status).<sup>1</sup>

The following overview stresses the main hazards that have been taken into account when drafting the questionnaire and when asking for existing regulations.

## 1) Physical well-being

### *a. Pollution*

- Air quality: improvement of indoor air quality (thermal insulation, moisture and ventilation standards) for the prevention of asthma, bronchitis and allergies;
- Water quality: improvement of water quality and of basic sanitary equipments (bathrooms, toilets and kitchen);
- Noise: fight against noise (for the prevention of hearing problems and cardiovascular diseases), in particular neighborhood noise and traffic noise.

### *b. Energy*

- Equipment: Existence of high-performance energy devices (central heating, control of heat loss);
- Design: Well designed buildings in terms of energy (the buildings aspect in relation to the exposure to sunlight and wind);
- Minimum temperature within the house and prevention of draughts caused by untight doors and windows.

### *c. Prevention of diseases*

- Parasites: against parasites carrying diseases (rats, insects,...) and moulds;
- Building materials: definition of security standards for building materials as far as new dwellings are concerned (asbestos, lead, ...);

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<sup>1</sup> Housing and health. Local Authorities, health and environment briefing pamphlet series 41. Copenhagen, WHO Regional Office for Europe, 2004

- Obesity: regulations on green spaces, recreational areas and bicycle paths and pedestrian pathways.

*d. Prevention of domestic accidents*

- Falls: regulations on stairways, dangerous floors, and out of windows...;
- Means of escape from fire;
- Prevention of death due to carbon monoxide poisoning.

*e. Physical handicaps*

Taking account of physical handicaps through the definition of specific standards regarding:

- Disabled people;
- Children;
- Elderly.

*f. Natural and technological risks*

Taking account of natural major risks and building sustainable and stable structures to face up:

- Extreme temperatures
- Floods
- Earthquakes

Taking account of technological risks linked to the place of implantation:

- Nuclear or chemical activity

## **2) Mental well-being**

Certain forms of housing and urban planning have consequences for the population's psychological and mental well-being, with an increase in disturbances as depression, stress and behavioural problems.

*a. Depression*

- Requirement of a minimum amount of natural daylight (window sizes, width of the street);
- Definition of noise standards (neighbourhood and traffic noise, sound insulation) in order to avoid sleep disturbance;
- Building of attractive urban areas instead of urban sprawl;
- Regulations concerning the quality of the developed sites (avoid high-rise blocks);
- Regulations dealing with the level of architectural variety (regulations concerning the height of the buildings, the view...) having an effect on the mood and on the sense of security;
- Definition of minimum standards in terms of volume, ceiling height, numbers of windows.

*b. Degradation of self-esteem and rise of stress due to the immediate environment*

- Housing quality: structural quality and amenities such as private bath or central heat;
- Maintenance: who is in charge of the common spaces in buildings (cleaning and wasting management);

- Multiple occupations: definition of a maximum number of people occupying the dwelling in order to avoid lack of privacy;
- Regulations concerning green spaces to offset high population density.

*c. Behavioural problems and violence*

- Reduce vandalism (deterioration of common space, graffiti...).

### **3) Social well-being**

*a. Social and economic life*

Improving social life through:

- The design of public meeting places (parks, leisure areas...);
- A conception of neighbourhood as independent units, with their own facilities, shops and nearby public services such as primary school, food shop and post office;
- An easy access and connections to local shops and services in order to avoid the sense of imprisonment.

*b. Transportation*

- Ensure that facilities and public spaces are accessible to all;
- Diminution of social segregation, ghettos and feeling of isolation and loneliness.

*c. Social fairness: the question of access to the dwelling*

- Subsidies for households with low income;
- Right to have a dwelling;
- Any assistance concerning people coming from deprived social backgrounds: in particular when people face difficulties paying the heating, electricity and telephone bills;
- Possibilities to demolish unhealthy dwellings.

Before collecting the information, the questionnaires developed have been piloted in two countries (Portugal and Italy). One of the major results of the piloting was that due to the fact that professionals from different institutions and at different administrative levels had been contacted, many questions had been answered in a different way according to the administrative level. It has therefore been decided that the focal points should ask the same question to different administrative levels or possibly decide which administrative level was the most relevant for answering the questions.

The questionnaire allowed for the distinction whether the mentioned regulation applies to new and/or existing buildings, to housing located in rural and /or urban zones and allowed to take into account the different mode of dwelling (owner-occupied, rented, social housing). Each questionnaire offered at the end of each section the possibility to provide information on regulations which are not covered by the questionnaire.

<b><i>E. Partners involved</i></b>
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This project has been commissioned by the French Ministry of Health. This ministry has been the main financial supporter. The meeting gathering all experts and national focal points and aiming at discussing the first analysis has been organized in cooperation with the city of Forlì and the Region Emilia-Romagna (Italy).

For each of the seven participating country a focal point has been appointed. This person was either a representative of a local community (City of Forlì – Italy), of the national ministry of health (Portugal), or the national construction and environment ministry (The Netherlands), of a national public health institution (Hungary), of a regional ministry (Germany) or of a national research institution (England and Lithuania).

In each country the focal point was responsible for the coordination of the project at national level, for the distribution of the questions to relevant authorities and for the summary and harmonization of the answers.

At the end of this document a list of the main actors involved in the collection of the information has been provided by country (cf. Annex B). This list contains the name, institution and contact information of the actors involved. It does not cover only colleagues from ministries or municipalities dealing directly with the design and implementation of the regulations, but also persons working in institutes, research centres and consulting agencies which contributed to the collection of information. This list has been prepared for the solely use of the addressees of this report at the French Ministry of Health and should not be distributed or posted on the web.

## ***F. Description of countries***

Analysing housing and health regulations in seven European countries requires a clear overview of the population and housing stock distribution. Institutional structures as regulations are strongly dependent upon demographic changes and changes of the housing stock distribution and in the quality of the housing stock.

Political responsibility for housing has to be seen in the light of specific political developments like the huge privatization in the Eastern European countries of the early 1990s. These changes have lead to new challenges for the new owners and to the legislative system which has performed systematic structural changes needed for the efficient functioning of a market-oriented housing sector.

Beside political changes, characteristics of the social system are an important issue to be taken into consideration by housing policies. Economic and social policies are reflected into the social housing policies, being an important issue especially in regions suffering from restricted labour mobility, significant poverty and vulnerability.

This chapter introduces the housing development and characteristics of the seven analysed countries. Special attention is given to the development and definition of the social housing sector.

# 1. Description of the housing stock

## a) Germany

In 2004 the population of Germany totalled 82,545,000 persons<sup>2</sup>. Between 1980 and 2004 the German population increased of 5,6%.

The average household size in 2002 was 2,2, decreasing by 0,3% since 1981/82<sup>3</sup>. 33% of the households were characterized by two adults living with dependent children, 29% were two adults without dependent children, 17% of the households were single households and 10% were constituted by three or more adults without dependent children. The percentage of lone-parents household was about 4% and 7% of the households were characterized by three or more adults with dependent children<sup>4</sup>.

According to the figures of 2003 the population density was at 231 persons per square kilometer<sup>5</sup> living in 39,141,000 dwellings<sup>6</sup>. 13,912,000 of these dwellings were located in the urban areas (35,5%)<sup>7</sup>. 55 % of the occupied dwellings were rented while 45 % were owner occupied. These figures refer to Germany excluding the former GDR. The percentage of rented dwellings rises up to 66 per cent for the ex-GDR in the same year. The number of owner-occupied dwellings in the country has risen by 5% since 1980 (total country)<sup>8</sup>.

According to data available from 2002 72% of the dwellings were located in multi-family buildings while the rest were one-family houses<sup>9</sup>. For the same year 27,9% of the dwellings were constructed before 1949, 46,9% between 1949 and 1978, 10,9% between 1979 and 1986, 3,2% between 1987 and 1990 and 11,1% after 1990<sup>10</sup>.

Figures from 2002 show that social housing represented 6,5% of the total housing stock and 12,5% of the rental sector<sup>11</sup>.

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<sup>2</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>3</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>4</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>5</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>6</sup> UNECE, Environment and Human settlement Division, Germany

<sup>7</sup> UNECE, Environment and Human settlement Division, Germany

<sup>8</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>9</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>10</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>11</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

## b) Hungary

In 2004, the population in Hungary stood at 10,115,000<sup>12</sup>.

The average number of persons per household was 2,6. These data refer to the latest available information of 2001.<sup>13</sup>

According to the figures of 2003 the population density was at 110 persons per square kilometer living in 4,134,000 dwellings<sup>14</sup>. The proportion of dwelling in urban and rural areas was 64,8% to 35,2%<sup>15</sup>. Like some new EU member States, tenure patterns have undergone radical change in Hungary in the last decade. Out of the dwelling stock in 2003 92% were owner occupied, 7% were rented and 1% was of another tenure status.<sup>16</sup> The number of owner-occupied dwellings in the country has risen by 21% since 1980. During the 1990s most urban rented dwellings were sold at a low price to tenants. Of the stock of dwellings owned by local government in 1990, approximately 90% had been sold by the end of 1998.<sup>17</sup>

Data from 2001 show that 15% of the Hungarian housing stock has been built before 1919, 13,5% between 1919 and 1945, 27,3% between 1946 and 1970, 22% 1971 and 1980, 18,1% between 1981 and 1990 and finally 4% between 1991 and 2000<sup>18</sup>. These data show that the average age of the dwellings is old comparing to European standards.

Figures from 2003 show that social housing represented 4,6% of the total housing stock<sup>19</sup>. In this regard the different definitions of social housing have to be taken into consideration when comparing the data in the European context. For the definitions please see the subchapter on social housing below.

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<sup>12</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>13</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>14</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>15</sup> UNECE, Environment and Human settlement Division, Hungary

<sup>16</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>17</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>18</sup> Bulletin of housing statistics for Europe and North America 2004, United Nations economic Commission for Europe

<sup>19</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

### c) Italy

In 2004 the population of Italy totaled 57,482,000 persons<sup>20</sup>. Between 1980 and 2004 the Italian population increased of 1,9%.

2002 the average household size was of 2,6 persons per household decreasing by 0,4% since 1981/82.<sup>21</sup> The majority of the households (35%) were constituted by two adults with dependent children, followed by 21% with three or more adults without dependent children, 18% of two adults without dependent children, 13% of three or more adults with dependent children, 10% single households and 2% lone parents with dependent children<sup>22</sup>.

In 2003 the population density in Italy was of 190 persons per square kilometre<sup>23</sup> with a dwelling stock of 26,526,000 dwellings<sup>24</sup>. Figures from the early 1990s show that 25% of the dwellings were rented and 68% were owner occupied. 6% on the other hand were dwellings with another kind of tenure<sup>25</sup>. No data are available on the distribution of the dwelling types, only data on the distribution of the dwellings by age of construction can be retrieved for the early 1990s. 19% of the dwelling stock was built before 1919, 10,5% between 1919 and 1945, 40,7% between 1946 and 1970, 19,7% between 1971 and 1980 and 10,1% after 1980<sup>26</sup>.

Figures from 2003 show that social housing represented 4,6% of the total housing stock<sup>27</sup>.

### d) Lithuania

In 2004 the population of Lithuania totalled 3,447,000 persons<sup>28</sup>. Between 1980 and 2004 the Lithuanian population increased of 1,3%.

The average number of persons per household in 2003 was 2,6, decreasing by 0,2% since 1996<sup>29</sup>.

According to the figures of 2003 the population density was at 53 persons per square kilometer<sup>30</sup> living in 1,292,000 dwellings<sup>31</sup>. 873,000 of these dwellings were located in the urban areas

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<sup>20</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>21</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>22</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>23</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>24</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>25</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>26</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>27</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>28</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>29</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

(67,5%)<sup>32</sup>. In 2001, 87,2% of this housing stock was owner-occupied, 8% was privately rented, 3% social rented and 1,8% was provided by other sources<sup>33</sup>.

2001 3,6% of the dwellings were constructed before 1919, 10,2% between 1919 and 1945, 28,8% between 1946 and 1970, 24,6% between 1971 and 1980, 23,3% between 1981 and 1990, 7,1% between 1991 and 2000 and finally 0,1% after 2001.<sup>34</sup>

Figures from 2002 show that social housing represented 3% of the total housing stock and 27% of the rental sector<sup>35</sup>.

#### e) The Netherlands

The population of the Netherlands has increased in the last decades. From 14,091,000 in 1980 to 16,258,000 in 2004 it increased of 15,4%.<sup>36</sup> In 2002 the average household size was 2,3 and decreased of 0,5% since 1981/82<sup>37</sup>.

The majority of the households (35%) were constituted by two adults with dependent children, followed by 28% of two adults without dependent children, 14% single households, 12% with three or more adults without dependent children, 9% of three or more adults with dependent children, and 3% lone parents with dependent children<sup>38</sup>.

In 2003 the population density in The Netherlands was of 456 persons per square kilometer living in 6.862,000 dwellings (2004)<sup>39</sup>. According to the data from 1999, 63,3% of the dwellings were located in urban areas.<sup>40</sup>

In 2003 45% of the dwelling stock was rented (ca. 35% from the social rented sectors and ca. 10% from the private rental sector), while 55% were owner occupied.<sup>41</sup> The level of home ownership in the Netherlands is comparatively low in European terms, while the proportion of dwellings that are

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<sup>30</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>31</sup> UNECE, Environment and Human settlement Division, Lithuania

<sup>32</sup> UNECE, Environment and Human settlement Division, Lithuania

<sup>33</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>34</sup> Bulletin of housing statistics for Europe and North America 2004, United Nations economic Commission for Europe

<sup>35</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>36</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>37</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>38</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>39</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>40</sup> UNECE, Environment and Human settlement Division, The Netherlands

<sup>41</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

social rented is relatively high. According to data from 2003 social housing represented 34.6% of the building stock.<sup>42</sup>

In terms of the age of the dwelling 20% of the Dutch dwelling stock have been built before 1945, 27% have been built between 1945 and 1969 and 53% have been constructed after 1970<sup>43</sup>.

#### f) **Portugal**

Details of recent demographic trends in Portugal show that between 1980 and 2004 the population has increased by 7,9%, from 9,714,000 to 10,480,000.<sup>44</sup> 54,9% lived in urban areas.<sup>45</sup> The average household size in 2002 was 2,9 persons. The most frequent household type with 34% was two adults with dependent children, followed by 21% households constituted by three or more adults with dependent children. 20% were characterized by three or more adults without dependent children, 17% two adults without dependent children, 5% single households and 3% of lone-parents with dependent children.<sup>46</sup>

According to the figures of 2003 the population density was at 113 persons per square kilometer<sup>47</sup> living in 5,318,000 dwellings<sup>48</sup>. According to the figures from 2001 75,7% of the dwelling stock was owner occupied. The proportion of the Portuguese housing stock which is owner-occupied has grown in recent years. At the same time the proportion of the housing stock which is rented has contracted. This decrease has been particularly strong in the case of private rented housing - falling from 38,9% in 1981 to 20,98% in 2002. The proportion of the social rented housing stock fell from 4,46% to 3,32%.<sup>49</sup> According to data from 2003 social housing represented only 3,3% of the building stock and 15,8% of the rental sector.<sup>50</sup>

#### g) **England**

In 2004 the population of England was 50,093,100, increasing by about 0.4% per year since 2001. There were around 21.5 million dwellings, with an average household consisting of 2.3 individuals. Around 4.5 million dwellings (21%) were built before 1919, and around 4 million (19%) built between 1919 and 1945. Some 17.7 million dwellings (82%) were houses (around 6 million of

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<sup>42</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>43</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>44</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>45</sup> UNECE, Environment and Human settlement Division, Portugal

<sup>46</sup> Living conditions in Europe, Statistical Pocketbook 2003, Eurostat

<sup>47</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

<sup>48</sup> UNECE, Environment and Human settlement Division, Portugal

<sup>49</sup> Housing developments in European Countries, Department of Environment, Heritage and Local Government, Ireland

<sup>50</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic

which were semi-detached), about 3.8 million (18%) were flats (of which 9% were in blocks of six or more storeys). The average useable floor area was 93m<sup>2</sup>.

English housing is predominantly owner-occupied (71%), with only 10% rented from private landlords and 19% from social landlords (either local authorities and housing associations).<sup>51</sup>

## **2. Definition of dwelling**

When comparing regulations on housing it has to be taken into consideration that the understanding of dwelling can be different in the single European countries. Nevertheless there are definitions for dwellings that apply to the entire European region. Following the definition of the Conference of European statisticians and the Committee on Housing, Building and Planning a dwelling is understood to be “a room or suite of rooms and its accessories in a permanent building or structurally separated part thereof which [...] has been built, rebuilt, converted etc. [and] is intended for private habitation. It should have a separate access to a street [...] or to a common space within the building (staircase, passage, gallery etc.).”<sup>52</sup> Following the same source new dwellings are defined as “the erection of an entirely new structure, whether or not the site on which it is built was previously occupied.”<sup>53</sup>

The definition of dwelling used in *Germany* adds the necessity of being equipped with a kitchen or a room with cooking facilities and with water facilities, a (kitchen) sink and toilet, which may also be located outside the dwelling.<sup>54</sup>

The *Italian* definition points out that a dwelling is intended to be occupied by a family.<sup>55</sup>

The definition of a dwelling in *Lithuania* is very similar to the UNECE definition stating: “A dwelling is an individual house, or a flat in a residential or non-residential building, or separate room(s) with facilities of common use. It has a separate entrance from the street or from a common space within the building, or from other facility of common use. Rooms with a separate entrance and intended for habitation are also an integral part of the dwelling.”<sup>56</sup>

In the *Netherlands* when speaking about dwellings generally it is referred to “a building or part of the building that, according to its construction or reconstruction is intended for permanent habitation by one-person or multi-person households.”<sup>57</sup>

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<sup>51</sup> English House Condition Survey Annual Report 2003 (Department for Communities and Local Government), and from National Statistics - <http://www.statistics.gov.uk/CCI/nugget.asp?ID=6>.

<sup>52</sup> Bulletin of housing statistics for Europe and North America 2004, United Nations economic Commission for Europe, p. 66

<sup>53</sup> Bulletin of housing statistics for Europe and North America 2004, United Nations economic Commission for Europe, p. 66

<sup>54</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 89

<sup>55</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 90

<sup>56</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 90

<sup>57</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 91

In the *Portuguese* definition a dwelling should not be wholly used for other purposes than permanent housing of a family at the time of the census.<sup>58</sup>

Finally the designation used for dwellings in England states: “A dwelling is a building or any part of a building that forms a separate and self-contained set of premises designed to be occupied by a single family.”<sup>59</sup>

Housing regulations can apply either to the overall existing building stock, or to new buildings or to both. In some cases they can also have a retroactive effect. The minimum standards and the basic hygiene rules, like the presence of a bathroom or of sanitary accommodation in all dwellings, are generally retroactive and have to apply to all dwellings. For all countries for which the regulations have been reviewed (with the exception of England and Portugal) the existing buildings are those which already exist/ have already been built, while regulations for new buildings apply to those which will be built. In Portugal regulations for new buildings refer to all buildings which have been built after 1951 and to all buildings which will be built in future. In England the building regulations apply to all buildings and contain very few dwelling-specific requirements. It seems that it has not been considered necessary to make certain requirements (such as for food storage, cold water etc) because as soon as a dwelling is completed, then it is an 'existing' dwelling and the standards applicable to existing dwellings apply. If there was no water supply in a newly completed dwelling, then action could be taken to require a supply.

### **3. Definition of social housing by country**

The proportion of social housing varies from country to country. The comparison between Western European countries shows that Portugal has a small social sector, while in the Netherlands it represents one third of the dwelling stock.<sup>60</sup>

While in transition countries the decentralization process has helped to create a more stable market environment, it has not helped in building up a functional social housing system. “The newly defined social housing systems in countries in transition (Hungary [...]) have been developing very slowly on the central level, and in some countries barely exist. In most cases, all responsibilities for housing have been transferred to the municipalities, mostly in connection with the transfer of dwellings from State to municipal ownership at the beginning of the transition.”<sup>61</sup>

The history of social housing is to be found in the beginning of the 19<sup>th</sup> century when private funds of wealthy citizens were made available to secure the housing problems of the poorer societal classes and when municipalities begun constructing buildings with low rent dwellings for the working class. The establishment of housing cooperatives promoted the development of social housings. Social housing changed rapidly during the 80s and 90s. While the social housing market

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<sup>58</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 91

<sup>59</sup> Housing statistics in the European Union 2004, National Board of Housing Sweden and Ministry of Regional development of the Czech Republic, p. 91

<sup>60</sup> De Boe P. and Mertens Ch., Regular National reports on Housing Policy developments, in: Economic Commission for Europe, HBP/2002/3.

<sup>61</sup> Economic Commission for Europe, HBP/2002/3, p. 8

sector was quite stable in the Western countries, in Central and Eastern European countries with their privatization programme, the rental housing sector almost disappeared and with that the social housing sector.

Following the Economic Commission for Europe, social housing is usually understood as rental housing sector through which local or central government authorities try to establish a general balance on the rental housing market with the aim of enabling needy groups of the population unable to find housing on the free market for social or other reasons, to have adequate housing. Rent in social housing is usually lower than on the free market, and construction or operation is to some extent financially supported by central or local governmental authorities, for example through various fiscal advantages for developers, direct subsidies, guarantees for construction loans and housing allowances. Since 1998 CECODHAS (European Liaison Committee for Social Housing) is using the following definition of social housing: "Social housing is delivery, construction, renovation and transformation of social housing, that is to say where the access is controlled by the existence of allocation rules favoring households that have difficulties in finding accommodation."<sup>62</sup> But social housing refers not only to the rental sector but also to privately owned housing which is acquired with the help of substantial public support.

A social housing sector can be found in almost every ECE country. Nevertheless the differences between the systems in the single countries are considerable. In Western countries local governments usually have the responsibility to secure affordable housing for citizens in special need. In England and Germany the local authorities are directly involved in the construction and operation of rental housing, therefore the social housing are predominantly public. In the Netherlands and England the local authorities cooperate with independent social landlords, in Germany also with private investors. The Western countries are mostly all equipped with legislations to define the conditions of social housing.

Nevertheless the definitions vary from country to country.

In *England* social housing is defined "as housing that is subsidized (irrespective of tenure and ownership – whether exclusive or shared – or financial arrangements), that will be available to people who cannot rent or buy houses generally available on the open market."<sup>63</sup> Social housing in England is provided by housing associations and local authorities and is mostly built for rent. The finances for building social housing are provided by national government grants to the housing associations.<sup>64</sup>

Social housing in *Germany* is considered to be that kind of housing "which, because of its size, facilities and rent or sales price is intended, and appropriate, for a broad section of the population. The German definition of social housing refers predominantly to a subsidy system. It can be regarded as housing provided for low income groups or others who cannot expect to get housing through the market (e.g. disabled people)."<sup>65</sup> The subsidies are provided in form of subsidies by the Bund, Länder and municipalities for the construction of social housing for rent, on conditions that

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<sup>62</sup> CECODHAS, Proposal for a European Social Housing Definition, Brussels, 1998, in: Economic Commission for Europe, HBP/2002/3.

<sup>63</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 16

<sup>64</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 16

<sup>65</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 20

enables landlords to fix a lower rent and to accommodate special social groups of tenants. The Länder are responsible for the 'convention rules' for housing, and the implementation of these rules is delegated to the municipalities.<sup>66</sup> The subsidies exist also for buying private homes when the buyer cannot afford the price valid on the market. Applicants are graded on point systems which are based on current living conditions and membership of a target group.

Following the information collected in cooperation with CECODHAS in Germany 2000 about 6% of the new housing was built in the social sector.<sup>67</sup>

The social housing system in *Italy* is both valid for the rental and for the sale sector. Social housing is defined "as housing with a rent or a purchase price below a certain level."<sup>68</sup> The conditions for being entitled to live in social housing depend from the income of the applicants, domicile and nationality, living conditions, children and enforced cohabitation.<sup>69</sup> Social housing is provided by public housing agencies, by municipalities, by co-operatives and by building developers. They all can receive subsidies from the national or regional government.<sup>70</sup>

"Social housing [in the *Netherlands*] is nowadays defined solely in terms of its price. If the rent or the sales price is below a certain level, then it is social housing." The access to social housing is defined by the income available. Tests define if the household is prone to receive the right to access the social housing. Nevertheless this system applies to some municipalities only. The majority of the social housing stock has been built by housing associations which are recognized by the national government.<sup>71</sup> Following information from CECODHAS in the 1980s housing issues were relegated to the minister of state level. The government ceased to provide state loans and guaranteed, although local authorities continued, and sometimes still do.<sup>72</sup> The rental housing system in the *Netherlands* is dominated by social housing providers.<sup>73</sup>

Portugal is one of the first countries to include the right to housing in its constitution. Social housing in *Portugal* are financed by banks or/and by the National housing institute, which is a public institution. The definition of social housing given in Portugal is a "housing which, at the time of construction, has a price per square meter below a certain level and which is below a certain size."<sup>74</sup> Co-operatives, voluntary bodies and municipalities provide social housing in Portugal.<sup>75</sup>

Three administrative groups are the major actors in the field of social housing in Portugal. a) Central administration, b) the regions responsible for policies designed to promote social housing in the regions and c) the local administration responsible for the urban development, the promotion of

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<sup>66</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>67</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 20

<sup>68</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 26

<sup>69</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>70</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 26

<sup>71</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 31

<sup>72</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>73</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>74</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 35

<sup>75</sup> Needham, Barrie and de Kam, George, Land for Social Housing, in co-operation with members of CECODHAS. Nijmegen / Hilversum 2000, p. 35

social and low cost housing and the management of the stock of rental accommodations.<sup>76</sup> The state subsidies therefore can take four different forms: a) grants for the construction of social housing; b) credits to encourage renovation in the private rental sector; c) loan subsidies so that low income and younger households can purchase owner occupied dwellings, or landlords can provide them with low cost rental housing; d) mortgage cost deductions from income tax.<sup>77</sup>

## II. MAIN FIELDS OF INTERVENTION OF THE HOUSING AND HEALTH REGULATIONS

The first part of this report provides with an overview of the legal aspects that may exist in the field of housing and health. It identifies the main principles on which regulations are based and the actors involved in the design.<sup>78</sup>

### 1. Dwelling conditions

#### a) Basic amenities

Regarding the basic equipments and supply of a dwelling, the main items that can have effects on health, and in particular those related to specific rooms like kitchen, bathroom or sanitary accommodation, have been studied in the seven surveyed countries.

#### *(1) Food storage equipment and food cooking:*

A space for food storage equipment is generally required for new buildings (Germany, Hungary, Lithuania<sup>79</sup>) but only in Germany this space is compulsory also for existing buildings.

Except for Germany, in every country where the space for food storage is compulsory, an electrical socket for food storage equipment is also required.

The space for cooking in a dwelling is required in every country except the Netherlands. This regulation applies only to new buildings in Hungary, Italy, Lithuania, England and Portugal<sup>80</sup> and in Germany this space is required for both, new and existing buildings.

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<sup>76</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>77</sup> CECODHAS, Social housing. Country profiles in the EU Member States. Draft version. 2003.

<sup>78</sup> A new approach has been introduced in England for the assessment of housing conditions in existing dwellings. This is not based on standards or requirements, but adopts a risk assessment methodology, requiring an evaluation of the threats to health and safety that could result from faults – the presence of something that should not be there such as dampness and mould growth, or absence of something that should be there such as basic amenities. This means that, in England, there are now no specific requirements for existing dwellings, other than so far as is reasonable practicable, dwellings should provide a safe and healthy environment for all occupants (or potential occupants) and any visitors.

<sup>79</sup> In Lithuania, if an existing building has to be reconstructed or needs major repairs, all obligations fixed for new building applies also on that building.

It is compulsory to have a sink with a supply of cold water in 4 countries among the surveyed ones: for all buildings in Italy, for new buildings only in Lithuania, Portugal and Hungary.

***(2) Washing facilities and sanitary accommodations***

Bath or shower and sanitary accommodations are compulsory in all surveyed countries except the Netherlands, but only for new buildings in Hungary, Lithuania and Portugal.

***(3) Ventilation for specific rooms (bathrooms, sanitary accommodations, kitchen)***

Regulations concerning the ventilation in bathrooms, WCs and kitchens exist in all countries, partly for new buildings only (Hungary, Lithuania, England and Portugal) and partly for both existing and new buildings (Germany, Italy and the Netherlands).

***(4) Accessibility of specific rooms (bathrooms, sanitary accommodations, kitchen)***

In all countries all rooms with sanitary installations have to be accessible to children, elderly and disabled people. In some cases this regulations are performance based, in other cases design criteria are used and sometimes they only apply to new buildings (Hungary, Lithuania, Portugal and England). In a regulation, the performance is based on a functional definition. This definition expresses the intention of the performance requirement. The performance requirement consists of a limit value and determination method. By the limit value, the level of performance is indicated that minimally has to be attained. The Netherlands for example does not have a design requirement but performance requirements for accessibility with freedom of design.

***(5) Number of bathrooms and sanitary accommodations***

The number of bathrooms and sanitary accommodation is regulated in every of the surveyed countries, except in England. At least one bathroom is required.

**b) Energy devices**

The supply of energy for space and water heating and the maintenance in order to prevent toxic emissions (e.g. CO) are important items to guarantee healthy housing conditions. Therefore, the following points have been studied:

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<sup>80</sup> In Portugal, the law concerning all the basic amenities that are mentioned in this part of the report, came into force in 1951, so the “new buildings” mentioned concerning Portugal are all those built after 1951.

### ***(1) Regulations concerning the provision of electricity within the dwelling***

The provision of electricity is compulsory in all surveyed countries except Italy and England, without distinction between urban and rural zones.

### ***(2) Space heating and water heating systems***

A space heating system is not compulsory in The Netherlands, England and Portugal. The regulations in the different surveyed countries set standards according to climate conditions (e.g. Germany or Italy where by law a space heating system has to be installed in order to reach 18-20°C indoor).

A water heating system is not compulsory in Hungary, England and Italy but it is in all other surveyed countries.

### ***(3) Testing and maintenance of the space heating and water heating systems***

The testing and maintenance of the heating system is not compulsory in the Netherlands. The other surveyed countries have developed requirements such as:

*A periodical check of the heating system:* In England and Germany, the law requires landlords to carry out annual (England) or biennial (Germany) checks on any gas appliance. In Portugal the regulations says that appliances should be checked every 5 years

*A systematic removal of old systems:* In Germany a heating system older than 27 years must be replaced

The owners are in charge of the maintenance of space and water heating systems.

## **c) Home safety**

With regard to domestic injuries the study focuses on two different points: the collection of data on domestic injuries and the existing regulations to prevent those injuries.

Only in two of the surveyed countries (Portugal and England) there is an accepted definition of housing hazards which could result in physical injuries. In England this definition is defined by law and the following hazards are taken into account:

- Falls, including falls associated with bath etc, falls on the level, falls associated with stairs and steps, falls between level;
- Electric shocks, fire, burns and scalds including electrical hazards, fire, hot surfaces and materials;
- Collisions cut and strains including collision and entrapment, explosions, ergonomics, structural collapse and failing elements.

### ***(1) Record of injuries resulting from domestic accidents:***

The record of injuries resulting from domestic accidents exists in 3 countries only (Italy, Portugal and England).

In Portugal the registration focuses on different aspects including the location in the dwelling where an accident has taken place and the victim of the injury (children, adults or elderly people).

In England, two systems exist: until 2004 the Home Accident Surveillance System (HASS) collected information on home injuries from victims attending a sample of 18 accident emergency units. And, more generally, the Hospital episode statistics (HES) are kept by all hospital on all patients. These data are collected by age categories. The registration of the location in the dwelling where an accident occurred is not compulsory.

In Italy, many Italian towns are testing the implementation of a national information system on domestic accidents (*Sistema Informativo Nazionale degli Infortuni nelle Civili Abitazioni, SINIACA*). This system is based on information collected by hospital emergency departments and by general practitioners. All information is recorded by the National Institute of Public Health. The information collected includes the location of the accident in the dwelling and the distinction between children, adult and elderly people.

Although in Hungary there is no formal register, this country mentioned that a survey on accident among children was organized by the National Center for Public Health by asking district nurses to report new cases of accidents.

Regarding the use of data collected by other European countries, two countries (Italy and the Netherlands) stated that they couldn't consider using them but without specifying the reasons<sup>81</sup>.

## **(2) Prevention of domestic injuries**

Regarding the best approach to prevent domestic accidents (educational actions or technical rules to modify the housing environment) the survey shows no homogenous position. Three countries (Germany, Portugal and England) are considering both approaches as in order to prevent domestic accidents. Two countries (Italy and the Netherlands) consider that the educational approach is more efficient and, on the contrary, Hungary would prefer to develop regulations in order to have a safer environment.

Regarding the safety labels for domestic equipments and electrical appliances, only one country (England) requires stricter regulations than the EU directive.

Regarding the adoption of regulations specifically targeting children, regulations refer to public buildings (schools, child care centres...) and not to residential buildings (Hungary and the Netherlands).

Two countries among the surveyed ones (Italy and Lithuania) have developed regulations on electricity sockets guards. In Italy, 15 or 20 years ago, sockets have been equipped with protective screens for live parts even if sockets without protective screen can also be found on the market for pre existing installations<sup>82</sup>.

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<sup>81</sup> Hungary didn't answer this question.

<sup>82</sup> Details are not given for Lithuania.

Regarding pool fencing, regulations exist only in Italy and Lithuania. In Italy only the public pools (pools used by more than two families) have to comply with this regulations, nevertheless not all regions of Italy have adopted this regulation.

#### **d) Indoor air quality**

Chemical, physical or biological pollutants, from building materials or indoor activities can be present in the indoor air and have adverse effects on health. To prevent this pollution two different domains of regulation have been studied in the survey: one related to ventilation in general and the second one related to specific pollutants.

##### ***(1) Regulation regarding ventilation rate***

Three countries set a standard for the ventilation rate (Italy, Lithuania, the Netherlands). The other two countries have a general obligation of appropriate ventilation in all rooms without setting specific standards. In Portugal the regulation sets a general obligation of transversal ventilation for all rooms (except storage rooms) and forced ventilation for WC.

In most cases, the regulations apply both to new and existing buildings and for each type of residential buildings (individual or multi-apartment).

All countries are equipped with regulations on ventilation rates in relation with the existing heating systems in the dwelling.

##### ***(2) Regulation regarding specifics pollutants***

Only Portugal reported that there isn't a list of indoor air pollutants subjected to regulation. For the other countries, which do have a list of pollutants, this list can:

- Be centralized in a unique document (like in Hungary, Lithuania and England) or be found in different legal acts (one for each pollutant adopted in different years relating to the toxicological and technical knowledge, for example in Italy);
- Only set guidance (Germany and Hungary) or legal standards (Lithuania);
- Be specific for indoor air or be more general for air pollutants in both indoor air or outdoor air, i.e. Lithuania where the “*Hygiene standards limit values of substances polluting air of residential area*” adopted in 2002 fix the limit values of 851 substances which are compulsory for indoor and outdoor air;
- Be more or less comprehensive (851 pollutants in Lithuania, 16 in Germany, 10 in Hungary).

#### **e) Noise**

Regarding the main principles on the noise regulation, the study focuses on different points:

##### ***(1) Regulation of outside noise***

All surveyed countries adopted regulations on outside noise including transportation noise, leisure activity noise and noise resulting from commercial activities.

These regulations are generally based on 4 different approaches: assessment of effects, assessment of emissions, assessment of limit values and abatement measures, although it depends upon the noise considered. For example, in Hungary the assessment of the effect is required only for leisure activity noise. In Lithuania, the assessment of effect is not covered by the regulations and in Germany, the leisure activities noise is regulated with regard to the emissions only.

### **(2) Regulation of neighbourhood noise**

Neighbourhood noise is also regulated in all surveyed countries, although Hungary only includes some specific activities that require authorization (like opening music schools). The regulations regarding neighbourhood activities can cover all the approaches mentioned above (assessment of effects, assessment of emissions, assessment of limit values and abatement measures) (Germany, Italy, and Portugal) or only some of them. In Lithuania, the regulation doesn't cover the assessment of effects and in the Netherlands, the regulation covers only the assessment of noise emissions that can be compared with limit values. In England, the possible risks from noise penetrating into dwellings (including because of a lack of sound insulation) is one of the hazards to be assessed.

### **(3) Different approaches to reduce noise**

In order to reduce noise, regulations can aim at different objectives:

- *reducing noise emissions at the source* which exist in all surveyed countries but for different sources (only for specific equipment or machines or in a more general way);
- aiming at taking account of noise emissions when planning land use which exist also in each county except in the Netherlands;
- imposing passive measures which exist in all countries. The insulation is generally compulsory for windows, walls and ceilings but sometimes only in new buildings (Lithuania). On the contrary, regulations imposing noise barriers are less common. They exist only in Germany, England and Italy.

### **(4) Noise cartography**

Noise cartographies, as an European requirement (Directive 2002/4999), exist in nearly all countries. Some local authorities in Hungary developed noise cartography that do not meet the European standards and the noise map of Budapest and of 3 or 4 other Hungarian cities will be ready only in 2007.

### **(5) Registration of complaints**

A registration system of complaints concerning noise in residential areas is compulsory in Italy, Lithuania, Portugal and England. In Germany and Hungary, different actors are involved in the implementation of the regulations concerning neighbourhood noise (for Hungary: *Environmental Protection Inspectorate, Mayor's office and Public health service*) and there is no centralized area for the registration.

## **f) Water quality**

### **(1) Provision**

In all surveyed countries regulations ensuring water supply in the dwelling exist. These regulations apply to drinking water but also to hot water, except in Hungary and the Netherlands, where the quality of hot water is regulated but where no obligation to have hot water supply in the dwelling exists. In England, whether there is a safe supply of water for domestic purposes (including hot water) is one of the matters to be assessed.

In Germany, the supply of cold water in a dwelling falls under the drinking water regulation.

### ***(2) Actors involved in water distribution***

In most of the surveyed countries the water supply and water distribution system are both public and private in urban areas and in rural areas. In the Netherlands, water supply and water distribution system are public whereas in England they are private.

### ***(3) Standards (including temperature for hot water)***

Minimum standards for drinking water are set up at European level (Directive 98/83/EC). Hungary, Lithuania and Portugal transposed the European limit values. The other countries fix stricter standards on specific pollutants regarding specific and local environmental and toxicological data. Differences between the countries can be stricter limit values, stricter controls (e.g. in Germany colony count as routine parameter check) or control of additional pollutants (e.g. legionella in hot water in Germany).

Temperature of hot water is not always regulated in the surveyed countries (the Netherlands, and Portugal don't have regulations in this regard). In the countries where this parameter is regulated it can be a different act than the water quality regulation act (like in Germany). The only country that provides details about the regulation is Italy where hot water has to be less than 48°C (+/- 5°C). In England, the potential risk scalds is one of the matters to be assessed.

### ***(4) Building materials***

Building materials related with water supply (pipes, plumbing installations) are regulated in all countries for new buildings but only in Germany, Netherlands and Lithuania also for existing buildings. The potential threat to health from inappropriate pipes and plumbing installations is a matter to be assessed.

### ***(5) Wastewater***

Connection to public sewage is compulsory in all countries except for England, where there is only a general obligation to discharge waste water into a suitable disposal system. In Portugal and the Netherlands certain rural areas are excluded of the regulation. In Hungary the non compliance entails sanctions.

## **g) Summary**

The analysis of the main principles aiming at guaranteeing appropriate dwelling conditions shows that all seven countries are provided with regulations in this field. Basic sanitary accommodations, water supply, provision of electricity and the reduced exposure to noise are taken care of by the housing regulations in most of the surveyed countries. Nevertheless one of the main diversities among the countries is the distinction between regulations referring to new and / or existing dwellings. Also the approaches to guarantee appropriate dwelling conditions can vary from country to country. The example of the noise regulations shows that different approaches can be used for reducing the exposure to noise (assessment of effects, assessment of emissions, assessment of limit values and abatement measures). Regarding the approaches to prevent domestic accidents the survey shows no homogenous position between the countries.

## **2. Dwelling and building features**

### **a) Accessibility**

#### ***(1) Accessibility of the dwelling for children, elderly and disabled persons***

Regulations ensuring the accessibility of dwellings exist in all countries except for Hungary and Portugal.

However these regulations differ according to the addressees of the regulations, the dwelling types and the mechanism insuring the accessibility. In all countries regulations do not specifically refer to children or elderly. The accessibility of dwellings in Germany is required by the civil code for all persons, Italian regulation refers to dwellings used by persons with functional limitations.<sup>83</sup>

Regulations in Germany and the Netherlands refer to multifamily houses. In Germany at least one dwelling has to be accessible for a person with functional limitations, while in the Netherlands the access to the building as to be guaranteed on a general level (existence of a ramp, an elevator etc.). On the other hand the accessibility of the whole housing stock (including one-family houses) is treated by regulations ensuring that persons with functional limitations receive grants for making the necessary adaptations for using the dwelling (England, Germany and Italy). In England for existing dwellings there is no legal requirement that can be used to enforce the adaptation other than a legal right enabling a disabled occupier to apply for grant-aid towards the cost of adapting the dwelling to suit their needs. Therefore, for existing dwelling there is a legal right given to a disabled person, but no general legal provision to require all existing dwellings to be adapted. However, the Building Regulations require all new dwellings to be accessible for wheelchairs.

#### ***(2) Usability of the dwelling***

Germany and Lithuania are the only countries where regulations make it compulsory that all areas of the dwelling are accessible without any assistance for disabled persons. In Germany this regulation is comprised in the above mentioned regulations offering grants for making a dwelling usable for persons with limitations. In addition the regulation dealing with multifamily buildings states that at least one dwelling per multi-occupational building must be provided with a living room, bedroom, toilet and kitchen or kitchenette reachable with a wheelchair.

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<sup>83</sup> Lithuania states to have specific regulations ensuring the accessibility for the elderly.

## **b) Building materials**

### ***(1) Regulations on the use of safe building materials***

The use of safe building materials is regulated in all surveyed countries with the exception of The Netherlands. In its Presidential decree Italy refers to the implementation of the EEC Directive 89/106 concerning construction products.

### ***(2) Specific recommendations, standards and regulations on the use of asbestos, lead, radon and VOC***

Recommendations on the use of asbestos exist in all countries. The use of asbestos can be regulated either by regulations prohibiting the sale of products and / or the removal of asbestos already present in elements of the building.

In the Italian regulation ban of sale and regulations on the removal are both mentioned, in Germany the regulation concentrates on removal measures. Hungary states an absolute ban on asbestos products without differentiating between the sale and the use and Portugal has a general ban referring to all kind of products, not only building related, prohibiting the sale of products containing asbestos.

The use of lead in the other countries can be regulated in different ways: the recommendations can either refer to the use of lead in water pipes (i.e. Germany, Italy) or to the use in paintings (i.e. Hungary).

The maximum level of radon permitted is regulated only in Lithuania and Portugal, though Portugal doesn't have a national regulation, but is following the EU recommendation 90/143/Euratom. Germany is currently preparing a law on the maximum level of permitted radon. In the Netherlands there is no regulation on the radon amount permitted but recommended values for living areas are set at a maximum of 30 Bq/m<sup>3</sup>. In all countries with existing regulations on the use of radon the regulations refer both to existing and new buildings.

Standards for the emission of VOCs from building materials and furniture in the building are set only in Germany and Lithuania. In Italy no specific standards have been identified, nevertheless controls are carried out through the request for material production certificates, where characteristics of the utilised materials are defined.

## c) The building layout

### *(1) Regulations on the geographical orientation of new buildings*

Regulations on the geographical orientation of new buildings exist only in three of the surveyed countries: Germany, Italy and Lithuania.

The regulations can be different for different kind of rooms (i.e. Lithuania) or can be compulsory only for some specific types of rooms (i.e. Germany where only bedrooms are subject to the regulation). The existing regulations in this area are often based on an energy insulation principle (Lithuania) or ensure that enough daylight can penetrate in some specific rooms (Italy).

### *(2) Regulations concerning daylight in inhabitable rooms within the dwelling*

The provision of daylight in inhabitable rooms is compulsory in all countries. Differences exist between the countries in the ways the standards are set. Two main types of regulation can be detected:

- Regulations stating that a window has to be present in every inhabitable room (Germany) or that at least one room per dwelling has to be provided with a minimum ratio of sunshine (Hungary).
- Regulations using the relation between the size of the window and the floor surface (Italy, Hungary, Portugal and the Netherlands).

Differences exist also in the minimum standards set for daylight /floor surface ratio, reaching from 1/8 of the surface in Italy to 10% in the Netherlands. In addition in Italy the average daylight factor that has to be guaranteed in a room should not be less than 2% of the natural outside daylight.

Regulations on the amount of daylight refer to both, existing and new buildings, with the exception of Hungary where the regulation refers only to new buildings. For Germany no information is available regarding this specific issue.<sup>84</sup> Only The Netherlands have different values for existing and new buildings (light ratio for old building 10%, 0,5 sq.m for new buildings). In England there are no requirements to provide windows for new dwellings, but there are specific requirements if windows are provided. For existing dwellings, the potential risk to health where natural lighting is inadequate or the view from windows is poor are matters to be assessed.

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<sup>84</sup> In Portugal, the regulation referred to, comprises all buildings built after 1951.

**d) The construction itself**

***(1) Housing development in areas threatened by floods, earthquakes and extreme temperature***

Regulations directed at building new sustainable and stable structures in areas threatened by earthquake, floods and extreme temperatures exist in Germany, Hungary, Italy and Portugal.

The situation differs when looking at prohibiting regulations for housing developments in areas threatened by floods and earthquakes. Countries like the Netherlands threatened by flooding do not have regulations concerning the sustainable construction but have general regulations prohibiting the construction in areas of floods.

In general terms regulations prohibiting the development of housing in flood prone areas exist also in Germany and Hungary, while for earthquake regions they exist in Germany, Italy and Portugal.

In England there are no specific regulations for this domain but there are planning controls which can be used to prohibit building in certain areas (cf. Seveso Directive 82/501/EEC).

***(2) Housing development in areas next to chemical and nuclear activity***

In all surveyed countries there are regulations prohibiting the housing development in zones next to chemical and nuclear activity.

Some restrictions have to be made for Germany as it is not a general prohibition. There are exceptions allowing that buildings are built next to chemical activities.

**e) Maintenance systems of multi-occupied residential buildings**

The management and maintenance of multi-occupied residential buildings show large variations among the countries. Italy and Portugal are characterised by condominiums, meaning an association of owners who have to agree on a person taking care of the building.

The management system can also vary inside a single country, for instance public owned buildings (mainly social housing) and private buildings (and in this case depending upon the fact that the apartments are all rented or some are rented and some owner-occupied) may be regulated differently. In England, for example, when buildings are privately owned the requirements can depend on the contracts and the management agreement, and therefore can differ from one building to another.

### ***(1) Waste management***

Storage areas for the waste in multi-occupied dwellings is compulsory in every country, with the exception of Italy.<sup>85</sup>

With regard to waste chutes and their maintenance in multi-occupied dwellings Germany, Hungary and Lithuania are provided with regulations. Italy does have regulations on the waste chutes but has no specific legislation on their maintenance. Only the Netherlands do not have any regulation in this regard. In England, the possible threats to health (such as pest infestation) from inadequate provision for the storage of household waste until collection is a matter to be assessed.

### ***(2) Maintenance of shared spaces***

All countries, except the Netherlands, have regulations dealing with the maintenance and cleaning of shared spaces and the provision and upkeep of the multi-occupied residential buildings.

The type of regulations varies nevertheless between the countries according to the predominant tenure status and tradition of dwellings in multi-occupational buildings.

The regulation can require a contract between the owner and the tenants who have to clean the shared spaces (Germany) or can be based on a broader standard hygiene regulation level ensuring that all shared spaces are kept at all times free from any litter and deposit which may cause filth, dampness, exhalations, or degrade the natural ventilation. The owners, tenants and anyone who is entitled to use the above-mentioned private areas and shared facilities are all jointly imposed to clean.

The maintenance of lifts has to be fulfilled following the existing norms on technical construction regulations.

### ***(3) Role of public authorities in case of severe cases of disrepairs in multi-occupied dwellings***

Although multi-occupied dwellings are organised very differently in each country, some consistencies can be observed in case of severe disrepair and the role of public authorities.

Mainly the owner or the owner association (i.e. condominiums in Portugal) are responsible for making the necessary repairs. In case these are not fulfilled the authorities can order the repairs to be done. Information is missing about the mechanism used for achieving this and about the used penalties in case of not fulfilment.

In case the repairs are not done only in three countries the public authority can substitute itself in the place of the owner: Portugal, England and the Netherlands. In England and the Netherlands the work is undertaken by the authorities but the owners are charged for it.

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<sup>85</sup> No information is available in this regard for the England

## f) Minimum standards

### *(1) Minimum requirement for inhabitable square meters*

In all countries the size of the dwelling in proportion to the amount of inhabitants is regulated. In most of the surveyed countries the ratio is not directly calculated in sq.m per person but in number of inhabitable rooms per person (Germany, Italy, The Netherlands and Portugal). In Lithuania and Italy and Hungary the minimum requirement is given in sq.m per person (respectively 14 sqm and 15 sqm per person). In Italy this applies to the first 4 inhabitants and is reduced to 10 sq.m for each other inhabitant. Germany has a special regulation on the minimum requirement of square meter per person applicable only to social housing. In England, the Housing Health and Safety Rating System (HHSRS) approach evaluating the potential risk to health of each dwelling is based on dwelling hazards but the amount of occupants in relation to the size of the dwelling can also be taken into account as one of the evaluation factors.

There is no specific indication on the minimum square meters per person for the different types of rooms (bedroom, living room, kitchen, bathroom etc.) with the exception of Italy where the size is different for kitchens and bedrooms.

Minimum square meter requirements per dwellings exist in Italy, the Netherlands and Portugal and indirectly in Hungary where at least one room of the dwelling has to be larger than 17 sqm.

### *(2) Size and characteristics of windows*

The minimum size of windows varies according to the country and to the room. A minimum size for windows in bathrooms (if existing) is applicable only in Portugal. In kitchens the size of the windows is only regulated in Italy and Portugal, for living rooms in Germany, Italy, The Netherlands and Portugal. In Germany the required size varies according to the size of the room.

In Germany<sup>86</sup>, Portugal, Lithuania and Italy windows have to be able to be opened. In addition some countries have regulations on the direction of opening of the window: Hungary<sup>87</sup>, Lithuania, the Netherlands<sup>88</sup> and Portugal must be opened to the inside. In England, it is not the size or position of windows that is assessed, but whether there is sufficient natural light within the room to avoid threats to health (depression or eyestrain) and/or safety (increased risk of accidents).

### *(3) Height of ceiling*

All countries except England have regulations on the minimum height of the ceiling valid for all types of residential buildings (existing and new). Two exceptions should be mentioned: in Portugal this regulation applies to dwellings built after 1951 and in Hungary to new buildings and to existing buildings, too, if there is an alteration which needs approval by the local building authority.

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<sup>86</sup> This is valid only for inhabitable rooms.

<sup>87</sup> Only for rooms inhabited by children under the age of 18 years.

<sup>88</sup> Only above public or other areas.

**g) Summary**

Dwelling and building features necessary to guarantee a pleasant and healthy living environment are regulated in all countries of the survey. Two main elements nevertheless seem to have an impact on the regulations: types of housing and social and tenure characteristics. Regulations on the accessibility of dwellings and buildings vary among the countries in relation to the types of housing. Maintenance regulations on the other hand depend mainly upon different tenure status and tradition of dwellings in multi-occupational buildings.

Minimum requirements for dwellings, like the size of the dwelling in proportion to the amount of inhabitants, are regulated in all countries. Nevertheless the ratio can be calculated in various ways.

### **3. Immediate environment**

The quality of housing covers not only the dwelling itself, but also the close physical and neighbourhood environment. This item includes the services and opportunities of the neighbourhood for transportation, shopping, education...and the quality of the neighbourhood itself (green spaces, architectural variety). It also includes the regulations aiming at making the environment more supportive for a healthy lifestyle.

#### **a) Access to the public transportation system**

Only Lithuania developed a regulation concerning the maximal distance between any dwelling and a public transportation system. The required distance varies from 500 m for zones with concentrated multi-storey houses to, a maximum of 800 meters in others zones.

#### **b) Green spaces and public spaces**

In Italy and Lithuania, there are national requirements concerning the minimal amount of green spaces according to the size of the city or to the number of its inhabitants or to the size of the condominium. In Italy the standards are based on the number of inhabitants (for each inhabitant, at least 18 sq. meters of public space have to be provided, divided as follow: 4,5 sqm for education, 2 sqm for equipments of common interest, 9 sqm for parks, playgrounds and sport facilities and 2,5 sqm for parking).

In Hungary, there is no national law but local authorities have set standards in regard.

In none of the country where the survey took place the distance between dwelling and a park or leisure area is regulated, neither is the distance between dwelling and commercial sites. Concerning the distance between a school and every dwelling, only Italy and Portugal set up a minimum standard (for public schools). In Italy, the law requires not only a maximal walking distance but also a maximal travelling time (by public transports).

#### **c) A healthy lifestyle**

Regulations aiming at promoting the use of bicycle can be a way to promote a healthy lifestyle. In none of the surveyed countries promotional campaigns concerning bicycle have been made compulsory. In only 3 countries (Italy, Lithuania and the Netherlands) it is compulsory to build cycle paths when a new road is built. Data on the number of people who make a daily use of bicycles exist in Germany, Italy and the Netherlands.

An appropriate neighbourhood where pedestrian transport is secure is also a way to develop healthy lifestyle. Only in Germany it is compulsory that any street should be provided with a pavement. Concerning the lighting of the street, it is compulsory in most of the surveyed countries, except in Hungary and Germany where it depends on the frequency of usage of each street per year. Limitation of speed for cars in residential areas is regulated in all the surveyed countries (maximal speed: 50 km/h).

#### **d) Quality of neighbourhood street maintenance**

Maintenance of streets and buildings for, e.g. in case of snow, ice, dead-leaves... is regulated in all surveyed countries although the responsible person or authorities may differ.

Removal of snow in the street generally falls under the responsibility of local governments (municipalities) or, if the street is a private one, under the responsibility of the owner (Germany and Italy). The pavement in Germany and Hungary has to be cleaned by the owners of the houses.

The responsibility of removing the snow from the roofs or of ice that may fall from the gutter has to be taken by the owner, except in Portugal where the municipality is in charge.

Concerning dog's dirt, the owner of the dog has to clean it even if municipalities are responsible for the general cleaning of the street.

#### **e) Summary**

The analysis of the regulations aiming at insuring a healthy immediate environment has shown that the promotion of a healthy lifestyle is not systematically organized by the regulation in the analysed countries.

The immediate environment is mainly taken care of by regulations promoting the maintenance of streets and buildings for, e.g. in case of snow, ice, dead-leaves... although in all surveyed countries the responsible person or authorities may differ. The provision of green and open spaces aiming at enhancing physical activity is however not addressed systematically in all countries.

### **4. Social aspects**

Social aspects that have been studied in the survey refer to housing allowances, specific regulations dealing with multi-occupations, the right to have a dwelling and the development of social housing.

#### **a) Housing allowances**

There are regulations providing housing allowances in all surveyed countries. The criteria for being granted allowances are generally based on income (Hungary, Italy, Lithuania, Netherlands, Portugal and England), but can also be based on age (Germany, Lithuania, Portugal and England), mode of tenure (England and Portugal) or professional activity (Portugal).

Allowances for improving the dwelling in order to ensure healthier housing exist in almost all the surveyed countries except in The Netherlands and Germany (where this kind of allowances are only granted for adaptations in case of severe disabilities). In general these allowances are granted through free of interest loans.

#### **b) Multi-occupations**

Only Hungary and England developed specific regulations for multi-occupied buildings. General regulations, when they exist, can be enforced. For instance the number of occupants per room (Germany and Italy, minimum two rooms for one or two occupants) or number of occupants by sq. m (Germany, in social housing only and Italy).

In some of the surveyed countries regulations aiming at observing specific standards of management (for instance the cleaning of the shared facilities) exist (Italy, Portugal and England).

### c) **Right to have a dwelling**

Regulations guaranteeing the right to have a shelter exist in some of the surveyed countries even if the interpretation of this could have been different from a country to another. In England, for example, local authorities must ensure that those who become unintentionally homeless are housed. However, the local authority does not have to provide the accommodation unless nothing else is available and local authority may meet this duty by putting the homeless person in a hotel. If a person is intentionally homeless (e.g. didn't pay the rent or mortgage) then, there is no duty of rehousing the person.

Some regulations aim at protecting the right to have a healthy housing:

- By decreasing the rent when repairs have to be done: In Lithuania it is legal to stop paying the rent while waiting the rehabilitation work to get out of unsanitary conditions and while the work being done. In Germany and the Netherlands a reduction of the rent during these periods has to be granted.
- By promoting rehousing when needed: In Lithuania it is compulsory to rehouse the families living in a overcrowded social housing. In England, where it is not practicable to repair an unhealthy dwelling, the local authority can prohibit its use and must ensure the occupiers are rehoused. They must also give rehousing priority to those in crowded dwellings.

### d) **Social housing**

Promotion and development of social housing can be done in two different ways:

- By making the building of social housing compulsory: Only in Lithuania, it is compulsory to build social housing within the framework of the rehabilitation of a neighbourhood. When constructing a new housing site in Hungary, Lithuania and the Netherlands a certain percentage has to be social housing.
- By developing adapted supports: Germany set up supports for owners who rent their property to social housing agencies. This support can be financial (loans free of interest) or by providing services (advice to the tenant, financing of social workers who take care of the tenants, maintenance of the building...).

### e) **Summary**

The un-affordability of many persons to have a home and to pay the costs related to it, are taken care of by all countries. The support can either be given through housing allowances or through the provision of social housing. Housing allowances exist in all seven countries but the criteria for being granted allowances are different (income; age; mode of tenure; professional activity). Social housing can also be organized in different ways and are not established in all countries yet.

### III. DETAILED EXAMPLES OF SPECIFIC RISKS

The following part of the report is dedicated to a thorough analysis of seven detailed examples. Special attention is given to the existing standards and regulations and to the institutions involved in the design and implementation of the regulation. Each chapter will be introduced by key facts and figures on the health impact of the mentioned housing risk factors. The sub-chapters will summarize the key findings and answerers collected and will present the main standards used by the regulations, the main actors involved and the main enforcement procedures used. Detailed information about the name, number etc. of the regulations are available in the excel sheet attached to this document (cf. annex C). These excel sheets contain all information provided by the focal points and are organized by topics and by countries. It should be noted that in this section no differentiation has been made between controls applying to new buildings, those applying to existing buildings, and those applying to both.

## A. *Asbestos*

### 1. Facts and figures

Asbestos is a group of fibrous silicate mineral<sup>89</sup> that has been largely used in construction because of its properties (chemical and thermal stability and thermal insulation). Asbestos has been used in various dwelling materials like lagging, asbestos-cement, patching and joint compounds, etc.

The microscopical fibers of asbestos may cause significant health damage when inhaled. The pathologies associated with asbestos exposure are principally asbestosis, mesothelioma (cancer of the pleura) and lung cancer. The above-mentioned pathologies have a latency period of 20 to 30 years. In the industrialised countries of Western Europe, North America, Japan and Australia, 20,000 asbestos induced lung cancer and 10,000 mesothelioma cases are estimated<sup>90</sup> each year.

In Europe the regulations regarding asbestos are based on two parallel approaches: The ban of asbestos and the control and management of the material containing asbestos that have been used before the ban.

Regarding the ban of asbestos and products containing it, the last change of the Directive 76/769/EEC adopted the 26 July 1999 added together the different partial bans of asbestos taken from 1976 and made the ban compulsory, at the latest on the 1<sup>st</sup> January 2005, for all type of asbestos and all type of products with temporary exception for very particular products (diaphragms for existing electrolyse installations) and for existing products.

Regarding the management of existing materials containing asbestos, the EU legislation aims only at the protection of workers from the risks related to exposure to asbestos at work (Directive 2003/18/EEC).<sup>91</sup>

### 2. Analysis

#### a) Regulations and standards

##### *(1) Ban of asbestos*

As a European regulation, the complete ban of asbestos has been adopted in all surveyed countries. The dates of implementation are, though, different reaching from 1993 in England to 2005 in the Netherlands. The dates of implementation are presented in the table below:

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<sup>89</sup> This group includes Serpentine (chrysotile) and Amphiboles (crocidolite, amosite, anthrophyllite, tremolite and actinolite).

<sup>90</sup> Consensus report Asbestos, asbestosis and cancer: The Helsinki criteria for diagnosis and attribution; Scan J Work Environ Health 23 (1997).

<sup>91</sup> Asbestos and health. Local Authorities, health and environment briefing pamphlet series 25. Copenhagen, WHO Regional Office for Europe, 2000.

Country	Date of implementation of the total <sup>92</sup> ban of asbestos
Italy	1994
Lithuania	2005
NL	2005
Portugal	2004 <sup>93</sup>
England	1993
Germany	1993
HUN	2000/2003

The penalties associated with non-compliance of the regulation on the ban of asbestos vary from a country to another. In almost all countries (Germany, Italy, Lithuania and the Netherlands) monetary sanctions exist. In Germany, a term of imprisonment can also be required in case of non-compliance (up to 5 years).

***(2) Regulations concerning the risk for public health linked with asbestos in existing buildings***

**(a) Regulations on release of asbestos in indoor air**

Four countries among the surveyed ones developed regulations on the release of asbestos in indoor air.

Germany, Italy, Lithuania and Hungary set limit values for the indoor air of dwellings. The limit values nevertheless haven't the same purpose. Some (Lithuania) are real limit values setting the authorized level of asbestos in indoor air, some (like in Italy) seem to be much more an element for guaranteeing the absence of asbestos in the dwelling after removal works. Other (Germany) seem to be elements for assessing if a material containing asbestos must be removed.

Comparisons between the limit values can only be done when taking into consideration the method of measurement (electronical microscope is much more efficient then optical one; in particular it allows to differentiate the fibres between the asbestos fibres and others). The limit values are summarized in the following table.

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<sup>92</sup> Those dates refer to the total ban of asbestos. Generally partial bans (notably for the amphibole type of asbestos and for specifics products ) have been adopted before.

<sup>93</sup> The first law limiting products with asbestos in Portugal is from 1987.

	Limit values for indoor air	Remarks
Germany	100 F/m <sup>3</sup>	Implemented since 1989
Italy	2F/l (with scanning electron microscope) 20 F/l (Phase contrast optical microscope)	Implemented since 1984 <b>NB:</b> The compliance with this limit value is part of the requirements needed to have a “clearance certificate” delivered by local health authorities (the other element is the absence of MCA)
Lithuania	0,1 mg/m <sup>3</sup>	Implemented in 2003 The regulation refers to phase contrast optical microscope

The shared spaces in condominium are generally also submitted to these limits values.

In England there are no limit standards for asbestos in indoor air but regulation require an assessment (including asbestos) of conditions based on the likelihood of a threat to health and the severity of the potential outcome.

**(b) Regulations regarding the research of asbestos in existing buildings and equipment**

(i) Declaration of dwellings containing asbestos

The declaration of the asbestos-containing dwellings to the authorities is compulsory only in Italy and this regulation applies only to public buildings, buildings open to the public, for collective use and for condominiums and only for friable materials containing asbestos (MCA). The authorities in charge of the implementation are the municipal administration (for example in the region of Emilia-Romagna the Regional Agency for Health Prevention and Environmental Protection) and the local health authorities. There are no specific penalties for no-compliance of that regulation.

(ii) Surveillance and monitoring of materials containing asbestos

In Italy for public buildings mentioned above, the landlord has to implement maintenance and monitoring programs (including keeping MCA in good condition and intervention in case of fibres release). A person responsible for the monitoring and for all the intervention on MCA is identified and a document related to localization of MCA is set up. For friable materials an inspection is conducted once a year and local health authorities can decide to order a periodical monitoring of airborne fibres within the building.

The accreditation of the people performing the assessment of the presence of asbestos in the buildings is only compulsory in the Netherlands. None of the surveyed countries set up an accreditation for professionals in order to authorise them to evaluate the health risks associated with the presence of asbestos.

**(c) Removal**

In none of the countries (with the exception of Germany) the removal of material containing asbestos is systematic. If this removal is required by authorities, it is generally after an assessment of the situation.

After removal works an assessment is needed in order to be sure of the effective removal and the reduction of the exposition. In some cases (Italy) this must be fulfilled by professionals from the local health authority who issue the certificate, in others the checking can be done by private laboratories (The Netherlands, Germany and Hungary). In some countries (Lithuania) there is no regulation in this regard.

#### **(d) Information and awareness campaigns<sup>94</sup>**

Three countries developed awareness-raising campaigns to inform the public on potential risks of dwelling containing asbestos. In Italy campaigns have been undertaken by municipalities and by regions (Region Emilia-Romagna, for example, developed an internet site and different brochures). In Lithuania, the new legislation has been an opportunity to develop campaigns by radio, press, TV... In Hungary, the *Research Development Co of Building Maintenance* issued information brochures during the survey of buildings containing asbestos.

#### **b) Institutions**

In order to reduce the risk of asbestos, countries developed regulations about different aspects (ban of asbestos, registration of MCA in existing dwellings). Consequently, the institutions involved in asbestos regulations frequently cover different ministries with different competencies.

Regarding the regulations related to the ban of asbestos, they often fall under the authority of Ministries of Health (Italy, England and Lithuania), of industry and trade or non-food product inspectorate (Italy and Lithuania) but also under the ministry of work (Italy and the Netherlands), of environment (Italy and The Netherlands) and of housing (The Netherlands). In England the Health and Safety Executive has responsibilities for ensuring asbestos is not used in buildings being constructed, and, where there is asbestos in existing buildings and is to be removed, for ensuring it is done safely.

Concerning policies related to the risk for public health, when they exist, ministries of health and ministries of labour are in charge of their design (Italy and Lithuania). Local authorities can be in charge of implementing the regulation (local health authorities like in Italy or local housing authorities in England). Labour inspectorates are also involved in the protection of workers against asbestos (Lithuania).

Concerning regulations on the removal of MCA, when they exist, local authorities can have a important role to play in their implementation. In Italy, for example, officers from the competent local health authority are responsible for issuing clearance certificates on cleaned areas before they are being reused. In The Netherlands, in case of assumption of high risks of presence of asbestos, local authorities may require an investigation. If the evaluated risk is high, the local authorities can give an order to remove asbestos.

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<sup>94</sup> This part doesn't include information from Germany, Portugal and England.

### c) **Enforcement / Implementation**

Non compliance with the ban of asbestos is punished by monetary sanctions in Italy, Lithuania and Germany. In Germany a term of imprisonment up to five years can also be the consequence of non compliance with the law on ban of asbestos. In Portugal, although ban of asbestos came into force in 2004, there are no penalties associated with non compliance.

Concerning the other regulations on asbestos (management and removal of MCA which have been used before the ban) Italy and Lithuania adopted monetary sanctions (from 3615 euros to 25 822 euros in Italy).

### **3. Conclusions**

The prevention of the risk linked with the inhalation of asbestos is regulated in all the surveyed countries even if the regulations can differ from country to country.

The ban of asbestos, as an European regulation, is adopted in all the surveyed countries but the way of regulating the materials containing asbestos used before the ban, varies from a country to the other. In this regard three approaches can be combined: limit values for asbestos in indoor air, systematic detection of materials containing asbestos in buildings or the obligation to remove materials containing asbestos.

In none of the surveyed countries the removal is a systematic obligation. The removal is compulsory after an assessment of risk.

## ***B. Carbon monoxide (CO)***

### **1. Facts and figures**

Carbon monoxide (CO) is a gas produced by an incomplete combustion of organic compounds due to insufficient oxygen during the combustion. Incomplete combustions can happen in all combustion system when they don't work properly.

In dwellings, the emission of CO by combustion systems (space heating system or water heating system) is generally linked with:

- A non proper evacuation of smoke and products of combustion (obstruction of chimneys or bad sized chimneys);
- A non adequate ventilation of the rooms where combustion systems are used;
- A non adequate care or non proper use of combustion systems.

This gas has no colour and no odour and therefore can't be detected without measurements. It is an extremely toxic gas. Inhalation of CO reduces the ability of the blood to take up oxygen and can cause unconsciousness and death at high concentration. At lower levels of inhalation CO can cause a range of symptoms from headaches, dizziness, weakness, nausea to fatigue. CO may also impair foetal development.

Those most vulnerable to CO exposure are unborn children, infants, the elderly and people with anaemia or heart or lung disease.

### **2. Analysis**

#### **a) Regulations / standards**

Four different ways to prevent and control CO poisoning were detected by the survey:

- regulations aiming at monitoring hospitalisations or fatalities due to CO,
- regulations aiming at monitoring the level of CO in the indoor air of dwellings,
- regulations on quality and upkeep of device that can produce CO,
- regulations on dwelling ventilation and
- regulations on conscious-raising campaigns about carbon monoxide.

#### ***(1) Monitoring and registration of CO intoxication***

Registration of CO intoxications which need hospitalisation exist in all surveyed countries, except the Netherlands and Germany. They are part of the general hospitalisation registrations. In Lithuania, regional public health centres receive data from hospitals about each case of CO intoxication.

Fatalities due to CO intoxication are registered, in the same countries. These registrations are always done by a national statistic institute (local health authorities and *National statistic institute* in Italy, *Lithuanian statistic Department* in Lithuania, *National Institute of statistics* in Portugal, *National Office of statistics* in England and *Central statistical Office* in Hungary).

## ***(2) Monitoring of carbon-monoxide in indoor air***

In none of the surveyed countries, CO detectors are compulsory in dwellings. For punctual measurement with a preventive aim, none of the countries developed a legal requirement but in some cases authorities can perform measurements if needed, for example if there are reasons to suppose that there may be a danger (municipal administration, provincial administration and fire brigades in Italy, National Public Health Research Centre and Regional Public Health Centres in Lithuania).

After an intoxication in a dwelling, measurements can be performed, like, e.g. in Italy where after a case of intoxication, the fire brigade performs the first inspection and after that, technicians of the local health authority can also proceed to measurements if necessary.

## ***(3) Quality and maintenance of combusting devices that may be sources of CO***

Combusting devices used to produce heat can emit CO if they are poorly installed or if they are not correctly maintained. Therefore, this report reviewed also the regulations in this field.

In most of the surveyed countries, regulations make it compulsory that all heating devices are properly installed and maintained. This includes the quality of the device itself and the ventilation of the room in which it is installed.

Regulations on installation of water heating system have been developed in all the surveyed countries except in the Netherlands.

In Italy these rules (Presidential Decree 1083/71 and Law 46/90) require conformity with technical standards developed by the Italian Gas Committee (GIC) which depends on UNI (Italian National standards Institute). The municipalities are responsible for the implementation of the Law 46/90. The technical bodies in charge of verification are the Local Health authorities, the fire brigades and the ISPESL (*National Institute of Occupational Safety and Prevention*).

In Lithuania, the installation of a water heater is submitted to technical regulation on Safety of Appliance burning gaseous fuel (promulgated in 1999) and to the technical construction regulation on gaseous systems in buildings (promulgated in 2003). These regulations require that market should be supplied with gaseous appliances corresponding with essential requirements for materials, design, manufacturing etc... and that water heaters should be installed in kitchens or food preparing zones that should be ventilated through ventilation canals and windows. These regulations have been developed by the Ministry of Economy and Environment and apply to all new or reconstructed buildings and gas devices.

In Hungary if there is natural ventilation, gas appliance (and among others heating water systems) without exhaust pipes can be installed.

Regulations providing with recommendations concerning chimney sweeping exist in Italy, Lithuania, Germany and Hungary. In Italy standards from UNI have been developed. In Lithuania the rules are based on two legal texts (*technical regulation on Safety of Appliance burning gaseous fuel* and *technical construction regulation on gaseous systems in buildings*) which regulate the sweeping for brick-built chimneys (1 time per 3 months) and for metal and ceramics chimneys (1 time per year and before each heating season). An annual inspection of jointly-used appliances for fire safety is also compulsory for multi-occupations buildings. In Hungary the recommendation is of one checking per year (the checking is restricted to the chimney and does not include the total exhaust system). In Germany the federal emission control regulation states that a chimney has to be controlled every two years.

Maintenance of central heating systems is also submitted to regulation in Italy, Lithuania, England and Germany. In Italy, the frequency of such upkeep depends on the characteristics of the system but it is usually of once a year. While doing this maintenance, the safety and the efficiency of the system, the ventilation of the rooms are checked and verified. In England, this maintenance has to be done annually for tenanted properties.

In multi-occupation buildings, the responsibility of this maintenance can be supported by the heating supplier (Lithuania for heating network till inside building), the owner (Lithuania for inside building, Germany, England) or the manager of the condominium (Italy, England).

#### *(4) Dwelling ventilation*

Rules on ventilation of any heated room have been established in Italy, England and Germany. In Italy for each heated room, a minimum number of exchange of air per hour is required (0,5 changes/h).

In the Netherlands, there is no specific rate of ventilation for heated rooms, general rules on ventilation apply to every kind of room (heated or not).

#### *(5) Conscious raising campaigns*

Awareness campaigns can be useful for the prevention of CO poisonings. Campaigns can aim at informing people about the good way to keep their combusting devices and at describing the symptom of a chronic contamination. Such campaigns are developed in Italy, England and Germany. In Italy they are carried out by the municipal or provincial administrations before every winter. In Germany these campaigns exist but not in all regions.

### **b) Institutions**

CO management policies include two major kinds of intervention, a preventive and technical one aiming at the control of the quality of combusting devices and another based on the management of intoxication cases. The institutions involved in the design or implementation of these two levels of intervention are generally different.

Referring to the quality of the combusting devices, ministries of health of the surveyed countries are rarely in charge of the design of the regulations, even if, at the local level, the local health authorities can have the responsibility of controlling the implementation (Italy). Ministries of Economy or Environment (Lithuania) can be in charge of the design and the control of these regulations. In England it is the Health and Safety Executive which has the responsibility to ensure that devices are properly installed and maintained.

In none of the surveyed countries legal and systematic requirements of measurement of the CO in indoor air exist. But the concentration of CO in the indoor air can be measured after an intoxication or on a preventive basis. The review has shown that there is no homogenous approach in the countries referring to the institutions that can control or make these measurements. In Germany, they are taken in charge by agencies from the Ministry of environment, in Italy they can be done by the fire brigade, the local administration and, if there is a intoxication, by local health authorities. In Lithuania measurements can be undertaken by national and regional public health centres.

Referring to the monitoring and registration of CO intoxications, monitoring is generally undertaken by hospitals in the general hospitalisation registrations and, the data can be collected by regional public health centres (Lithuania) or by the national statistic institutes (local health authorities *and National statistic institute* in Italy, *Lithuanian statistic Department* in Lithuania,

*National Institute of statistics in Portugal, Office National of statistics in England and Central statistical Office in Hungary).*

### **c) Implementation and enforcement**

In Italy article 34 of Law 10/91 provides different administrative sanctions (from 1,000,000 to 5,000,000 Lire equivalent to 516 to 2.582 Euro or a percentage on the value of the work) for non compliance with the rule on ventilation in heated rooms. In Italy this law is implemented by the municipalities, similar to Lithuania where all questions related to the ventilation of rooms are taken care of at municipal level.

A penalty up to 500 Euro can also be enforced when the tenant does not comply with the regulation which requires a routine inspection and maintenance of combustion devices and chimneys. Information for Lithuania states that there are no requirements for private houses inspection in regard to chimneys. House owners are in charge of regular chimneys sweeping. Unlike Italy where the regulation is implemented by the municipalities, questions in regard to chimneys sweeping are taken care of by the Ministry of economy and the department of fire safety.

## **3. Conclusions**

Carbon monoxide is significantly recognised as a field of action in most of the surveyed countries (Italy, Lithuania, Germany, England and Hungary). In this field, common approaches can be set up: The data collection process of hospitalisation and fatalities due to CO has been developed in 5 countries, and regulations on heating and ventilation of rooms or devices exist in 5 countries among the seven of the survey.

### **1. Facts and figures**

Accidents in and around the home are a main cause of death, disablement and injury. In 1998, it was estimated that home and leisure accidents in the European Union resulted in around 20 million injuries requiring medical attention. About 2 million of these led to hospital admissions, while 83,000 were fatal. Over half of these accidents occurred in or around the home<sup>95</sup>.

As well as the physical health effects of these unintentional injuries and fatalities there is the psychological effects including shock and stress, and the social and economic costs. The health effects of accidents leading to hospitalization have been estimated to lead to an average time of 19 days of physical limitation after the accident, and almost 10% with an average hospital stay length of more than seven days.

The majority of home accidents are attributable to a combination of human factors and building factors. Behaviour increases the risk of accidental injuries. However, building factors, such as the level and quality of maintenance, the constructional quality and the design, can affect the likelihood of an accident and severity of any injury.

### **2. Analysis**

The review on housing and health regulations in the field of home safety refers to the data available on injuries and death due to home injuries, to regulations aiming at the prevention from hazards in the home due to structural characteristics of the home, to regulations dealing with the maintenance of the building and to conscious raising campaigns. This part of the review concentrated mainly on two types of accidents: falls out from windows and falls in stairs.

With the exception of England no data on mortality and injuries due to falls out of the windows are available in the countries surveyed. Regarding the number of falls in staircases data is available only in Germany, the Netherlands and England. Nevertheless the available data in Germany refer only to certain regions or cities and are not representative on a national level. The same scarcity of information is given for the number of people injured or killed due to falls in staircases. Italy and Germany have data in this regard, the latest are nevertheless not representative on a national level. Conscious raising campaigns on the risks of falling out of the window exist only in Germany and Hungary. In Germany falls from the windows are generally considered as one type of falls among many, therefore they are not the addressed by specific campaigns; nevertheless there are some special campaigns during the spring called „Frühjahresputzkampagnen“ aiming at the information about falls out from the window while cleaning the windows.

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<sup>95</sup> European Home and Leisure Accident Surveillance System (EHLASS), subsequently the Injury Surveillance System (part of the European Public Health Information Network). Post 2004, part of the New Public Health Programme. See [http://europa.eu.int/comm/health/ph\\_determinants/environment/IPP/ipp\\_en.htm](http://europa.eu.int/comm/health/ph_determinants/environment/IPP/ipp_en.htm)

Conscious-raising campaigns encouraging the elderly to be kept mobile and thus less likely to fall exist in all surveyed countries with the exception of the Netherlands and Lithuania. Though in Hungary the campaign is still under preparation.

#### a) **Regulations and standards**

##### ***(1) Regulations concerning equipments aiming at preventing falls from windows / balconies***

All surveyed countries have regulations concerning equipments aiming at the prevention from falls from windows. Nevertheless the mentioned regulations refer and take into consideration to different types of equipments:

*Window sills:* The regulations of most countries refer to the minimum height of window sills (Germany, Italy, England, the Netherlands and Lithuania). The reference standards usually depend on the height of the building. Nevertheless the standards used in the single countries differ from each other. In Germany the reference height is 12 meter: In building lower than 12 meter the sills must have a minimum height of 80 cm, while in buildings higher than 12 meter the minimum height is 90 cm. In Lithuania the reference height of the building is 25 meter: Sills are 85 cm height in buildings till 25 meter and 110 cm in building over 25 meter. Italy and England set one standard, respectively 1 meter and 110 com for England. Finally, the Netherlands does not provide with an indication in meters, but gives an approximate indication of the height of the parapet (“breast high”). In England the regulation only applies at the time of construction, it does not apply to existing dwellings.

*Materials of windows:* In Hungary regulations aiming at the prevention of falls from windows mainly refer to glass windows. The basic Governmental Order on the Requirements for Field Use and Construction (1997) contains a paragraph stating that “in rooms used by children under 18 years, it is not allowed to use glass-walls, low-glassed-doors and tipping or turning windows without structures preventing falling out or injuries”.

*Spaces between the bars of a balconies balustrade:* Regulations can also refer to space of the security bars of a parapet which might not be passed through by a 10-cm diameter ball. In England this regulation only applies at the time of construction, it does not apply to existing dwellings.

*Ways of handling windows:* Lithuania sets regulations on the use and accessibility of windows for buildings higher than 55 m, where windows should not be opened by unauthorized persons. No definition of who these regulations refer to is given.

Specific regulations aiming at protecting children from opening windows exist only in Hungary, Italy and England. Four different kinds of devices can be addressed by the regulations.

*Shape of window edges:* In Italy the window edge must be adequately shaped or protected to avoid accidents.

*Height of the guard-rail and handle:* In Italy guard-rails protecting from openings that face the outside must be non-climbable.

*Window catches:* Windows higher than ground floor level must be equipped with window catches restricting the opening to 10 cm in England.

## ***(2) Regulations concerning equipments aiming at preventing falls in staircases***

Falls in staircases can be prevented by appliances to prevent from falls, by the properties of the stairs and by the quality and maintenance of the stairs.

All surveyed countries<sup>96</sup> have a law demanding a handrail in stairs. Nevertheless here too the mentioned regulations refer to and take into consideration different types of standards.

In general terms it can be distinguished between:

*The need to have a handrail:* The need to have a handrail depends on the length of the staircases. In Germany, for example, a handrail is needed for stairs with more than 5 steps. In case the dwelling has to be made usable for persons with physical limitations also stairs with less than 5 steps require a handrail. In other countries, like in Hungary, the minimum length of stairs is given in meters, stating that stairs with more than 1 meter need a handrail. In Lithuania all stairs need a handrail, irrespectively of the lengths.

*The amount of handrails needed:* In Hungary stairs longer than 2 meters require handrails on both sides. In Germany in case stairs are very wide there may be two handrails required, one at each side, or even one handrail in the middle of the stairs. Unfortunately no indication is given on the width the regulation is referring to.

*The height at which the handrail has to be installed:* In Italy staircases (both in common and private) must be provided with a handrail positioned at a height between 0.90m and 1 m.

Falls in staircases can be prevented by having stairs of a minimum size and with a specific frictional quality. The dimension of stairs is regulated in all seven countries. The size requirement of stairs can refer to the width of the stairs and/or to the height of the stairs. Different references are used for setting the size of stairs.

*Amount of dwellings per building:* In Germany steps must be at least one meter wide, but in buildings with less than two dwellings, a width of 80 cm is sufficient.

*Rise to tread ratio:* In Italy the steps must have a correct rise to tread ratio (tread min. 30 cm for staircases in common and min. 25 cm for private ones); The sum of two times the height of the rise and the tread should be between 62cm and 64 cm. The rise to tread correct ratio (tread min. 30 cm, the sum of two times the height of the rise and the tread should be between 62 and 64 cm.

*Common use / multifamily dwelling:* In Italy the tread ratio varies according to the type of the building. The minimum tread is of 30 cm for shared staircases and a minimum of 25 cm for private staircases.

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<sup>96</sup> No information from the England in regard.

Requirements for the frictional quality of steps exist only in Italy. This regulation nevertheless applies only to steps of staircases used in common. These stairs must be provided with anti-skid treads (with a coefficient of friction > 0.40). The frictional quality is also referred to by the Hungarian legislation. However in Hungary this regulation is a general regulation referring to all kind of surfaces that should not be slippery.

Regulations aiming at the provision of special equipments in staircases required for children (for instance stair gates), and for elderly and/or for disabled persons exist only in Italy and Lithuania. In Italy the addressees are children, where it is compulsory to install a second handrail at a height of 0.75 cm in staircases used in common where it can be presumed that the majority of the users are children. This regulation nevertheless seems to apply mostly to kindergarten or schools and not to private dwellings, as it can not be assumed that in a residential building the majority of the users are children. In Lithuania the needs of disabled people in buildings are taken into consideration by design guidelines. Nevertheless no details are given in regard.

Finally, damaged staircases can cause falls. They can be prevented by an adequate maintenance of the staircases. In multi-occupied buildings in all countries, except in Lithuania, the owners are responsible to fix damaged stairs. In Hungary and the Netherlands the owners are directly responsible, in Germany, following the requirements of the Civil Code, the owner or a company contracted by the owner has to take care of repairing staircases and in Italy and Portugal the condominium (the association of all owners) is responsible. In Lithuania, however, landlords (tenants) are responsible to repair damaged staircases.

### **b) Institutions**

In all countries involved in the project domestic accidents are recognized as a field of action in the housing and health regulations. Nevertheless the extent of the regulations and the standards used differ from country to country; most countries regulate home safety through their construction ministry (Germany, Hungary, Lithuania and Portugal), or through the ministry of environment.

<b>Germany</b>	Der Minister für Bauen und Wohnen des Landes N. Westfalen
<b>Hungary</b>	Ministry of Environmental and Land Development
<b>Italy</b>	Ministry of Public Works and the Town Council
<b>Lithuania</b>	Ministry of Environment Of the Republic
<b>Netherlands</b>	Central Government
<b>Portugal</b>	All the Government
<b>The England</b>	Office of the Deputy Prime Minister

Health ministries or sanitary institutions have never been mentioned to be the authority involved in the design or implementation of the regulation, with the exception of Italy, where the prevention from falls from windows and in staircases is regulated by the local hygiene regulations. Hospitals and local sanitary authorities are involved in the collection of data on death and injuries and in the design of conscious raising campaigns.

### **c) Implementation and enforcement**

Regarding the implementation and enforcement mechanisms these duties are under the responsibility of the respective ministries through the municipalities and local administrations in some cases. Information on the non-compliance with regulation is not entirely available. The main way of sanctions is a “preventive” approach, based on building authorisations. If the requirements needed to prevent falls from windows and in stairs are not provided, the release of the certification of habitability is not given.

The role of the health services in the implementation and enforcement of regulations aiming at the prevention from falls is mentioned only by Italy.

### **3. Conclusions**

Summarizing the analysis of the home safety regulations in the seven countries has shown that home safety is recognized as a field of action of the regulations of all countries involved in the project.

The structures that take care of the problem in the different countries act at different levels and the Ministries of Health don't play a decisive role in the implementation of these regulations.

The surveyed countries differ in the quantity of existing compulsory standards. The standards used are often the same but refer to different minimum or maximum values. The regulations in England are the most complete and flexible. The Housing Health and Safety Rating System (HHSRS) which has been developed in 2001 by the UK government shows that many efforts have been made here to reduce domestic accidents. The aims of the HHSRS are to grade the severity of threats in the home, to be hazard focussed, to be comprehensive and to be evidence based. The main principle underlying the HHSRS system is that a dwelling should provide a safe and healthy environment for any potential occupant and visitor. The final aim of the system adopted by the legislation is to direct actions to improve the housing stock.

The hazards are arranged into four groups reflecting the basic health requirements:

a) physiological requirements, b) psychological requirements, c) protection against infection and d) protection against accidents.

The HHSRS has proven to be an effective system to analyse domestic accidents not from the health outcome side alone, but to focus on the hazard causing the accident and therefore to prevent domestic accidents.

## **1. Facts and figures**

Lead is a metallic element that is used since Greek antiquity in Europe. After the industrial revolution, the use of lead spread considerably in the construction, metallurgical and printing industry sectors. In 1998 the world-wide production of lead was around 6,000,000 tons<sup>98</sup>.

### **a) Toxicological data**

By inhalation or by ingestion inorganic lead can have toxicologic adverse effects in particular on the nervous system. When lead enters the body it mainly settles in the bones and can be released in blood. Due to the process of development of their nervous system and because of their higher capacity to release lead in blood, children are particularly vulnerable to lead poisoning.

It is now established that continual exposure of young children (from birth to four years of age) to lead causes damage to the developing brain, which results in a loss of IQ and in behavioural problems.

Exposition *in utero* or by breast-feeding has the same adverse effect. During the pregnancy or the breast-feeding period, lead settled in the mother's bones can be released in blood or milk and contaminate the baby.

Adverse effects of lead in adults have also been observed, with higher levels of lead in the blood occurring in the occupational setting. There is some evidence of an adverse effect on female reproduction and a small effect on blood pressure.

### **b) Sources of lead and exposure data**

The major sources of exposure<sup>99</sup> to lead are:

#### ***(1) Lead-based paints***

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<sup>97</sup> Portugal and England did not answer this part of the questionnaire

<sup>98</sup> Source: French Ministry of Health

<sup>99</sup> WHO Regional Office for Europe (1995b) Lead and health. Health and environment briefing pamphlet series 1. WHO Regional Office for Europe. Copenhagen.

Legislation recognising the toxicity of lead paints was first introduced in 1921 when the International Labour Organisation (ILO) implemented a convention restricting the use of white lead in paints. For the use by home owners it was only restricted if lead levels were above 0,15% in 1986. When the painting deteriorates or the house is renovated the lead becomes part of the house dust. Children may ingest the lead contaminated dust or the paint itself.

### ***(2) Lead in water***

Lead has been or is used in pipes and plumbing, including both main water system's pipes and plumbing inside the houses. Where the water is soft or slightly acidic, the lead slowly dissolves and drinking water used in the house may have high lead concentration. A big proportion of the samples may exceed 50 µg/l in homes where lead solder, lead pipes and/or brass fixtures have been used, even if the level of lead at the treatment plant is low (less than 5 µg/l in general).

### ***(3) Smelters***

Primary or secondary lead smelters but also smelter producing iron, copper, aluminium or other metals can release lead in the air and dust. This is valid especially for Northern Europe and requires special attention.

### ***(4) Motor vehicles***

In areas where traffic is heavy and lead additives are still used in petrol, lead can be found in the air.

### ***(5) Other sources***

Some marginal or local use of lead can create exposure, like in, e.g., lead in pottery glazing, lead in crystal, folk remedies, cosmetics, cigarette smoke, alcoholic beverages, backyard lead battery recycling.

## **2. Analysis**

### **a) Regulations- Standards**

Referring to the above-motivated data on toxicology and sources of exposure, regarding the ways to prevent lead poisoning on children, four different actions, which don't exclude each other, can be taken:

- Monitoring and supervision of children to detect poisoning;
- Ban or reduction of the use of lead and lead containing material;
- Research and removal of lead in existing buildings or equipment, and
- Awareness-raising campaigns and public information.

### ***(1) Monitoring of lead poisoning, particularly in children***

Among the analysed countries only in Lithuania and Germany it is compulsory to declare lead poisoning in the general population to Public health authorities. In Hungary the monitoring and declaration system only exist for occupational exposure.

In Germany the regulation in regard refers to practitioners, who have to declare to the “Bund” all cases of poisonings or the suspicions of poisoning including those due to environmental factors. In Lithuania the declaration of lead poisoning to Public Health authorities is compulsory since 2002. The regulation seems to be efficient as since its promulgation the bodies in charge of poisoning control have been informed about many poisoning cases. The poisoning statistics became more precise, number of lethal death cases has decreased around 40% and it was possible to design and introduce several preventive intervention measures based on the collected information.

The threshold fixed by Lithuania to identify lead poisoning is fixed at 35µg/100 ml of blood. In the Netherlands, even if there is no obligation to declare lead poisoning, the threshold that indicates a poisoning is 150 µg/l and is based on the report of the National Health advisory Board (1997) showing that only 2,7% of all children have a higher lead level in the blood.

None of the surveyed countries developed additional regulations allowing to detect the number of new poisoning cases.

## **(2) *Ban of lead*<sup>100</sup>**

Regarding the principal sources of lead-exposure, this report focuses on the two major sources linked with dwelling conditions: lead from water-pipes in drinking water and lead in building materials (and more precisely indoor paintings).

Water-pipes containing lead have been forbidden in Italy (regulation on material that can be used for the components of drinking water supply system in 2001 and 2004), Portugal and Germany. In Germany and Italy ministries of health are the authority who developed this ban and in Germany, the control and enforcement is done by the *Länder* and the local authorities.

In Lithuania and Hungary, the use of lead in water supply systems is not regulated. But according to Lithuania there was no necessity to develop this regulation because lead pipes have not been used. In Hungary even if the use of lead in water supply system is not regulated, all materials which get into contact with the drinking water supply must be tested and approved for using (by the public health authority). Therefore lead pipes would not be allowed.

Concerning other lead containing materials used in building construction, in the four mentioned countries regulations have been set to ban lead containing products used in dwelling, although the range of products can vary as well as the date of implementation.

Painting products containing lead are banned in the four mentioned countries. In Lithuania, the regulations refers more generally to other lead compounds that are prohibited for general use if concentration in the solid or liquid preparations is more than the 0,1% in weight.

Dates of the promulgation of the regulations vary from the 60's in Italy (1961) and Germany, to 1999 in *Lithuania (Hygiene Standards HN 36:1999 adopted on February 1999)*.

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<sup>100</sup> This part is based on the answers of Italy, Lithuania, Hungary, Portugal and Germany.

The Health Ministry is mentioned as the authority who designed these regulations in Italy and Lithuania and, in Germany this is the *Ministry for transport, construction and housing*.

Local health authorities in Italy and the *State non-food Inspectorate* and the *Building Certification Centre* which is under the competency of the Ministry of environment in Lithuania are in charge of the implementation of the ban or the restrictions.

### ***(3) Lead in dwellings: management of lead containing materials present in existing buildings***

None of the surveyed countries developed a systematic research of lead containing material in order to evaluate the exposition risk before a building is sold.

Regarding the measurement of lead in paints, only the Netherlands developed a certification for professionals proceeding to this measurement. These laboratories intervene when they are consulted by health care professionals (general practitioners, specialists).

Regarding the measures that can be taken when a poisoning or risk of poisoning is detected, only two countries developed a legal framework. In Italy, although this is not a specific measure for lead poisoning, there is a general decree (*art 222 of the consolidated law on health, Royal Decree n.1265 of 1934*) that fixes that “the mayor, having heard the health officer or on request of the province medical doctor, may declare a dwelling or part of thereof uninhabitable for hygienic reasons or dispose its vacation”. In Germany the management measures mentioned in the questionnaire refer to the prohibition of drinking water containing lead (Drinking water ordinance promulgated 21.05.2001) but it is also mentioned that the monitoring of the effectiveness of this measure will start in 2010 (transposition of the EU Directive of 1998).

### ***(4) Awareness campaigns<sup>101</sup>***

In Lithuania and Germany public information campaigns aiming at preventing lead poisoning took place. These campaigns differ on the topics and on the public addressed.

Lithuania mentioned mass media campaigns (press, radio TV) about potential danger caused by lead compounds and prevention measures and about safe building products. Germany mentioned campaigns based on the health risk linked to drinking water (brochures were developed by the Ministry of Health and health agencies of the *Länder* to inform people about risk, regulations, useful contacts...). But Germany also mentioned specific campaigns addressing health care professionals for informing their patients.

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<sup>101</sup> This part is based on the answers of following countries: Italy, Lithuania, Hungary and Germany.

### **b) Institutions**

The measures linked with management of poisonings the monitoring or declaration of cases have been designed in Lithuania by the State Environmental Health centre and their implementation is done by the regional public health centres. The threshold has been fixed by the Ecological Medicine Centre and the Institute of hygiene.

Concerning these measures linked with ban or regulation of lead containing material, health ministries are mentioned as the authority who designed the regulations in Italy and Lithuania and, in Germany this is the *Ministry for transport, construction and housing*.

Local health authorities in Italy and the *State non-food Inspectorate* and the *Building Certification Centre* which is under the competency of the Ministry of environment in Lithuania are in charge of the implementation of the ban or the restrictions.

### **c) Enforcement**

In case of non-compliance with the ban of lead in dwelling products mentioned above, the penalties can vary from monetary sanctions (516 to 2582 Euro in Italy, 500 to 5000 Lt in Lithuania corresponding to ca. 149 to 1490 Euro) to prison (2 to 4 months in Italy).

## **3. Conclusions**

In the surveyed countries, the prevention of the risk of lead poisoning seems to be essentially based on prohibition of lead containing material as measures concerning monitoring and management of the lead containing dwelling have been developed in very few cases.

It is also important to mention that the level of risk or at least the perception of risk seems to be different from a country to another, according to the industrial and historical use of lead. Hungary, e.g., mentioned that lead is not considered as a problem, as a survey on children blood carried out ten years ago on all kindergarten children in down-town Budapest showed that the mean PbB value was about 6 µg/dl, 8 % had a PbB above 10µg/l but none higher that 15 µg/l. A new country-wide survey (funded by the Hungarian National Research an Development Fund) will be developed and implemented in the next two year.

There is a need for harmonization of regulations on human poisoning covering lead diagnostics, lead treatment, lead prevention, lead management and information on lead campaigns. Housing and health regulations should be legally linked to human poisoning. Standards of lead concentration in the living environment and biological media are to be developed and monitored.

### **1. Facts and figures**

Burns and scalds can arise from fires, and contact with hot surfaces, hot liquids, radiation, electricity and chemicals. Deaths in fires also occur from smoke inhalation. The data that are most readily available are from burns resulting from fires, flames and smoke inhalation and are reported here. There are peaks in mortality in children under 5 years and in people over the age of 30 years. In children ages 5-14 years fires are among the top 15 leading causes of death.

The highest death rates are in people older than 80 years and in males. The age group with the highest proportion as a total of all fire deaths is the 45-59 age group (28%), whereas the highest burden is in the 30-44 years (27%), reflecting the greater number of years lived with disability.<sup>102</sup>

There are variations within the Region and males living in lower /middle income countries (LMIC) are at eight times the risk of dying than those living in higher income countries (HIC), whereas for females living in LMIC this is seven times that of those living in HIC.

Housing fitted with working smoke detectors are measures with proven or promising effectiveness. The use of smoke alarms lead to a decrease in injuries from fires in the England by 80%. Community based programmes where counselling on home safety by a clinician, with a discount voucher for smoke alarms, appeared to be more effective in encouraging smoke alarm installation than counselling alone. Applying safe building designs and encouraging safety inspections to enforce regulations is important.

### **2. Analysis**

Fire safety is recognised as a field of action of the regulations of all countries involved in the survey. The extent of the regulations differs significantly, and most countries regulate fire safety within different ministries.

Data on the number of death due to domestic fires making a health threat are registered in four of the surveyed countries (Italy, Lithuania, Portugal and England)<sup>103</sup>. The availability of data on the injuries due to domestic fire goes down to three countries (Lithuania, Portugal and England). However data on the causes of domestic fires are available in all countries with the exception of Hungary.

A health institution is generally responsible for collecting the data on the mortality and morbidity due to domestic fires (hospitals in Portugal and England and the local sanitarian authority in Italy). However in Lithuania this falls under the competency of the Department of Fire Safety and Rescue of the Ministry of Interior and under its subordinate institutions. Data on causes for domestic fire accidents on the other hand are collected mainly by fire brigades (England, Portugal and Italy), by

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<sup>102</sup> WHO Injuries and violence in Europe: why are they important and what can be done 2005.

<sup>103</sup> No answer from the Netherlands in this regard.

the Consumer Safety Institute in the Netherlands, Department of Fire Safety and Rescue of the Ministry of Interior and subordinate institutions in Lithuania and by insurance companies in Germany. On fire safety and data in England it is hospitals that collected data on fire injuries, but deaths (not following injury) are registered with the Office of National Statistics. Additional information is collected by the Fire Brigade and through the English House Condition Survey.

### ***(1) Regulations and standards***

Regulations for fire safety can be classified in four major areas: regulations and standards for a) construction materials and building structure, b) appliances for fire prevention, c) buildings features that could be risk factors for fire and d) the prevention of domestic fires.

#### **(a) Construction materials and building structure**

*Benchmarks* for the classification of building materials according to their reaction and resistance to fire exist in all surveyed countries. Nevertheless this classification is undertaken in different ways in the countries. Different standards are taken into account. The legislation in Hungary doesn't provide a list of all relevant materials, but labels products according to their reaction to fire; in the Netherlands only the reaction to fire is taken into account. Germany, Lithuania and Portugal have a classification of building materials according to their resistance to fire. These regulations are based on fire resistance tests (LST EN 1363-1:2002 and LST EN 13501-1 in Lithuania) or refer to the European classifications given by the CPD (the Netherlands).

The criteria on the *expected resistance of a building's structure* in case of burn is expressed differently in the surveyed countries. Four main criteria could be elaborated following the answers to the questionnaire.

**Building type:** The requirements referring to the resistance to fire can be adapted to the technical characteristics of the dwelling. Different rules can apply for different buildings and parts of the building. Certification can be given according to the type of building and can apply to some building only. This is the case in Italy where the regulation applies to residential buildings with a height not less than 12 m.

The fire and collapse risk is based on calculations under fire scenarios as well as taking into account temporary fire threat factors and fire spread parameters, and the conditions for the evacuation of people (e.g. Lithuania).

The time needed to evacuate the inhabitants is used as a calculation criteria (e.g. Portugal).

The criteria for the time for collapse refer to Eurocode standards on construction safety and are expressed in minutes (the Netherlands and Lithuania).

Regulations meant to *avoid the spread of fire from one building to another* exist in all surveyed countries with the exception of Italy and are embodied in the respective construction regulations (Germany: Landesbauordnung; Lithuania: Technical Construction Regulation; England: Building regulation; the Netherlands: Building decree). In Hungary these regulations are explicitly part of the Regulations for Fire Protection of the Ministerial Order of the Minister for Home Affairs.

*Emergency staircases* (in any kind of dwelling) are not compulsory, with the exception of the Netherlands and Germany. The German legislation alleges that two different and independent emergency ways are available; the first must be a staircase, the second way can also be guaranteed by a place that can be reached by the emergency appliances of the fire brigades or by an additional staircase (DVNBauO, § 13 Abs. 1). In Portugal nevertheless the criteria for evacuation is the distance between the door of the house and the stairs. If the distance is more than 10m, than there is the need for another staircase.

In all countries<sup>104</sup> there are regulations making *special emergency measures compulsory for high-height buildings*. These regulations are all embodied in the national technical construction regulations, but differ from each other in two aspects:

- The height limit of the building (Lithuania: 26,5m; Germany: 22m; Italy: 24m)
- The type of “special” measure: Additional prevention measures in Italy (for buildings higher than 24m, the release of a fire prevention certificate issued by the fire brigade is necessary and better accessibility for fire brigade vehicles in Germany in buildings higher than 22m).

Specific safety measures exist in Germany, Hungary, Italy and Portugal concerning *elevators in multi-occupied residential buildings*.<sup>105</sup> The comparison between the surveyed countries shows that the measures are embodied in different regulations (fire prevention regulations for residential buildings in Italy and technical construction regulations in Germany and Hungary) and that the regulations refer to different characteristics of the use of elevators:

- Regulation refers to different categories of elevators and the relevant fire prevention regulations (Italy);
- Regulations refer to the elevator shaft, the walls, the avoidance of emission of smoke and fire in other floors (Germany);
- Regulations referring to special types of elevators / security elevators that have to be built if there is no other emergency exit.

#### **(b) Quality and installation of appliances for fire safety**

Fire *detection systems for private dwellings* are compulsory in Lithuania, England and the Netherlands. Nevertheless these regulations apply to shared spaces in multi-occupied residential buildings (corridors, garages etc.) or for multiple occupations (HMOs) standards in England. In the Netherlands this regulation applies solely to the emergency exit route in new built houses.

Though apartment houses or other types of homes are not mentioned in Hungary, buildings for transitional accommodation of more than 20 people fall under this regulation and in the case of apartment houses (higher than 2 floors or having more than 10 flats) the owner(s) has to work out written regulations for fire protection (including ways of fire alarm, escape routes, use of fire control equipment etc.).

Building decrees (the Netherlands and England) and regulations on fire protection (Hungary and Lithuania) are the main sources of the regulations.

When *fire alarms* are installed (mainly in not private settings) they are regulated by standards (with the exception of Portugal and Germany) that are embodied in national standard boards and building decrees (Lithuania and the Netherlands) or are a national version of the EU regulation EN 54. This regulation defines requirements, testing methods and performance criteria for fire detection systems (Italy, but not for the housing sector).

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<sup>104</sup> No information has been provided by the Netherlands in this regard.

<sup>105</sup> No info for NL and ENGLAND.

In general terms *fire extinguisher* are not compulsory for all types of dwellings in the surveyed countries. Special cases exist nevertheless: in Lithuania fire extinguisher are compulsory in individual houses bigger than 150 sq. m., in Portugal in garages and in England only in HMOs.

Finally, the presence of *fire doors* in multi-occupational buildings explicitly exist only in Portugal, Lithuania and England. No such regulations exist in the Netherlands. In Italy, Germany and Hungary regulations in this regard exist only indirectly. In Germany they apply to multi-storey public buildings. In Hungary the basic Governmental Order (253/1997) on the requirements for field use and construction states that buildings should be built in a way, that a fire does not spread to the neighbouring building unit. Fire doors may implicitly be part of these measures. In Italy on the other hand it is compulsory to have fire doors in particularly high-height buildings and where it is necessary to divide in sections parking stalls, garages and thermal plants. This obligation is valid only for high buildings, and for the protection of staircases.

### **(c) Risk factors**

All countries, except the Netherlands, have regulations concerning the building up and the maintenance of chimneys.

The standard used to set up the regulations refer to very different elements of the chimney:

- Some standards refer to the place where the fireplace is built and established (Germany);
- Some standards refer to exhaust-gas system (Germany);
- Some standards refer to the materials of the chimney (Hungary).

Though nearly all countries have regulations on the building up of chimneys only Lithuania and Germany have regulations on the cleaning process of the chimney duct. Here too, the standards at the basis of the regulation can refer to and incorporate different aspects:

- The type of appliance and the number of times the appliance should be cleaned (Germany and Lithuania);
- The type of material of the chimney and the building (Lithuania).

### **(d) Prevention measures**

Regulations on fire prevention can not only refer to building and appliance requirements and standards, but also on the need of raising awareness and train inhabitants in case of emergencies. Nevertheless very few of the surveyed countries have awareness campaigns and emergency training aiming at the prevention of fires in the home. Emergency action plans exist only in Hungary and Italy, where respectively in the case of multifamily apartment houses, the owners have to work out a fire emergency plan and where in buildings higher than 60m someone has to be in charge of the fire security. Public awareness campaigns are a major tool in England to reduce fires as it is known that over 80% of all domestic fires are caused by occupier behaviour.

## **(2) Institutions**

The extent of regulation differs significantly, and most countries regulate fire safety through different agencies and institutions. The health ministry or sanitary institution have never been mentioned to be the authority involved in the design or implementation of the regulation, with the exception of hospitals and local sanitary authorities in charge of collecting data on death and injuries due to domestic fire.

The national coordination of the regulation of fire safety measures and regulations is nevertheless consistent within one country: Ministry of the Interior (Lithuania, Italy), Ministry of Environment (Lithuania), Ministry of Construction (Germany, the Netherlands), Ministry of Home Affairs (Hungary) and Ministry of Economy (Lithuania). Regulations on fire safety are predominantly based on national legislations. Germany is the exception as the building codes the regulations refer to, are regional codes. Nevertheless these codes (Landesbauordnungen) refer to a national model.

### ***(3) Implementation and enforcement***

Regarding the implementation and enforcement mechanisms these duties are in the responsibility of the respective ministries through the municipalities and local administrations in some cases. Information on the non-compliance with regulation are not totally available. Three different ways of sanctions can be set up in the case of fire safety: a “preventive” one based on preliminary authorisations (if there are no fire doors, the project is not approved in Portugal), a judicial one based on financial or prison penalties (fire extinguisher in Lithuania) and a executive one based on administrative procedures.

## **3. Conclusions**

The analysis of the fire safety regulations in the seven countries has shown that fire safety is recognized as a field of action of the regulations of all countries involved in the project. Most of the regulations seem to apply only to new buildings, and existing buildings should be taken into account by the regulations too.

The structures that take care of the problem in the different countries are mainly at national level and the Ministries of Health don't play a decisive role in the implementation of these regulations. Some points seem to be in common to all the countries: the existence of a classification of the different building materials according to their reaction and resistance to fire (although the criteria used differ from country to country), regulations to avoid the spread of fire from one building to another, and the emphasis on fire emergency measures in high-rise buildings.

## **1. Facts and figures**

Urban pests cause adverse health effects from bites, stings, vector-borne disease transmission and food contamination. Currently, pest-borne threats to public health come from emerging diseases, food contamination, and asthma and allergy. Asthma has become a global epidemic and is clearly associated - though not exclusively - with cockroaches, dust mites, and rodents in residential settings. Prevalence rates for asthma and respiratory allergies have increased as the amount of time spent indoors has increased, especially in the last 20 years (cf. here also the chapter on the maintenance system of multi-occupied dwellings).

New homes and communities are now constructed in dissected woodlands, wetlands, and grasslands where sylvatic pest species capable of transmitting disease reside. Human activities bring residents into contact with these species. Community location and planning changes contributed significantly to an increased incidence of tick- and rodent-borne disease transmission since the late 1980s. In Europe cases of Lyme disease and human tick-borne encephalitis cases are increasing<sup>106</sup>. Mouse-borne Hantavirus pulmonary syndrome is on the rise. At the same time, international business and vacation travel brings pests and diseases to European communities from tropical regions in a matter of hours – setting the stage for the introduction of new vectors and disease agents.

## **2. Analysis**

In all surveyed countries of Europe pest control and elimination is a good public health practice. Regulations are therefore based on these public health and hygiene concerns. Pests are widely recognized as disease vectors and indicators of poor hygiene and sanitation.

### **a) Regulations and standards**

The extent of regulation differs significantly, but most countries regulate pest infestations. Vector-borne disease notification is required at the national level in all surveyed countries although the number of vector-borne diseases reported varies from one country to another.

At the national level, *disease reporting and assessment* of public health threats are based on epidemiological data, primarily in the form of human disease case reports. The number and types of diseases reported are not standardized among the seven country respondents. (For instance, tick-

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<sup>106</sup> Cf. O'Connell, S., Granström, M., Gray, JS., Stanek, G. (1998). Epidemiology of European Lyme borreliosis. Zentralblatt für Bakteriologie 287:229-240; Wagner, B. (1999). Borreliose und FSME: Gefahr durch Zeckenstiche! Der Hausarzt 8/1999:34.

borne diseases, which are increasing dramatically throughout Europe, are not notifiable diseases in the Netherlands, Portugal and England).

*Benchmarks and action thresholds* for public health threats from pests are not included in the law and are not standardized in the public health community or by private industry practices. As an example, in each nation surveyed, the definition of a pest varied from a broad non-specific description - subject to the interpretation and determination of the Ministry responsible for enforcement - to a list of specific pests. There is no indication of pest population levels as they relate to public health except for rodent control in Hungary, the Netherlands and England. Action thresholds for pest control are absent but the City of Budapest stated a zero tolerance policy for rat infestations. This municipality conducts regular surveys to detect rat infestation as a basis for control measures in order to maintain a rat free environment. Despite the number of tick-borne disease cases in Europe, tick surveys in public areas such as parks are rarely conducted. Tolerance for pests in food handling establishments is usually zero. In housing, there are no standards for pest infestation.

*Building codes* of all surveyed countries<sup>107</sup> address pest invasion and prevention of conditions conducive to pest proliferation. However, the orientation of regulatory intent is in the area of structural pests control, hence, exclusion and prevention of wood destroying organisms such as moulds and termites. Rodent exclusion is also mentioned.

*Pesticide regulation*, application, and product selection are well established in each of the surveyed nations. EU-wide directives already exist for pesticide registration. International harmonization of pesticide labelling is on going. Pesticide products can only be applied to control a pest if the site and pest are on the label of the selected product. Certain hazardous pesticides are restricted for use by certified applicators only. The only products of this type currently used in housing environments are rodenticides and fumigants.

*Rodents* are widely recognized for their disease transmission potential, ability to cause property and utility damage, and as food contaminators. Local environmental health departments conduct rodent control programs. They appear to be the most widely established publicly funded pest control programs according to this survey. In fact, most municipalities require rodent control with the primary target being the Norway (Brown) rat. Program size is generally a function of past and present rodent problems.

*Mosquitoes, lice, cockroaches and flies* were also mentioned frequently. Mosquito control programs are established in many locations. However, public programs for other vectors and pests are rare. Control of pests other than rodents and mosquitoes is usually the responsibility of a private party and is conducted by professionals and/or consumers if they are found on their property. Human head lice infestations are regulated by exclusion of the infested person from public places and schools but elimination of lice is an individual responsibility. Some localities have regulations that require filth fly and/or cockroach elimination but these regulations usually apply to food handling establishments. Pest management plans appear to be locality specific and are associated with

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<sup>107</sup> No data from Portugal in this regard.

specific control program activities and are not based on regulatory requirements. No pest management plans exist for Germany and England.

Information campaigns on the health risk due to pest are undertaken in four countries: Germany, Hungary, Italy and England. In Germany it is the regional health centre carrying out these campaigns.

#### **b) Institutions**

The extent of regulation differs significantly, but most countries regulate pest infestations utilizing a multi-agency approach.

A health ministry is generally responsible for making a health threat determination, while a local agency or private contractor performs the pest survey and control efforts.

National coordination of pest detection and survey is not routine, nor is it required. Instead, local agencies conduct surveys when they deem it to be necessary. Generally, these duties are the responsibility of the local health department. Health or environmental departments may regulate pesticide use and application under a separate set of regulations that are not related to pest infestations.

#### **c) Implementation and enforcement**

Local public health authorities perform vector detection and control work while pest infestations caused by poor sanitation and hygiene are the responsibility of the landlord, tenant, and/or a commercial food handling establishment owner.

*Regulation of the hygienic and sanitary conditions* conducive to pest infestation is the responsibility of local health authorities in public areas and food handling establishments. Health codes are generally established by local or municipal agencies to provide standards for private residential properties. Tenants and property owners are responsible for meeting these standards. Health authorities may cite health code violations but the onus is on the private party to correct unsanitary conditions and eliminate pest infestations. Property owners or contractual pest management professionals perform the work. Failure to correct problems usually results in suspension of business operations and in the case of tenants it may lead to eviction.

### **3. Conclusions**

Pests are widely recognized as disease vectors and indicators of poor hygiene and sanitation in all surveyed countries. Vector-borne disease notification is required at the national level in all surveyed countries although the number of vector-borne diseases reported varies from one country to another. Local public health authorities perform vector detection and control work while pest infestations caused by poor sanitation and hygiene are the responsibility of the landlord, tenant, and/or a commercial food handling establishment owner. Regulations are not designed or intended to prescribe pest prevention and management practices.

The development of a list of pest-borne diseases and pests is of a high public health importance. National reporting and notification procedures should be revised in order to improve the reporting from local and state health departments.

## **1. Facts and figures**

Housing is one of the most powerful social and environmental determinant of health. There is no doubt that social inequalities, working conditions, income, education, culture are associated with differences in morbidity and early mortality between the most underprivileged and the most privileged social groups. Precarious conditions and poverty lead millions of people in Europe homelessness or to live in inadequate and unsatisfactory dwellings. The most vulnerable groups: the young, single parent families, immigrants, very large families....experience the biggest difficulty in befitting from adequate housing.

In many European countries, the cost of renting or purchase a house and paying for maintenance and supplies, in particular those linked to energy, have become unbearable for many people including families with low income or without stable incomes.

## **2. Analysis**

The analysis of the regulations dealing with the social support to households is rather incomplete as only the Lithuanian questionnaire has been filled out completely and no information is available for England. The information for all other countries is only partly available.

### **a) Regulations and standards**

Information on the regulations and standards dealing with the social support to households cover three different areas: a) the availability of information on the accessibility to basic requirements, b) regulations on the provision of basic requirements and c) regulations on the provision of social support to meet basic requirements.

In Germany, Portugal and Lithuania *registration on the number of households cut off from water, electricity, gas* exist. This information is kept by the providers and not by any type of public authority. In England for energy and water it is the regulator that keeps records (Ofgem and Ofwat respectively). Local authorities (and social housing landlords) keep their own records only on numbers applying for housing and their criteria for acceptance.

Only telephone providers in Lithuania register the number of households cut off from local communication and no record exist in any country about the amount of households being cut off emergency communications.

In all countries in case the user does not pay the bill, the providers interrupt the provision of gas, water, electricity and telephone. No national or local authority is involved and in every country it becomes a matter of private law embodied in the Civil Code. Although it is a merely private law issue between two parties, according to the Civil Code in Lithuania the cut off gas, electricity and water should not do harm to other occupants (Civil Code of the Republic of Lithuania. Official Gazette, 2000, Nr. 74-2262).

In Germany the Civil Code regulates also those cases in which water suppliers interrupt the water service to the house-owner affecting the provision of water to additional tenants. But it is the duty

of the tenant to find an agreement with the provider and no authority is involved and informed in such cases.

In case a *household cannot afford to pay* for water, electricity or gas the municipalities intervene, with the exception of the Netherlands and Portugal where there are no regulations in regard. Although it is mainly the municipality acting in regard there are differences between the countries on the mechanism used:

- the household receives a general housing allowance, not directly aimed at paying the bill for electricity, gas or water, but which has to be used to cover the payment of the bills (Germany);
- the municipality pays directly the bill to the provider or provides the household with a temporary contribution (Italy, Lithuania, Hungary).

The request for support and the information of the difficulty of the household to pay the bill doesn't pass directly from the provider to the municipality, but the request has to be made by the occupant himself.

In England electricity and gas are supplied by private (competitive) companies that are strictly (well relatively strictly) regulated. Any disconnection is avoided. Where a consumer has difficulty paying for energy used, the company installs a pre-payment meter. This can result in 'self-disconnection', the user either limiting their own usage or running out of credit. As for energy, water is supplied by private (competitive) companies that are strictly (well relatively strictly) regulated. There is a protocol for disconnection where a consumer has difficulty paying for water used. (Older dwellings have no meter and pay set rates for water; modern dwellings have meters and pay for water used. Consumers can ask for a meter to be installed.)

Only in Lithuania it is illegal to *evict an occupier* because the rent has not been paid. Nevertheless also in the other countries regulation exist to protect vulnerable households from being evicted. Four major approaches could be detected which can also be combined: a) the support falls under the social security and unemployment money and is not directly related to housing (Germany); b) households are provided with financial support (Italy, Lithuania), c) rehousing by the municipality (Hungary, Lithuania) and d) where a person cannot afford to pay the rent, there is the possibility of the rent being paid by the local authority (housing benefit) (England). But differences do not only exist in regard of the support mechanism but also in regard to those entitled to the support by the local authorities. While vulnerable households in Italy are households with persons who are or have in their family people aged more than 65 years or with serious handicaps and who have not another home or an income that enables them to rent a new house, in Lithuania vulnerable households are families with children. This law establishes the fundamental rights, freedoms and obligations of children, based upon the Constitution of the Republic of Lithuania, the 1959 United Nations Declaration on the Rights of the Child and the 1989 Convention on the Rights of the Child.

In England any non-owner-occupier can apply to be considered for social housing in the area in which they live. Usually some form of 'points' system, with points awarded for 'need' (such as type and condition of existing accommodation, size of household, vulnerability, medical need, age) are set up. Those without any form of accommodation are usually housed immediately in available accommodation and maybe rehoused later into more suitable housing. Local authorities can give grants or loans to help owner-occupiers on low income meet the cost of repairs or the cost of improvement. There are locally based Home Improvement Agencies, usually with a specific 'clientele' (the elderly, single parent households). These can give grants or may carry out the repairs/improvements.

Finally in England various measures exist to help those with difficulty affording to become owner-occupiers, including options to part-buy/part rent (ie, purchase a percentage of the house and rent the remainder).

### **b) Institutions**

With reference to the social aspects and affordability of housing the involvement of specialized authorities is very limited. Most regulations are based in the Civil Code and in case occupants cannot afford the bill the problem has to be solved between the parties. Authorities are not aware of the amount of people who do not pay the bills and are cut off electricity, water, gas etc. Those who know are the providers. In those cases where ministries are involved in the conception of the regulations and the standards it is the ministry of social security and protection being the sole institution.

### **c) Implementation and enforcement**

The regulations on ensuring a social security in housing are mainly implemented at a municipality level (predominant is the Italian case), following nevertheless general national level set by the national social regulations and transposed into local policies (Germany).

Specialized institutions are involved when the regulations refer to special risk groups. In Lithuania therefore in the case of regulations for protecting households of being evicted it is the children rights protection services at municipal level of being concerned.

In another case several institutions are jointly in charge of the implementation of the regulation. In case of the regulations in case occupants cannot pay their electricity, water, gas etc. bill several institutions work together (Government or institutions commissioned by the Government, State Regulatory Committee of Costs and Energy, Municipality, Ministry of Social Protection and Labour).

## **3. Conclusions**

Energy, water, rent prices have increased in these last years. Allowances nevertheless do not take into consideration the increasing fixed cost that occupants have to face. Registrations of cuts off and evictions are kept by the providers and are not used by local authorities who could monitor and face the problems of difficult affordability.

### **1. Facts and figures**

Noise in the environment or community seriously affects people, interfering with the daily activities at school or work and at home and during leisure time. The main health risks of noise are: pain and hearing fatigue; hearing impairment including tinnitus; annoyance; interferences with social behaviour (aggressiveness, protest and helplessness); interference with speech communication; sleep disturbance and all its consequences on a long and short term basis; cardiovascular effects; hormonal responses (stress hormones) and their possible consequences on human metabolism (nutrition) and immune system; performance at work and/or school decrements. According to a recent European Union publication, about 40% of the population in the EU countries is exposed to road traffic noise at levels exceeding 55 dB(A), and 20% is exposed to levels exceeding 65 dB(A) during daytime. More than 30% is exposed to levels exceeding 55 dB(A) during night time. Environmental noise acts as a stressor at night by disturbing sleep and via annoyance (or bothering) during the day.

### **2. Analysis**

Rail transport is identical in every country, transport of goods or passengers over iron rails. It is considered one of the most environmental friendly types of transport. The environmental weakness of trains is noise, as the European Commission Green Paper Future Noise Policy of November 1996 states: “the “public's main criticism of rail transport is the excessive noise level”.

Regarding the ownership of the railway in the surveyed countries there is the tendency to have a mixed approach (The Netherlands, England and Portugal where the State has the infrastructure and, in theory, all operators can apply to use it).<sup>108</sup> Germany is only country to have a fully privatized railway system.

The tramcars ownership usually differs from city to city – all the surveyed countries except Hungary<sup>109</sup>, answered that there is no legislation concerning the measurement and assessment of noise emissions.

#### **a) Regulations and standards**

All the surveyed countries have regulations for noise from trains; Hungary was the 1st country to have such a regulation. In Lithuania the regulation is more recent. These regulations are very much related to the acoustical characteristics (reception –values) and the regulations of England and the

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<sup>108</sup> In Portugal the infrastructure and trains have separate management (since 1997 preparing for liberation of the sector – already one private operator « Fertagus »).

<sup>109</sup> In Hungary the legislation is the same applied for railways.

Netherlands are embodied in decrees specifically oriented towards noise nuisance by railways. In the other countries the regulation is embodied in laws against noise pollution.

Regulation and standards for noise from trains and tramcars cover three main areas:

- Regulations dealing with the collection of data on train passages, complaints and on annoyance due to noise;
- Regulations on the emission values;
- Regulations on insulation from railway noise

There is *publicly available data* about the night passages in five countries. In Germany the type of trains, amount of trains, speed, length of the trains are used for the calculations. Following the EU directive 2000/2/49 there will be cartography separating the train passages from night and day. Only four countries on the other hand have published studies on night annoyance. These data are collected and managed by different institutions. In Italy and Portugal by the providers, while in the Netherlands and Germany by national public health and environment institutes.

Despite the existence of noise maps Germany and Italy state to have regulations or any other type of instructions dealing with how to take into consideration noise maps when preparing urban development plans.<sup>110</sup>

The situation on the availability of noise cartographies from trains and tramcars corresponds to the availability of data on annoyance and night train passages. There seems to be a consistency within the country on the regulations dealing with the collection of noise pollution data. Complaints are finally collected in every country.

Country	Night Train passages	Annoyance	Owner	Noise cartography for trains	Noise cartography for tramcars
Hungary	No	No	----	NO	NO
The Netherlands	YES	YES	Centralised database; Several reports from RIVM, TNO	Yes – all the country is monitored	Metro and light rail covered by rail system.
Germany	YES	YES	UBA	For trains it is the basis of the noise rehabilitation programme; all connection in Germany with more than 60db	Yes, probably only on local level
Italy	YES	YES	Italian Railway network (both on the number of night trains and annoyance)	The main railway lines managed by RFI (Italian Railway Network)	Starting from the centre line of the external tracks and to each side there must be territorial building zones of the infrastructures (250m).
England	n.a.	n.a.		----	-----
Portugal	YES	No	Infrastructure manager REFER (National railway net)	NO	NO

<sup>110</sup> No Information here from Portugal and the England.

Lithuania	No	No	-----	NO	NO
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Five out of seven countries do have *regulations concerning the measurement and assessment of noise emissions from trains*. Even if the values are almost similar they differ in the use of the measurement parameters: noise parameter definition, reference period, receiver position. There is no original Hungarian regulation. The (state owned) Hungarian Railway Company took over the international regulations and as soon as the relevant EU Directive comes into force, Hungary will take it over.<sup>111</sup> According to the information received (that is sometimes insufficient for some countries) the regulations regarding limit values are only valid for new railways and new construction. The existing dwellings will not be covered.

Country	Does it exist?	How is measured? Limit*
Hungary	YES	Measurement of LAX (SEL) by whole tram-trains, and then from this, long-term LAeq can be calculated for night and day, separately. LAeq (day) = 65 dB - LAeq (night) = 55 dB
The Netherlands	YES	Calculation model for the prediction of noise levels along railway lines are applied in the framework of the Dutch Noise Pollution Act LAeq (day) = 65 dB, LAeq (evening)= 60 dB – LAeq (night) = 55 dB
Germany	YES	Reception limits depend on the different areas (more or less sensitive). The limits are for mixed areas LAeq (day)= 64 dB(A); LAeq (day)= 54 dB(A); Railway bonus of 5 dB(A) versus noise of roadway traffic.
Italy	YES	LpAmax at 25 m, h = 3.5 m above track, for rolling stock of new construction, depends on the speed of the Train LAeq (day) = 70 dB, LAeq (evening)= 60 dB
England	YES	The noise parameter used is a daytime and night-time LpAeq and is assessed both by predictions and/or measurements.
Portugal	NO	-----
Lithuania	NO	-----

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<sup>111</sup> The Directive 2002/49/EC of the European Parliament and of the Council relating to the assessment and management of environmental noise invites the Member States to adopt action plans to reduce or limit the noise to the right of the transport infrastructures: “ ‘major railway’ shall mean a railway, designated by the Member State, which has more than 30 000 train passages per year. “ And point (s): ...”limit values may be different for different types of noise (road-, rail-, air-traffic noise, industrial noise, etc.), different surroundings and different noise sensitiveness of the populations; they may also be different for existing situations and for new situations (where there is a change in the situation regarding the noise source or the use of the surrounding)”.

The directive also states that: “The concrete figures of any limit values are to be determined by the Member States, taking into account, inter alia, the need to apply the principle of prevention” and in article 5 : “No later than 18 July 2005, Member States shall communicate information to the Commission on any relevant limit values in force within their territories or under preparation, expressed in terms of L-den and L-night and where appropriate, L-day and L-evening, for road-traffic noise, rail-traffic noise, aircraft noise around airports and noise on industrial activity sites, together with explanations about the implementation of the limit value”.

Only in Germany and Hungary there are regulations concerning the measurement and assessment of noise emissions from tramcar tracks which are embodied in the same regulations as for railway.

Regulations for *noise insulation* around railways exist in Hungary, the Netherlands, Germany, Italy and England both for railways and for tramcars (in Italy only for railways).

The standards adopted in the single countries are nevertheless very different. While in Germany the regulation refers to the type of track (new or existing; the regulation applies only to new tracks) in Hungary this regulation is only indirect as it is part of the construction regulation stating that buildings must be built in a way to comply (among others) with the national standards for protection against noise and vibration. The approaches followed in both countries are therefore very different: the regulation for insulation in Germany comes from the railway perspective, while the Hungarian from the building perspective.

### **b) Institutions**

In the surveyed countries a regulatory body already exists in Germany (Eisenbahn-Bundesamt EBA), Lithuania (State Railway Inspectorate), The Netherlands (Nederlandse Mededingings autoritet (NMa)), Portugal (Instituto Nacional do Transporte Ferroviário (INTF)), and in England (Office of the Rail Regulation).

The regulations are in the majority of cases of the responsibility of the environment and transport ministries and agencies although their implementation is done at a lower level (municipalities, the railway infrastructure managers, the local environmental agencies). The health sector is not highly involved in the process. Nevertheless in Germany the local health authorities for example can decline a development plan if no measures can be adopted against noise nuisances.

The tendency in all countries is to have the drafting at the national level and the application and control on regional and local level. The railways are gaining more importance on the control.

### **c) Enforcement and implementation**

The tables below show that in the field of noise regulations many different actors are involved. Often the institutions involved in the design of the regulation are related to those responsible for the implementation and control, but very different actors are present at the same time. Little information is available on the effectiveness of the regulations and the sanctions. There are apparently no sanctions and penalties predicted on the regulations in case of non compliance with the established limit values. The laws often refer that in such a case, the values will have to be communicated to the public and an action plan put into place when exceeding the maximum levels. This leads apparently to a lack of effective legal controls and enforcement of the regulations. In the implementation of the regulation Ministry of Health did not play a decisive role, only for Hungary there seems to be an active involvement.

Country surveyed	Drafting of the regulations	Implementation	Control
Italy	Ministry of environment Regional administrations – agency for Environmental protection and technical services (ARPA)	Provider of railway infrastructure	Ministry of environment Regions Provinces Municipalities
Lithuania	---	---	---
The Netherlands	Minister of Housing, Physical Planning and Environment Minister of Transport and Public Works	Municipality Railway operator	Municipality
Portugal	Ministry of Environment	National environmental institute	Municipality
England	---	DEFRA – Department for environment, food and rural affairs	----
Hungary	Ministry of environment; Institute for Transport Sciences, Hungarian Railway Company, Institute for Environmental Protection, National Institute of Public (later: Environmental) Health, Hungarian Office (later: Body) of Standardisation	Hungarian Railway Company (as operator), Inspectorates for Environmental Protection, local governments, Public Health Service (as authorities)	Inspectorate for Environmental Protection
Germany	Gremium of Experts – all Player have been involved BMU, UBA, Deutsche Bahn, railways not from the Bund, Länder and environmental unions	Bundesminister fuer Verkehr – Transport Ministry	UBA; BMU; the railway operator (Deutsche bahn)

Country	Who receives	How they are handled
Italy	ARPA; Municipalities; local authorities	ARPA does the measurements On the basis of the results of the measurements, provisions will be made to rectify critical situations.
Hungary	Office of the railway company or the Inspectorate for Environmental Protection	Inspectorate for Env. Protection. They make a technical analysis and forward the complaints to the Noise and Vibration Unit if necessary
NL	Community (in general); tram/rail companies when it concerns squeal noises. There is no systematic registration of railway complaints	No specific requirements, usually depends on type of complaint.
ENGLAND	n.a.	Local Authority environmental health officials who will measure noise levels in response to any specific complaints which have been received
Portugal	Railway company and police	Railway company and police
Germany	Agency for transport	National regulatory agencies; trade control
Lithuania	Office of railway company, municipalities, public health centres, police, ministries (Health, Environment).	Quite complex procedure. The complain is forwarded to the competent authority. A verification of the facts and a technical analysis is done. A recommendation is done to the decision maker. The complainer (s) is always informed on the decision.

### **3. Conclusions**

In all the surveyed countries noise from railways has been recognized as a field of action. The same can not be said for tramcars, there is a lacuna for legislation on this specific urban type of transport. The problem is always dealt at national level for the regulations establishment and, when the country has a regional administration the implementation is done at regional and local levels – by the public authorities (municipalities) and by the railway companies.

The regulations differ from country to country – especially the reception limits differ enormously in the measurement parameters.

International stakeholders, like the European Commission, should continue promoting quieter railways by regulations and incentives to member states to update their fleet and their tracks, support research and standardizing the measurements.

## IV. IDENTIFICATION OF SALIENT POINTS

The aim of the survey was to provide information on the policies on housing and health of eight countries. Even if the quantity of information collected and synthesised in this document is important and innovative, two major remarks on this work have to be done:

In all analysed countries housing aspects are taken into account by many different regulations. The range of legal interventions in this field is considerable: from market regulation to technical norms or guidelines and medical monitoring. Therefore, the study didn't develop each topic in detail and this review has to be considered as a first step in the data collection. As the collection of information was based on a large written questionnaire filled out by representatives of several institutions in most cases the questions might have been understood differently by the single representatives. The collected information therefore is not the official national statement to the existing housing and health regulations, but gives rather an overview of the principles underlying the housing and health regulations in selected countries of the European Region.

However, although the information collected has to be consolidated, this review has given the opportunity to draw important conclusions based on the large information. The analysis has given the opportunity to derive salient points that seem relevant for the design and implementation of housing and health regulations. The salient points are: level of intervention; standards; local-regional level; types of building; existing and new buildings; addressees; urban-rural; social changes; ways of enforcement.

### 1. Level of intervention

In order to create healthy housing conditions, regulations can have three different purposes which don't exclude each other: they can aim at regulating the quality of the materials used in dwelling construction and the area surrounding the dwelling (e.g. asbestos free materials), they can aim at regulating the quality of the dwelling itself, in particular the basic amenities or the size and layout of the rooms and they can aim at regulating the way to use and maintain the dwelling and its basic equipment.

The first point of the transversal analysis refers, thus, to the way these three different approaches exist and can be combined. Except the third one which is more related to non-compulsory measures, those approaches exist in the regulations in all surveyed countries.

#### a) Construction material

Regulations on the quality of materials used for construction are a quite general approach in housing and health policies. They can apply both to materials (lead based paint...) and to dwelling equipments (electrical sockets, heating system...) in order to prevent toxic emissions like, e.g. CO.

##### *(1) From the control of the quality to the ban*

Policies aiming to prevent health damages linked with the quality of material used for dwelling construction can have different degrees of implementation. A quality control can be set up. But, if the risk for public health is more important, a partial or total ban can be ordered.

The “quality controls” are set up in order to ensure the use of safe buildings materials in dwelling construction. Different approaches exist like certification, technical standards... For example, in Italy no specific standards have been set up for VOC in dwelling but controls are carried out at the occasion of the request of issuance of material production certificates, where characteristics of the utilized materials are defined. Technical norms can be developed by responsible authorities or by professional organizations (in Italy water heating systems have to be in accordance with technical rules defined by the *Italian Gas Committee* which depends on the *Italian National Standards Institute*).

#### Regarding the ban of a product or a substance

Bans are not homogeneous from a country to another except, of course, if an EU regulation exists in regard.

Lead exposure for example is neither regulated in the Netherlands nor in Italy. In contrary, the complete ban of asbestos, as a European regulation, has been adopted in all the surveyed countries, even if the dates of implementation varies from 1992 in England to 2005 in the Netherlands (regarding asbestos, please refer to part III-A for more details).

The ban of a product or a substance can also be partial, or for certain uses only. In Hungary, lead is forbidden in painting but not in pipes according to the main way of intoxication or to the main way of use. But it can also be complete like for asbestos since 2005 in all EU.

Finally, bans can be directed to specific consumption and the distinction between professional use and public use can be done. In Lithuania, for example, *Hygiene standard HN 36 2002* set up a list of substances forbidden in construction material intended to non-professional use.

### ***(2) Enforcement implicates both, public health authorities and market regulation***

The control of the quality of building materials is based on different regulations (from public health and from market regulation). Different authorities therefore, can be in charge of the implementation. But in general the health authorities are not in charge of the implementation.

In Italy, for example, the compliance with the Presidential decree 21/4/1993 “*regulation on the implementation of Directive 89/106 concerning construction product*” is enforced by the Ministry of Industry, Commerce and Craft, the Ministry of Interior, the Ministry of public works, each of them according to their specific competence. In Portugal, the development and implementation of these regulations are done by the Ministry of Economy and Innovation.

### ***(3) The regulation can apply to new building or can call for the removal of specific products from existing buildings***

For example, in all analysed countries new buildings cannot contain MCA because of the total ban of this substance, but in some cases, in addition to this ban, the removal of MCA from existing buildings can be ordered if there is a high risk for exposure.

The removal of materials or equipments that can damage health or safety can be also more systematic: In Germany, for example, heating systems older than 27 years must be replaced by new ones.

For a larger evaluation of the main differences in health policies between existing and new buildings, see also chapter IV.5..

## **b) Construction and organization of the dwelling – quality of design**

### ***(1) The dwelling in its surrounding environment***

Housing includes the dwelling and the neighbourhood which both should promote health, safety and personal development. The environment of dwelling should allow easy access to basic services and to open spaces.

Nevertheless, even if town-planning documents exist in every country, there are very few regulations aiming directly to the facilities of the residential environment of dwellings. When regulations exist on the organization of public transportation or access to basic services they are generally included in urban plans that are under the competency of local authorities.

For example, in the Emilia-Romagna region in Italy, the *regional regulation on territorial urban planning* states that all existing and new buildings should be equipped with “adequate infrastructure including roads, pedestrian path and spaces, public transport and stations...” but without setting any minimum standard.

Specific regulations can also exist, like in Lithuania where a maximal distance between every dwelling and public transportation system is set up for urban and rural areas: from 500 m to 800 m according to the urban concentration in the area.

The urban plans can also set up the ratio between residential, public or industrial area (in Italy the laws states that for each inhabitants, 18 square meters should be dedicated to public activities: 4,5 sq.m. for education, 2 sq.m. for equipments of common interest, 9 sq.m. for parks, playground and sport and 2,5 sq.m. for parking).<sup>112</sup>

### ***(2) Organization and design***

In order to promote healthy and safe conditions of living the dwelling should be designed and organized to have sufficient surface, light, heat and ventilation.

To fulfil these basic necessities, policies can aim at regulating the organization of the dwelling itself or its basic supplies.

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<sup>112</sup> In this regard some clarifications should be made for Italy. The national urbanism law of 1942 contains all standards that have been mentioned previously in the subchapter on the immediate environment. In 1978 many of the competences in the field of space planning have been transferred to the Regions. On this basis the Region Emilia-Romagna has prepared 1978 and 2000 a law on space planning containing standards which were exceeding the national ones.

Regarding the basic supplies and amenities like washing facilities or food storage equipment, these are sometimes only compulsory in new buildings, although, when they apply to important hygiene features (e.g. the presence of bathroom or sanitary accommodation) the regulation applies to both existing and new dwellings).

### ***(3) Regulation for specific users***

Design and organization of the dwelling can also be regulated in order to make it accessible for specific users like children, elderly or disabled people. The accessibility criteria often refer to specific rooms (bathrooms, sanitary accommodation, kitchen). In general terms no specific regulations are set up for elderly people.

More information regarding the addressees of regulations are given in chapter IV.6.

### **c) Utilization and maintenance of dwellings**

There are very few regulations aiming at regulating the way to use a dwelling. This approach is much more taken care of by information and awareness-raising campaigns. For example, in order to prevent CO poisoning, Italy performs each year awareness campaigns to inform people about the good way to upkeep their combusting devices and to describe the symptoms of a chronic contamination.

Regarding the maintenance, regulations give generally the main duty to the owner or the co-owners and, in very few cases, the duty can be shared between owner and tenant.

The rules dealing with maintenance are particularly important in multi-occupation buildings where the way to upkeep the shared spaces or equipment have to be well defined.

## **2. Standards**

In general terms housing standards trigger many challenges: Minimum standards could become the norm. To overcome this, landlords of large housing stock could be required to adopt an improvement scheme and to annually or biannually review the conditions. Reviewing and checking the housing conditions could be done according to different systems by using a) weighting systems to assess the lack of the fulfilment of standards, or b) by using rating systems of the housing characteristics.

Different types and formulations of standards are appropriate for different problems or circumstances and can be differentiated into two groups: quantitative or qualitative. The quantitative standards are those referring to characteristics of housing features that should or should not be present (i.e. sink, cooking facilities etc.). The qualitative standards state what should be taken into consideration when designing or assessing housing features in order to mitigate the threats to health and/or safety due to housing conditions. The advantages of specific standards are that they are clear and easily understandable. They can be applied by relatively untrained staff, are relatively inexpensive to implement and are suited for new buildings. Nevertheless this type of standards has disadvantages as they are difficult to update and extend, are building focussed and are not ideal for the existing housing stock. On the other hand the advantages of qualitative standards are that they

can be human focussed, easy to update, applied by trained/qualified staff. They are ideal for the existing dwellings. Unfortunately due to the trained staff needed for enforcing them, these standards are expensive to implement and are not readily understandable by everyone.

Minimum quantitative standards (size of the rooms, of the windows...) are set up in nearly all countries even if the standards can be different from country to country. For example, regulations concerning equipments aiming at preventing falls from windows, although they have the same purpose, can refer to very different standards (e.g. height of the balustrades).

In England the approach is completely different, a rating system (HHSRS<sup>113</sup>) has been set up as a replacement for the housing and health fitness standards. The HHSRS is founded on the logical evaluation of the potential risks to health and safety from any deficiencies identified in dwelling, including those related to the design and the construction of the dwelling. For example if we refer to the prevention of overcrowding, there was in England, until recently, a baseline minimum standard on the number of inhabitants regarding the number of rooms and the size of the dwelling. However, after October 2005 this baseline does not apply anymore and a specific evaluation based on the HHSRS in order to evaluate the potential threat to health due to overcrowding for each situation will have to be done.

Finally, regulations can give the duty to achieve a result (like, e.g., in Italy where the law imposes an obligation for indoor air temperature to reach 18-20°C during cold weather) or at the contrary regulations can set the necessity to comply with a given design or organization (e.g. in Germany windows parapet should be not less than 90cm from the ground or 80cm if the height of the building is under 12 m).

### **3. Local-regional-national**

European institutions are organized in national, regional and local administrative structures which from a country to another can differ in competencies, financial resources etc. During the past years, according to EU policies, local autonomy has been encouraged.

Some countries in Europe are federal systems (e.g. Germany) while other have a unitary system (e.g. Lithuania, Hungary, Netherlands and Italy). Among the unitary countries, the number of geographical administrative levels varies from a country to another (from one in Lithuania to three in Italy and two for the other mentioned countries) and the level of decentralization can also vary.

These differences in the organization can lead to differences in the way regulations on housing and health are set up and enforced. The example of England shows that there is devolved power to Wales and Northern Ireland, which have Assemblies with certain powers – they have to adopt the housing standards and have limited powers to amend them. In addition Scotland has both a different legal system and its own housing standards. Also, while central government passes the primary

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<sup>113</sup> Housing Health and Safety rating system

legislation that applies to the whole of England, local authorities have (very) limited power to adopt their own standards better than the national standards.

**a) Regulations on housing and health can be homogenous in the whole country...**

The minimum standards are often defined at a national level. In Netherlands for example, before 1992 local authorities had their own (different) regulations mainly covering the same subjects. Since 1992, there are national requirements.

In some countries, even the minimum standards can be different in a single region. In Italy, municipalities are responsible for drawing up the hygiene regulation and the building regulations. These regulations are partially based on national regulations (that are not legally binding but are technical standards) but they do not necessarily have to comply with all standards regulations and performances levels.

**b) ... but they can be adapted regarding local specificities**

More severe local standards can be set up in order to protect specifically a local area taking into account local specificities.

In Italy, for example, for the land use planning, a national law establishes that each inhabitant has to be provided with 18 square meters of public spaces (education, parks etc...). In the Emilia-Romagna region, the regional regulation has first set up the minimum standard of 30 square meters per inhabitants, of which 16 square meters for green spaces, but has after ca. 20 years given the responsibility to the local administrations to define the standards. The new regional regulation has been set up in order to enable each community to define the most appropriate standards for the spear specific needs and for promoting the urban development and for promoting the quality of life of the inhabitants.

**c) Important role of municipalities**

Even if the level of their responsibility can vary according to the legal and administrative organization of the countries, municipalities, which are the first level of local administration, have always an important role to play in the control and enforcement of the regulations particularly those related to hygiene (for example, local authorities are generally in charge of the cleaning of the streets in residential areas, of the substitution to owner for the work by default).

Higher level authorities (like regions, Länder or national ministries) are more involved in planning and developing regulations (compulsory) or guidelines (not compulsory).

#### **4. Types of building**

Regulations can vary according to the type of building (one family houses vs. condominiums), according to the tenure (rented or owned) or according to the distinction between social housing and private housing.

##### **a) One family housing / multi-family building / social housing**

The main difference between one family houses and condominiums is the existence of shared equipments, rooms and spaces. Specific regulations are, therefore, necessary regarding the maintenance and use of these shared places. But these regulations are not systematic. In the Netherlands, for example or in Germany there is no specific regulation on maintenance of the shared spaces. A civil agreement between owner and tenants has to be done regarding the maintenance.

In the countries where regulations concerning the maintenance of the shared spaces do exist, they can make the owner or the co-owners responsible but they can also assign shared responsibilities, like in Italy where the *Standard Hygiene regulation* of the Region Emilia-Romagna mentions that “owners, tenants and anyone who is entitled to use the common areas and shared facilities are all jointly obliged to the cleaning”.

Apart from these specific regulations on shared facilities, there are no main differences between regulation concerning one family housing and condominiums.

With regards to social housing, some specific standards can apply: for example, in Germany there is a minimum standard for the surface of a dwelling referring to the number of occupants for social housing but not for dwellings in general.

##### **b) Rented or shared housing**

Housing is the private sphere of an individual. For this reason it is often difficult for public authorities to intervene in the regulation of housing related issues when the dwelling is occupied by the owner, whereas this may be different in the case of multifamily buildings or social houses.

In England, authorities can intervene in every unsafe dwelling that doesn't fulfil the minimum standards even if it is owner occupied. At the contrary, in Germany regulations on unsafe dwelling are directed to rented dwelling in order to protect the tenants. Public authorities are not allowed to intervene if the owner endangers only himself.

In Italy fencing requirements have been delegated to the Regions. In the Region Emilia-Romagna only public pools should comply with the 1991 State-Regions agreement that regulates compulsory locked fencing. There is no regulations for private pools.

#### **5. Existing and new buildings**

Regulations often apply to new dwellings, but in some cases they can have a retroactive effect. The minimum standards and the basic hygiene rules, like the presence of a bathroom or of sanitary accommodation in all dwellings, are generally retroactive and have to apply to all the dwellings.

Even for the non-retroactive regulations, in some cases they can also apply for existing building since important repairs or complete rehabilitation are done (for example, the regulation regarding accessibility of dwellings to elderly or disabled people in Lithuania).

The interpretation of the terminology “existing” or “new” during the survey was not necessarily identical in all countries. For England in particular as soon as a dwelling is completed it becomes an “existing” dwelling. Therefore, the “existing” versus “new” criteria was not useful. In Portugal “new buildings” are defined as those built after 1951.<sup>114</sup>

## **6. Addressees**

Policies on housing and health can aim at regulating the living conditions of the entire population or they can address specific groups, like specific age groups or population with physical constraints.

Policies on housing and health can also address the use of buildings and social aspects.

In nearly all surveyed countries the age of the occupants doesn't seem to be criteria of adaptation of the dwelling. Only Lithuania sets up a specific obligation for the accessibility of dwellings for elderly people.

Regarding the accessibility of dwellings for disabled people, regulations exist more often (Italy, Germany, Netherlands, Lithuania, England adopted specific measures). These regulations can be:

- directed to multi-family buildings only. Whether because they are directed to common parts like in Italy where the common parts of multi-family buildings of more than three floors have to be accessible to disabled people, or whether because it set up a ratio for accessible dwellings like in Germany where the *Building Regulation of Berlin* sets that all buildings with more than 2 dwellings must have at least an accessible dwelling;
- directed towards new buildings only (like in the Netherlands) or to new buildings and existing ones as far as they need important rehabilitation (like in Italy and Lithuania) or to all new and existing buildings like in Germany;
- it can be noted that regulations applying to public buildings (not private housings) are much more common.

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<sup>114</sup> All details of constructions in Portugal are dealt with by the regulation published in 1951. Currently this law is being totally reviewed. Since 1951 modifications have been undertaken in 1952/1962/1963/1975/1982/1985/1986/1990/1993/1998/1999/2000/2001, but basically the regulation is still the same, although many changes have been made and many other regulations have been set up to complete it.

Finally, some countries, like England, developed a system of grant-aids towards disabled people in order to have their dwelling adapted to their needs.

In the same way, policies for rehousing or for preventing people from eviction can be directed towards different groups from a country to another. As an example we can quote the regulation developed to protect “vulnerable” households from being evicted in Italy and in Lithuania. In Italy, the “vulnerable” people are persons who are or have in their family people aged more than 65 years or with serious handicaps and who have not another home or an income that enables them to rent a new house. In Lithuania, regulations (based on *Law on Fundamentals of Protection of the Rights of the Child*) are much more directed towards family with children, as this protection only apply when the Service of Children Rights Protection demonstrate that such eviction is contrary to interests of the child.

## **7. Urban – rural**

In general, regulations are valid both for urban and rural areas. In some cases differences exist, but they relate to the existence or non-existence of public supplies.

The main example is the connection to public sewage which is compulsory in all surveyed countries but which can suffer exceptions in Portugal and Netherlands for rural area if the public sewage is too far.

So, the difference between urban and rural areas is more related to the technical choices in order to comply with the regulation rather than the compliance of the regulation itself.

## **8. Social changes**

Regulations on housing and health have to take into account specific social changes and developments or the privatization process of the housing stock due to political changes. Due to these developments in some of the surveyed countries, 80 to 90% of the dwelling stock is privately owned (Lithuania and Hungary). In other countries immigration processes and the existence of ethnic minorities with different living habits influence the development of national housing and health regulations.

The needs of the population also move with the social, economical and environmental changes. In particular:

- population is ageing,
- extreme temperatures are more likely to occur
- costs of the energy (for heating but also for cooling) are not likely to decrease.

Nowadays very few policies aim to regulate specifically the adaptation of dwellings for elderly people nor the thermal comfort of the dwellings.

## **9. Ways of enforcement**

Regarding the non-compliance with regulations, three different ways of enforcement can be differentiated: a) a “preventive” one based on preliminary authorizations, b) a judicial one based on financial or prison penalties and c) an executive one based on the substitution by the authorities in order to do, by default, the repairs that have been ordered. Incentives can also be a way of promoting a regulation.

The ways of enforcement are not homogenous from a country to another even for the same offence: for example, the penalties associated with non-compliance of the regulation on the ban of asbestos can be financial penalties (as they were in most of the countries) but a prison term of up to five years could also be required (as in Germany).

In addition the ways of enforcement can be very different at EU level, national level, regional and local level.

### **a) Preliminary authorizations**

Preliminary authorization is a common way of enforcement in public health prevention and safety regulation.

The required authorizations can be directed to the placing on the market of a given equipment or material (like, e.g., the safety labels for domestic equipments and electrical appliances). But they can also apply to the construction of the building itself. For example, in Portugal, where it is compulsory to have fire doors in multi-family houses, the authorities cannot approve any project of construction as long as these doors are not planned.

This system supposes a preliminary control of all the equipments or projects that has to be undertaken by the adequate authority or has to be delegated.

### **b) Penalties**

Regarding the ban of asbestos, monetary sanctions are possible in all the surveyed countries even if the amount varies from a country to another and even in the same country depending on the law which is taken as a reference: In Lithuania repression of non-compliance with ban of asbestos can be enforced respecting to the *Code of Administrative violations of Laws of the Republic of Lithuania* (from 1000 to 2000 Lt of penalty) and respecting to the *Law on Product Safety* (from 500 to 5000 Lt of penalty).

### **c) Substitution by the authorities**

In addition to the previous ways of enforcement, local authorities can have the legal possibility to substitute themselves to the owner if needed.

In case of serious disrepair in multi-occupied buildings which can affect health or safety of the tenants or the community, local authority can order the necessary measures (e.g., Italy or the

Netherlands) and, if the owner doesn't comply with these measures, local authorities can do the work by default (like in Italy, England and the Netherlands) and be reimbursed by the owner.

In some countries this possibility is frequently used (like England), in others (like Portugal) it is not common.

**d) Incentives – allowances**

Incentives can also be used for implementing standards by the responsible person (owner, tenant...), e.g. allowances in Germany for occupants who cannot afford to pay for water, electricity or gas. Allowances concerning improvement of housing in order to create healthier housing is also developed in nearly all surveyed countries except in the Netherlands and Germany (where this kind of allowances deal only with the adaptation of the dwelling for severe disabilities). In general terms these allowances are granted through free of interest loans.

## V. CONCLUSIONS AND POLICY OPTIONS

Any dwelling, including the structure, associated outbuildings, garden, yard and the means of access, “should provide a safe and healthy environment for any potential occupier and any visitor” (English Housing Health and Safety Rating System 2004, p. 4). It seems evident that current approaches to the regulation of housing standards vary across Europe and that more emphasis has to be given to the protection and promotion of health and safety in housing standards.

The analysis of the two questionnaires as shown that:

- The health sector does not seem to be a leading sector in the design and implementation of the regulation related to housing and health.
- There is very little and most often no intersectoriality in drafting the regulations.
- Each country has its own priorities and its own specificities for developing its regulatory framework. There is very little or no international cooperation in this field.
- The degree to which the regulations are compulsory is very different from country to country.
- For the same topic, different standards follow different approaches.

Based on the conclusions obtained by the implementation of the questionnaires and the discussions held during the meeting in Forlì (Italy) the national representatives and the experts formulated proposals that could help the European Ministries responsible for health and for housing to design their future regulation and/or action plans in the field of housing. These proposals and suggestions are integrated in the following part of this report. Special attention is given in this context to some options for drafting and for applying housing standards.

Two general kinds of policy options can be set up from the study: suggestions to follow up the work started by the present project (1-6) and proposals aiming at presenting those aspects that should be taken into account when drafting housing and health policies (7-9).

### **1. Develop the sharing of good practice**

The information given by the participating countries shows policy options, success stories, examples of good practice in different fields of the housing and health regulations. These good practises could be shared between countries.

The evidence collected from studies carried out in single countries could be usefully transferred to another country, taking into account some possible national differences. Performance methods (measures and procedures) and level of classes for setting up housing and health standards could also be shared.

WHO as an international organization should encourage the communication between Member States to promote the exchange of good practice.

## **2. Encourage and disseminate research on the efficiency of policy and housing interventions**

The impact of housing conditions on health and safety should be studied further. Special emphasis should be put in the evaluation of the benefits of housing interventions to the health services, the economy, child education and quality of life and in the evaluation of policy efficiency (cost benefit analysis). The attention of public health services should be called to see the home as a key determinant of health. Politicians, administrators and professionals of the building sector should be made aware of the scientific evidence in this field. The relation between housing and health has to be made public on a broader level.

## **3. Develop intersectorality in housing and health management**

Intersectorality during the process of drafting and implementing building, housing and health regulations has to be part of the drafting process. The private and market sector should be involved, for example homebuilders, homebuilders associations, contractors responsible for managing large blocks of housing etc.

WHO as an international organization should encourage the communication between ministries of health and other relevant ministries in order to discuss data collection standards, compare existing regulations, the formulation of common guidelines for maintenance, regulation etc. standards.

But also in the implementation phase several authorities and sectors should be involved. For instance, regulations should be developed to require contractors and building managers to develop management plans.

## **4. Develop evaluation mechanisms of efficiency policies**

Because of the large range of topics analysed and the lack of information available, the survey could not obtain enough information on the evaluation mechanisms of policies developed by countries. This point should be examined more in detail. In general terms detailed evaluation mechanism should be put in place as the evaluation of regulations could be used as enforcement measures.

## **5. Strengthening role of the EU**

The role of the European Union in the framework of housing and health regulations is not very clear and uniform; there are areas of work where EU regulations exist, but there are many areas where there is no homogenous approach from the EU side. Additional efforts should be put to enhance the development of EU wide regulations and standards in the different field of housing and health.

## **6. Harmonization in assessing housing conditions and setting standards**

The harmonization of different approaches in assessing housing conditions and setting standards should be promoted, as well as the application of those standards to help identify which standards work best in which situations and how they should be best applied. WHO as an international organization should enhance the process of harmonization of performance methods (measures and procedures) and the level of classes for setting up housing and health standards.

## **7. Housing and health policies have to take in consideration social aspects**

Social aspects are key: the underprivileged have to be addressed as a priority by the regulations as well as special attention has to be given to higher relative running costs of housing compared to total income (e.g. due to increasing energy prices) which are mainly affecting those most in need who cannot afford these costs.

Poverty triggers difficulties in the access to housing and the right maintenance. The most vulnerable groups (the young, lone parent families, immigrants, large families) experience the biggest difficulty in accessing adequate housing conditions.

Therefore the costs of ownership and rent have to be taken into consideration when setting the responsibilities for implementing housing and health regulations. The implementation of many regulations implies a heavy financial burden which in many cases falls back on the dwelling owners. For this reason owners should be given financial incentives.

In addition the special requirements and needs of the social housing sector should be taken into account ensuring that this sector fulfils the needs of the underprivileged.

## **8. More attention has to be paid to vulnerable people**

Those who make the biggest use of the house are often the most vulnerable (children/elderly/people with physical constraints).

In nearly all surveyed countries the age of the occupants doesn't seem to be criteria of adaptation of the dwelling. Special emphasis should be put for the needs of children and the reduction of child specific hazards.

Regarding the accessibility of dwellings for disabled people, regulations exist more often, still they can be improved.

## **9. Use incentives for enforcement**

Regarding the non compliance with regulations as stated before there are different ways of enforcement. Enforcement is easier in public areas but more difficult in private settings. Therefore legislators should use not only financial or prison penalties but also (monetary) incentives for ensuring the implementation of the regulations. Incentives can especially be used for implementing standards by the owners, tenants... These incentives could be monetary allowances, or tax reduction etc.

VI. ANNEX

A. *.xls sheets*

Please confront the electronic excel sheets. AVAILABLE UPON REQUEST

***B. Questionnaires***



# *Housing and Health regulation*

## *Questionnaire 1*

### *Main principles*



## INTRODUCTION

The “Housing and Health” programme of the WHO, European Centre for Environment and Health Bonn office has a double objective. On the one hand, it intends to highlight the relationship between housing conditions and the health status of European citizens. On the other hand, it aims at proposing the most relevant possibilities to improve the housing conditions of the Europeans in order to ameliorate their health.

This second aspect can be considered among other viewpoints from a legal point of view. The efficiency of law is admittedly limited since it is exposed to the major constraint that a dwelling belongs to the private sphere and also because the improvement of the health status partly depends on lifestyle, which can seldom be regulated by the law.

However, the legal point of view should not be neglected as it offers a wide range of possibilities to improve the housing conditions and thus the health of European citizens. It is the purpose of this study to emphasize on the possibilities given by law to improve housing conditions in the widest sense, that is to say the home, the dwelling, the community and its immediate environment.

The results of this study will be gathered in a reasoned document which will present the state of the regulation in the field of housing and health in the following European countries: Germany, Hungary, Italy, Lithuania, The Netherlands, Portugal and England. Its general conclusions will propose a comparison of the regulation implemented in the different countries and will point out the regulations which appear the more efficient to improve the health status. It is hoped that this document could help inform the European Ministries responsible for health and for housing to design their future regulation and/or action plans in the field of housing.

In order to carry out the study, the WHO Bonn office will ask its focal points in each of the seven countries to fill in a questionnaire. If need be, the focal points can dispatch it to the relevant ministries. The questionnaire is in two parts. The first part is dedicated to an overview of the legal background existing in the field of housing and health, and identifies the main principles of the regulation and the actors involved in its design. Answers of a general nature are expected. The second part consists of an analysis of seven specific examples in the field of housing and health. Detailed answers are expected. It is advisable to read the whole questionnaire before answering the questions to avoid redundancy. After receipt of the answers of the questionnaire, semi-structured interviews may be organised in some of the countries so as to fine-tune the answers and permit their exploitation and comparison.

The accuracy of the answers of the questionnaire and of the interviews will make it possible to underline the lack of regulation regarding certain items in some countries and also bring to the fore the attempts of the countries to design innovating regulations in areas such as lifestyle, as well as the endeavours to promote healthy behaviours through awareness-raising campaigns for the public.

## PART 1: THE DWELLING CONDITIONS

### 1.1. BASIC AMENITIES

*Please give the name, function, e-mail address and telephone of the answerer:*

**1. In a dwelling are the following compulsory:**

**a) Space for food storage equipment?**

yes    no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**b) An electrical socket for food storage equipment?**

yes    no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**c) A sink with a supply for cold water?**

yes    no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**d) Space for the cooking of food?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new building

**2. In a dwelling are the following compulsory:**

**a) Hand washing facilities (including supplies of hot and cold water)?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**b) A bath or shower (including supplies of hot and cold water)?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**3. In a dwelling is the presence of sanitary accommodation compulsory?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**4. Are there specific ventilation requirements for bathrooms?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

→ See also Indoor air quality section.

**5. Are there specific ventilation requirements for sanitary accommodation?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

→ See also Indoor air quality section.

**6. Are there specific ventilation requirements for kitchens?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

→ See also Indoor air quality section.

**7. Are there specific architectural designs required for bathrooms, toilets, and kitchens making them useful by children, elderly and disabled persons?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

→ See also Noise section

**8. Are there regulations concerning the number of bathroom and sanitary accommodation in the dwelling?**

yes    no

→ If yes, is it related to:

the number of occupiers in the dwelling

the size of the dwelling

the total number of rooms

other

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## 1.2. ENERGY DEVICES

***Please give the name, function, e-mail address and telephone of the answerer:***

### **1. Do regulations require a provision of electricity within the dwelling?**

yes    no

If yes, please give details.

→ Is this regulation valid for:

rural zones

urban zones

all areas

### **2. Is the presence of space heating systems compulsory within the dwelling?**

yes    no

→ If yes, please give details.

→ Is this regulation valid for:

rural zones

urban zones

all areas

### **3. Is the presence of water heating systems compulsory within the dwelling?**

yes    no

→ If yes, please give details.

→ Is this regulation valid for:

- rural zones
- urban zones
- all areas

**4. Do regulations exist regarding the testing and maintenance of these systems?**

- yes    no

→ If yes, please elaborate in less than 10 lines.

**5. Do the regulations provide with incentives towards energy efficiency (energy efficient equipment and thermal insulation)?**

- yes    no

→ If yes, please give details in less than one page, with if possible elements helping to evaluate the impact of each measure each time possible.

→ Is this regulation valid for:

- rural zones
- urban zones
- all areas

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

### 1.3. HOME SAFETY

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Is there a legal definition (1) or accepted definition (2) of housing hazards which could result in physical injuries?**

1    2

→ Please give details

**2. Is there a record of injuries resulting from domestic accidents?**

yes    no

If yes, could you in less than 10 lines describe how the recording method is in work?

**3. Is it compulsory to register the location in the dwelling where an accident has taken place?**

yes    no

**4. Do the available data distinguish the injuries affecting the children, the adults or the elderly?**

yes    no

→ If yes, please who records it and give details.

**5. Could you consider using the data collected by European countries?**

yes    no

**6. To prevent domestic accidents, would you rather consider laying the emphasis on the education and information of the population (1) and/or on modifying the living environment (2)?**

1    2

→ Please provide with examples at national, regional and local level.

**7. As far as safety labels for domestic equipments and electrical appliances are concerned, do some stricter regulation than the EU directive exist in your country?**

yes  no

→ If yes, please give details.

**8. Are there regulations specifically targeting children?**

yes  no

→ If yes, please give details.

**9. Are there regulations on electricity sockets guards?**

yes  no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**10. Are there regulations on pool fencing?**

yes  no

→ If yes, please give details.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## 1.4. INDOOR AIR QUALITY

**Please give the name, function, e-mail address and telephone of the answerer:**

**1. Do regulations give standards concerning ventilation rate within the dwelling?**

yes  no

→ If yes, please give details.

in all rooms

in some rooms only (please state)

→ Does the regulation apply to any type of housing (individual houses and multi-apartment houses)?

yes  no

→ If no, please state the type of housing concerned.

→ Are the regulations dealing with ventilation rate considering the heating system used in the dwelling?

**2. Is there a list of pollutants that are subject to regulations in the domestic indoor-environment?**

yes  no

→ If yes, please give details.

***Please, describe in less than one page how indoor air pollution is taken care of by the legislation body of your country (or your region if different from the country regulation).***

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## 1.5. NOISE

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations dealing with outside noise and in particular:**

**- Transportation noise?**

yes    no

**- Leisure activity noise?**

yes    no

**- Noise resulting from commercial activities?**

yes    no

**2. What does it cover?**

**- Assessment of emissions?**

yes    no

**- Assessment of effects (annoyance)?**

yes    no

**- Assessment of limit values/standards?**

yes    no

**- Abatement measures?**

yes    no

**3. Are there regulations dealing with neighbourhood noise?**

yes    no

**4. What does it cover?**

**- Assessment of emissions?**

yes  no

**- Assessment of effects (annoyance)?**

yes  no

**- Assessment of limit values/standards?**

yes  no

**- Abatement measures?**

yes  no

**5. Are there data available permitting to assess the health effects of noise on the population?**

yes  no

→ If yes, please give reference of the studies.

**6. Are there any regulations aiming at reducing noise emissions at source?**

yes  no

→ If yes, please specify which noise emissions are targeted.

**7. Are there regulations aiming at taking account of noise emissions when planning land use?**

yes  no

→ If yes, please give details.

**8. Do regulations imposing passive measures exist, and in particular minimum insulation of:**

**- windows?**

yes  no

**- walls?**

yes  no

**- ceilings?**

yes  no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**9. Do regulations impose passive measures such as noise barriers?**

yes  no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**10. Is there a noise cartography?**

yes  no

→ If yes, please specify the zones covered.

**11. Is it compulsory to register the complaints concerning noise in residential areas?**

yes  no

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## 1.6. WATER QUALITY

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Do regulations exist regarding to the provision of a supply of water within the dwelling and in particular:**

**- Drinking water?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation.

**- Hot water?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation.

**- Cold water?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation.

**2. Is the water distribution system public, private or both public and private in urban areas?**

public    private    both public and private

**3. Is the water supply public, private or both public and private in rural areas?**

public    private    both public and private

**4. Are the data concerning the quality of water intended for human consumption made available to the public?**

yes    no

→ If yes, please elaborate in less than 10 lines on where and in which conditions these data are available.

**5. Are there regulations on the temperature of hot water?**

yes  no

→ If yes, please state how it is implemented and who designed the standards.

**6. Does the law provide with stricter standards than the ones of the European Directive 98/83/EC of 3 November 1998 concerning drinking water quality?**

yes  no

→ If yes, please elaborate in less than 10 lines on the differences.

**7. Are there regulations regarding building materials relating to water supply (pipes, plumbing installations) in existing buildings?**

yes  no

→ If yes, please give details.

**8. Are there regulations regarding building materials relating to water supply (pipes, plumbing installations) in new buildings?**

yes  no

→ If yes, please give details.

**9. Concerning wastewater disposal, is connection to public sewage compulsory?**

yes  no

→ If no, please elaborate on the alternative.

→ Please provide with details if the regulation is different in rural and urban areas.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## Part 2: THE DWELLING AND BUILDING FEATURES

### 2.1. ACCESSIBILITY

**Please give the name, function, e-mail address and telephone of the answerer:**

**1. Do regulations make it compulsory that a dwelling should always be accessible without any assistance for elderly?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**2. Do regulations make it compulsory that a dwelling should always be accessible without any assistance for children?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**3. Do regulations make it compulsory that a dwelling should always be accessible without any assistance for people with reduced mobility?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**4. Do regulations make it compulsory that all the areas of the dwelling should be accessible without any assistance for disabled people, elderly and children?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## **2.2. BUILDING MATERIALS**

***Please give the name, function, e-mail address and telephone of the answerer:***

### **1. Are there regulations regarding the use of safe buildings materials?**

yes    no

→ If yes, please provide with some details on the regulations and if possible state who is in charge of developing and implementing of regulations.

→ See also Water quality section.

### **2. Are there specific recommendations concerning the use of asbestos?**

yes    no

→ If yes, please give details.

### **3. Are there specific recommendations concerning the use of lead?**

yes    no

→ If yes, please give details.

### **4. Is there a maximum of radon level permitted?**

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

→ See also Indoor Air quality Section.

**5. Does the law provide with standards for volatile organic compounds emissions from building materials in the dwelling?**

yes  no

→ If yes, please state in less than one page.

**6. Does the law provide with standards for volatile organic compounds emissions from furniture in the dwelling?**

yes  no

→ If yes, please state in less than one page.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## **2.3. THE BUILDING'S LAYOUT**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Concerning new buildings, are there regulations concerning the geographical orientation of housing?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation.

**2. Are there regulations concerning daylight in habitable rooms within dwellings?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## **2.4. THE CONSTRUCTION ITSELF**

***Please give the name, function, e-mail address and telephone of the answerer:***

***N.B: The next three questions apply only to new buildings.***

**1. Are there any regulations directed at building sustainable and stable structures, in particular in areas threatened by:**

**a) Extreme temperatures?**

yes    no

**b) Floods?**

yes    no

**c) Earthquakes?**

yes    no

→ If yes, please state the main principles of the regulations and its year of promulgation as well as the year it came into force.

**2. Are there regulations prohibiting housing developments in certain dangerous areas, for instance areas at risk from natural major disasters such as:**

**a) Floods?**

yes    no

**b) Earthquakes?**

yes    no

**3. Are there regulations prohibiting housing developments in zones next to:**

**a) Chemical activity?**

yes  no

**b) Nuclear activity?**

yes  no

→ If yes, please state the main principles of the regulations and its year of promulgation.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## 2.5. MAINTENANCE OF MULTI-OCCUPIED RESIDENTIAL BUILDINGS

***N.B.: The multi-occupied residential building is synonym for condominium or apartment block. This section deals with the maintenance of the common parts and shared facilities of those building.***

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations dealing with waste chutes in multi-occupied residential buildings?**

yes    no

**2. In multi-occupied residential buildings, is the existence of a storage area for household refuse compulsory?**

yes    no

**3. Are there regulations dealing with the maintenance of the household refuse chutes and provision for waste storage in multi-occupied residential buildings?**

yes    no

→ If yes, please give details.

**4. Are there regulations concerning the maintenance and cleaning of shared spaces in multi-occupied residential buildings?**

yes    no

→ If yes, please give details.

**5. Are there regulations concerning the provision and upkeep of the multi-occupied residential buildings (lighting, lifts...)?**

yes    no

**6. What does the legislation provide in case of serious disrepair in multi-occupied residential buildings (for instance: roof leakage, main entrance does not close...)?**

→ Please give details.

**7. Can the public authority substitute itself to the owner if this one does not do the repair work?**

yes    no

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## 2.6. MINIMUM STANDARDS

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Is there a minimum number of inhabitable square meters per person inhabiting the dwelling?**

yes    no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**2. Is there a minimum number of inhabitable square meters per person inhabiting the dwelling for the bathroom?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**3. Is there a minimum number of inhabitable square meters per person inhabiting the dwelling for the kitchen?**

yes    no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**4. Is there a minimum number of inhabitable square meters per person inhabiting the dwelling for the living room?**

yes  no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**5. Is there a minimum number of inhabitable square meters per person inhabiting the dwelling for the bedroom?**

yes  no

→ If yes, please give details.

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**6. Is there an absolute minimum square meters for any dwelling?**

yes  no

→ If yes, please state if this regulation applies to:

existing buildings

new buildings

**7. Is there a minimum size required for windows in:**

**- the bathroom?**

yes  no

**- the kitchen ?**

yes  no

**- the living room?**

- yes    no

**- the bedroom?**

- yes    no

→ If yes, please state if this regulation applies to:

- existing buildings  
 new buildings

**8. Should a window always be capable of being opened?**

- yes    no

→ If yes, please state if this regulation applies to:

- existing buildings  
 new buildings

**9. Is it compulsory to have the windows opening towards the inside and not the reverse?**

- yes    no

→ If yes, please state if this regulation applies to:

- existing buildings  
 new buildings

**10. Is there a minimum height for the ceiling?**

- yes    no

→ If yes, please state if this regulation applies to:

- existing buildings  
 new buildings

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## Part 3: THE IMMEDIATE ENVIRONMENT

### 3.1. ACCESS TO THE PUBLIC TRANSPORTATION SYSTEM

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations making it compulsory that any dwelling should be provided with an access to the public transportation system?**

yes    no

→ Please state if the regulation is valid for:

urban zones

rural zones

→ Please provide with the most important features of this law.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

### 3.2. GREEN SPACES

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations requiring a minimal amount of green spaces according to the size of the city or to the number of its inhabitants or to the size of the condominium?**

yes    no

→ If yes, please give details.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

### 3.3. A HEALTHY LIFESTYLE

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations aiming at making the environment more supportive for a healthy lifestyle?**

yes    no

→ If yes, please state what are the requirements of the regulations.

**2. Are there bicycle transportation promotional campaigns compulsory by law to ensure that people incorporate bicycling as a healthy everyday activity?**

yes    no

→ If yes, please give details.

**3. Do regulations provide with recommendations regarding the construction of garages for cars as well as for bicycles as far as new buildings are concerned?**

yes  no

**4. Do regulations provide with recommendations regarding the maximum distance between a school and the dwelling?**

yes  no

→ If yes, please give details.

→ Please state if the regulation is valid for:

urban zones

rural zones

**5. Do regulations provide with recommendations regarding the maximum distance between shops (to run errands) and the dwelling?**

yes  no

→ If yes, please give details.

**6. Is it compulsory to build cycle paths when a new road is being built?**

yes  no

**7. Is it compulsory that any street should be provided with a pavement?**

yes  no

**8. Is it compulsory that any street should be provided with proper lighting?**

yes  no

**9. Is there a limitation of speed for cars in residential areas?**

yes  no

→ If yes, please give details.

**10. Are there data available concerning the number of people who daily use a bicycle?**

**- to go to work**

yes    no

**- to go to school**

yes    no

**- as a leisure activity**

yes    no

**- other usage**

yes    no

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

### **3.4. PUBLIC SPACES (parks and leisure areas)**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations stating the maximum distance between a dwelling and a park or a leisure area?**

yes    no

→ If yes, please give details.

**2. Are there regulations making it compulsory to plan a park in the case of the construction of a certain amount of buildings?**

yes    no

→ If yes, please give details in less than 10 lines.

**3. In the cities, are there areas where it is forbidden to build?**

yes    no

→ If yes, please give details in less than 10 lines.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

### 3.5. QUALITY OF THE DEVELOPED SITES AND ARCHITECTURAL VARIETY

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations promoting architectural variety?**

yes    no

→ If yes, please state what are the requirements of the regulation.

**2. Are the regulations concerning the cleansing of the streets in the vicinity of the dwelling:**

- i. Who is in charge of the removal of the snow in the streets?**
- ii. Who is in charge of the removal of the snow on the roofs?**
- iii. Who is in charge of the removal of the ice that may fall from the gutter?**
- iv. Who is in charge of the removal of the dead leaves?**
- v. Who is in charge of the removal of dog's dirt?**
- vi. Who is in charge of the removal of unpleasant graffiti?**

→ Please give details.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## Part 4: SOCIAL ASPECTS

### 4.1. HOUSING ALLOWANCES

**Please give the name, function, e-mail address and telephone of the answerer:**

**1. Are there regulations providing with housing allowances?**

yes    no

→ If yes, what is/are the criteria:

**Income**

**Age**

**Professional activity**

**Mode of tenure**

→ Please provide with an evaluation of the efficiency of the regulation.

**2. Does the law provide with allowances to ensure access to healthy housing for deprived households? For instance, are there allowances concerning the renovation of one's dwelling?**

yes    no

→ If yes, please state in less than one page.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

## 4.2. MULTIPLE OCCUPATIONS

***N.B: A multiple occupation means a house which is occupied by persons who do not form a single household. The occupants share all or some of the same facilities (bathroom and sanitary accommodation)***

***Please give the name, function, e-mail address and telephone of the answerer:***

1. Are there specific regulations concerning multiple occupations?

→ If yes, please give details.

2. Are there regulations related to the number of occupants per room (i.e. prevention of overcrowding)?

yes    no

3. Is there a law related to the number of occupants per square meter (i.e. prevention of overcrowding)?

yes    no

4. Are there regulations requiring to observe specific standards of management (for instance the cleaning of the shared facilities)?

yes    no

→ If yes, please give details.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***

### **4.3. THE RIGHT TO HAVE A DWELLING**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Are there regulations guaranteeing the right to have a shelter?**

yes    no

→ Please give details.

**2. Are there regulations guaranteeing the right to have a dwelling?**

yes    no

→ Please give details.

**3. Are there regulations making the rehabilitation of unsanitary dwelling compulsory?**

yes    no

→ Please give details.

**4. Is it legal to stop paying the rent while waiting the rehabilitation work to get out of unsanitary conditions to be done and while the work being done?**

yes    no

**5. Are there regulations guaranteeing the rehousing of households who live in unsanitary dwellings which cannot be repaired?**

yes    no

→ If yes, please give details.

**6. Is it compulsory to rehouse the families living in an overcrowded dwelling of a social housing?**

yes    no

**7. Please provide (in less than a page) the main characteristics of your country/region body of legislation in terms of :**

- combating unsanitary dwellings
- providing satisfactory housing to the most underprivileged

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## 4.4. SOCIAL HOUSING

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Within the framework of the rehabilitation of a neighbourhood, is it compulsory to build social housing?**

yes    no

→ If yes, please state the percentage of social housing required.

**2. Are there any incentives (for instance subsidies) for the landlords who rent their property to social housing agency?**

yes    no

→ If yes, please state in which circumstances.

**3. Is there a percentage of new houses that should be devoted to social housing when constructing buildings in new areas?**

yes    no

→ If yes, please give details.

***Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.***



# *Housing and Health regulation*

## *Questionnaire 2*

### *Detailed examples*



Housing & Health

## PART 1: ASBESTOS

***Please give the name, function, e-mail address and telephone of the answerer:***

### **1. How is the total ban on all types of asbestos (cf. European Commission directive 77 EEC 1999) enforced and monitored?**

→ Please state:

- when it came into force:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

### **2. Do regulations set limit values for the release of asbestos in the indoor air of the dwelling?**

yes    no

→ If yes, please state:

- when (all the time, during removal work):
- the limit values set by the regulation:
- the references of the regulation:
- when it has been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:

- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**3. Do regulations set limit values for the release of asbestos in the air of the shared spaces in condominiums?**

yes    no

→ If yes, please state:

- when (all the time, during removal work):
- the limit values set by the regulation:
- the references of the regulation:
- when it has been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**4. Do regulations differentiate between the types of asbestos to set the exposure limits?**

yes    no

→ If yes, please state:

- the types of asbestos which are differentiated:
- the references of the regulation:
- when it has been promulgated:

- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**5. Is it compulsory to declare asbestos-containing dwellings?**

yes    no

→ If yes, please state:

- who registers the declarations: the references of the regulation:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**6. What do the regulations provide for existing homes that contain asbestos?**

→ Please state:

- the content of the regulation:
- the references of the regulation:
- when it has been promulgated:

- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**7. Are there regulations requiring the removal of asbestos even if it not damaged?**

yes    no

→ If yes, please state:

- the content of the regulation:
- the references of the regulation:
- when it has been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**8. Are there accreditations delivered to professionals in order to authorize them to assess the presence of asbestos in a dwelling?**

yes    no

→ If yes, please state:

- which power delivers the accreditations:
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**9. Are there accreditations delivered to professionals in order to authorize them to evaluate the health risks associated with the presence of asbestos?**

yes    no

→ If yes, please state:

- which power delivers the accreditations:
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:

- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**10. Are there regulations concerning the techniques used to evaluate the risks caused by the presence of asbestos?**

yes    no

→ If yes, please state:

- the content of the regulation (i.e. a description of the techniques recommended):
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**11. Do regulations exist requiring systematic measurements of indoor air to make sure it is not contaminated by asbestos?**

yes    no

→ If yes, please state:

- in which cases:
- who is in charge of these measurements:

- who validates the methods of measurement:
- the references of the regulation:
- when it has been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**12. What methods does the law provide to determine the concentrations of airborne fibres?**

→ Please state:

- the content of the regulation (i.e. the methods provided by the law):
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**13. What are the length, width, and length to width ratio of the asbestos fibres which are subjects to measurements?**

→ Please state.

**14. Do regulations exist concerning the elimination of asbestos in dwellings?**

yes    no

→ If yes, please state:

- the content of the regulation:
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**15. Who decides that asbestos should be removed?**

→ Please state.

**16. Who supports the cost of this operation?**

→ Please state.

**17. Which authorities recognise the professionals qualified to undertake the removal of asbestos from buildings in which asbestos is liable to become airborne?**

→ Please state.

**18. Do regulations exist aiming at limiting the release of asbestos dust into the air during the removal operation?**

yes    no

→ If yes, please state:

- the content of the regulation:
- the references of the regulation(s):
- when it (they) has(ve) been promulgated:
- when it came into force:
- the standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- the authorities or bodies in charge of its implementation in the field:
- the penalties or sanctions associated with non compliance:
- a short evaluation of the efficiency and effectiveness of the given regulation:

**19. Are there records on the locations of asbestos waste in archives of local authorities?**

yes    no

**20. Who certifies that a dwelling is free of asbestos after the intervention of a professional to remove it?**

→ Please state.

**21. Do you undertake awareness-raising campaigns to inform the public of the potential risks of dwellings containing asbestos?**

→ If yes, please state on which occasions (in case of sale, during scheduled inspections, others).

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## **PART 2: CARBON MONOXIDE**

**Please give the name, function, e-mail address and telephone of the answerer:**

### **1. Are hospitalisation due to CO intoxications registered?**

yes    no

→ If yes, please state who collects the data.

### **2. Are fatalities due to CO intoxications registered?**

yes    no

→ If yes, please state who collects the data.

### **3. Which power is able to undertake measurements of carbon monoxide quantity in the indoor air of the dwelling on a prevention basis?**

→ Please state.

### **4. Which power is able to undertake measurements of carbon monoxide quantity in the indoor air of the dwelling on a prevention basis after an intoxication occurred?**

→ Please state.

### **5. Are there regulations concerning the rules concerning the installation of a water heater?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**6. Are there regulations requiring that all non-electrical cooking devices inside the dwelling should be ventilated?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**7. Are there regulations banning non-ventilated space heaters?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

### **8. Is ventilation of all heating devices compulsory?**

yes    no

→If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**9. Is the ventilation of any heated room compulsory?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**10. Is it compulsory to use CO detectors in the dwelling?**

yes    no

→ If yes, please state:

- Where the CO detectors should be placed:
- How many of them there should be:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:

- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**11. Do regulations provide with recommendations concerning chimney sweeping?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**12. Do regulations require an adequate and regular maintenance of central heating systems?**

yes    no

→ If yes, please state.

**13. In multi-occupied residential buildings, who has the responsibility of the maintenance of the central heating system?**

→ Please state.

**14. Do regulations require a routine inspection and maintenance of combustion devices and chimneys?**

yes    no

→ If yes, please state:

- How frequent:
- Who is in charge of it:
- The references of the related regulation(s):
- When it (they) has(ve) been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**15. Do you undertake conscious-raising campaigns in a periodic way at the beginning of winter to inform the public on the dangers of potential sources of CO?**

yes    no

→ If yes, please state when such campaigns were undertaken and give a brief description of their content.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## **PART 3: FIRE SAFETY**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Is the number of deaths caused by domestic fires registered?**

yes    no

→ If yes, please state who registers them.

**2. Is the number of injuries caused by domestic fires registered?**

yes    no

→ If yes, please state who registers them.

**3. Are there data available concerning the causes of domestic fires ?**

yes    no

→ If yes, please state who collects the data.

**4. Does the law provide with a classification of the different building materials according to their reaction and resistance to fire?**

yes    no

→ If yes, please state who elaborated this classification and the references of the research institutes and professional bodies that may have been consulted.

**5. In case of a fire, how long should the building's structure resist before it collapses?**

→ Please state:

- The content of the related regulation:
- The references of the regulation:

- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation::
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**6. Does the law provide with regulations making it compulsory to have a fire detection system or a smoke alarm?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**7. Where should the fire detection system or smoke alarm be installed?**

→ Please state.

**8. Are there standards on fire alarms?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance: A short evaluation of the efficiency of the given regulation:

**9. Is the presence and renewal of a fire extinguisher in any housing type compulsory?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance

- A short evaluation of the efficiency of the given regulation:

**10. Is it compulsory to have fire doors in multi-family houses?**

yes    no

→ If yes, please state

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**11. Are there regulations concerning the building up of chimneys?**

yes    no

→ If yes, please state:

- The main principles of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation

**12. Is it compulsory to proceed regularly to chimney duct sweeping?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**13. Are there regulations to avoid the spread of fire from one building to another?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:

- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**14. Are there regulations providing with special fire emergency measures for high-height buildings (extra emergency exits, fire doors, fire alarms...)?**

yes    no

→ If yes, please state:

- The height of buildings the regulations apply to
- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

(a)

**15. Is the presence of an emergency staircase in any type of dwelling compulsory?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**16. Are there specific fire safety measures concerning elevators in multi-occupied residential buildings?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:

- A short evaluation of the efficiency of the given regulation:

**17. Are there regulations requiring the implementation of an emergency action plan?**

yes    no

→ If yes, please state.

**18. Are there regulations on fire emergency exercises concerning multi-family houses?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**19. Do you undertake awareness programmes concerning fire safety?**

yes    no

→ If yes, please state when such programmes were undertaken and give a brief description of their content.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## PART 4: HOME SAFETY

**Please give the name, function, e-mail address and telephone of the answerer:**

### a) Falls out of windows

**1. Is there a registration of the number of deaths due to unintentional falls out of windows?**

yes    no

**2. Is there a registration of the number of injuries due to unintentional falls out of windows?**

yes    no

**3. Do regulations exist concerning equipments aiming at preventing falls out of windows (for instance, wire netting, window bars and balconies)?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:

- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**4. Do specific regulations exist concerning the protection of children (for instance security devices to prevent the children from opening a window)?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**5. Are there conscious-raising campaigns aiming at giving information to the public concerning risks of falls out of windows?**

yes    no

→ If yes, please state when such campaigns were undertaken and give a brief description of their content.

## **b) Falls in staircases**

### **1. Are there data concerning the number of falls in staircases?**

yes    no

→ If yes, please state.

### **2. Are there data concerning the number of people injured or paralysed due to unintentional falls in staircases?**

yes    no

→ If yes, please state.

### **3. Are there data concerning the number of deaths due to unintentional falls in staircases?**

yes    no

→ If yes, please state.

### **4. Is there a law demanding a handrail for each stairs?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:

- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**5. Are there recommendations concerning the dimension of the steps?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**6. Are there recommendations concerning the frictional quality of the steps?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:

- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**7. Are there special equipments in staircases required for children (for instance stair gates), for the elderly and/or for disabled persons?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**8. In multi-occupied residential building, who has the responsibility to repair damaged steps?**

→ Please state.

**9. Are there conscious-raising campaigns encouraging the elderly to be kept mobile and thus less likely to fall?**

yes    no

→ If yes, please state when such campaigns were undertaken and give a brief description of their content.

*Please elaborate on any other specific regulation in your country (or region) concerning **other falls** and in particular specify if there are regulations regarding falls in bathrooms and falls caused by loose carpets. Please state also if any changes in the mentioned regulations are planned and explain why.*

## PART 5: LEAD

***Please give the name, function, e-mail address and telephone of the answerer:***

### **1. Is it compulsory to declare lead poisoning to Public Health authorities?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

### **2. Is there a legal requirement for reporting when a physician detects the presence of lead through blood analysis?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:

- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

### **3. What is the threshold permitting the identification of a lead poisoning?**

→ Please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

### **4. Are there other regulations permitting to know the number of new cases of lead poisoning?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**5. Is there a ban on the use of lead in pipes conveying water intended to human consumption?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:

- A short evaluation of the efficiency of the given regulation:

**6. Is there a ban on the presence of lead in building materials (including paint)?**

yes    no

→ If yes, please state:

- Which building materials are concerned:
- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**7. Are there regulations requiring a certified report before a building is sold that there is no exposition risks to lead for its occupiers?**

yes    no

→ If yes, please state:

- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:

- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**8. Are there regulations providing with the conditions required to obtain an accreditation allowing a professional to proceed to lead measurements?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**9. What are the measures to be taken by law when the presence of lead is detected in the dwelling?**

→ Please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:

- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**10. Is there a possibility to rehouse a household whose dwelling is contaminated by lead?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**11. Are there or were there public information campaigns aiming at preventing lead poisoning?**

yes    no

→ If yes, please state which public is targeted and give a brief description of the content of the information campaign as well as a short evaluation of its efficiency.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## **PART 6: NOISE from trains and railways**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Is the train railway system public or private?**

public  private

**2. Is the tramcar track system public or private?**

public  private

**3. Are there regulations concerning the measurement and assessment of noise emissions from train railways?**

yes  no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:

- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**4. Are there regulations concerning the measurement and assessment of noise emissions from tramcar tracks?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rationale which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**5. Are there publicly available data concerning the number of train passages during the night period?**

yes    no

→ If yes, please state.

**6. Are there regulations on the maximum noise emissions from train railway?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:
- A short evaluation of the efficiency of the given regulation:

**7. Are there regulations on the maximum noise emissions from tramcar track?**

yes    no

→ If yes, please state:

- The content of the regulation:
- The references of the regulation:
- When it has been promulgated:
- When it came into force:
- The standards that may be referred to in this regulation:
- The authority involved in its design, and the rational which has led to the development of this regulation:
- The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:
- The authorities or bodies in charge of its implementation:
- The penalties associated with non-compliance:

➤ A short evaluation of the efficiency of the given regulation:

**8. Is there a noise cartography of train railway traffic noise?**

yes  no

→ If yes, please state what the cartography covers.

**9. Is there a noise cartography of tramcar track traffic noise?**

yes  no

→ If yes, please state what the cartography covers.

**10. Are there regulations or any other type of instructions dealing with how to take into consideration noise maps when preparing urban development plans?**

yes  no

→ If yes, please give details.

**11. How are the noise complaints handled with and who collects the complaints: office of railway company, local authorities, police?**

→ Please give details.

**12. Who are the agents involved on the process dealing with the complaints?**

→ Please state.

**13. Are there publicly available data concerning annoyance due to railway traffic for the night period?**

yes  no

→ If yes, please state.

**14. Do regulations exist for noise insulation around the railway tracks?**

yes  no

**15. Do regulations exist for noise insulation around the tramcar tracks?**

yes  no

→ If yes, please state what is the threshold of tolerable noise.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## PART 7: PEST

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Do the public authorities handle with the question of infestation or is the onus on the tenants?**

→ Please state.

**2. Do the regulations provide with standards (thresholds or benchmarks) of acceptable quantities of pest?**

yes  no

→ If yes, please state which power designed the standards.

**3. What does the building codes provide with to avoid infestation?**

→ Please state in less than one page.

**4. Do regulations exist requiring the rodent proofing of new buildings?**

yes  no

**5. Are there regulations regarding the prevention of infestation (for instance: visits by authorities or other institutions)?**

yes  no

→ If yes, please state who supports the costs of this operation (landlords, tenants or public authorities).

**6. Are there specific regulations for passive prevention measures?**

yes  no

→ If yes, please state in less than one page.

**7. Are there other regulations aiming at reducing the risks of pests' infestations?**

yes  no

→ If yes, please state in less than one page.

**8. Which of the following is considered as a pest problem in your area of competence (country, region, city)? If yes, please specify.**

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Cockroaches                               | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Dust mites                                | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Dust mites                                | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Ticks                                     | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Fleas                                     | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| House mouse                               | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Commensal rats-roof rat and/or Norway rat | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Rodents other than house mouse and rats   | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Filth flies                               | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Bedbugs                                   | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Birds                                     | <input type="checkbox"/> yes | <input type="checkbox"/> no |

Human lice  yes  no

Ants  yes  no

**9. Are there regulations imposing to have a pest management plan in place?**

**→ If yes, at which administrative level?**

Cockroaches  yes  no

Dust mites  yes  no

Dust mites  yes  no

Ticks  yes  no

Fleas  yes  no

House mouse  yes  no

Commensal rats-roof rat and/or Norway rat  yes  no

Rodents other than house mouse and rats  yes  no

Filth flies  yes  no

Bedbugs  yes  no

Birds  yes  no

Human lice  yes  no

Ants  yes  no

**10. Do any regulations state that regular pest surveys are conducted to detect infestations?**

→If yes, could you provide with more detailed information.

Cockroaches  yes  no

Dust mites  yes  no

- Dust mites  yes  no
- Ticks  yes  no
- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no
- Human lice  yes  no
- Ants  yes  no

**11. Do any regulations provide with a restricted list of pesticides that can be used to control the following pests?**

- Cockroaches  yes  no
- Dust mites  yes  no
- Dust mites  yes  no
- Ticks  yes  no
- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no

Human lice  yes  no

Ants  yes  no

**12. Do any regulations provide with a list of pesticide which are not allowed to be used to control this pest by professionals?**

Cockroaches  yes  no

Dust mites  yes  no

Dust mites  yes  no

Ticks  yes  no

Fleas  yes  no

House mouse  yes  no

Commensal rats-roof rat and/or Norway rat  yes  no

Rodents other than house mouse and rats  yes  no

Filth flies  yes  no

Bedbugs  yes  no

Birds  yes  no

Human lice  yes  no

Ants  yes  no

**13. Do any regulations provide with a list of pesticide which are not allowed to be used to control this pest by the households?**

Cockroaches  yes  no

Dust mites  yes  no

Dust mites  yes  no

Ticks  yes  no

- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no
- Human lice  yes  no
- Ants  yes  no

**14. Are passive control measures (nets, grids, physical obstacles...) compulsory in some specific housing environment?**

→ If yes, please specify which ones, who checks they are in place, who checks they are maintained.

- Cockroaches  yes  no
- Dust mites  yes  no
- Dust mites  yes  no
- Ticks  yes  no
- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no

Human lice  yes  no

Ants  yes  no

**15. Is pest control and surveillance the responsibility of the public authorities, the landlord, or the tenants?**

Cockroaches  yes  no

Dust mites  yes  no

Dust mites  yes  no

Ticks  yes  no

Fleas  yes  no

House mouse  yes  no

Commensal rats-roof rat and/or Norway rat  yes  no

Rodents other than house mouse and rats  yes  no

Filth flies  yes  no

Bedbugs  yes  no

Birds  yes  no

Human lice  yes  no

Ants  yes  no

**16. Are regulations in place to address/prevent unsanitary and other conditions conducive to pest infestation?**

Cockroaches  yes  no

Dust mites  yes  no

Dust mites  yes  no

Ticks  yes  no

- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no
- Human lice  yes  no
- Ants  yes  no

**17. Do publicly funded insect and/or rodent-borne disease surveillance and detection programs exist?**

→ Please specify.

- Cockroaches  yes  no
- Dust mites  yes  no
- Dust mites  yes  no
- Ticks  yes  no
- Fleas  yes  no
- House mouse  yes  no
- Commensal rats-roof rat and/or Norway rat  yes  no
- Rodents other than house mouse and rats  yes  no
- Filth flies  yes  no
- Bedbugs  yes  no
- Birds  yes  no

Human lice  yes  no

Ants  yes  no

**18. What are the vector borne diseases that are mandatory for notification to Public Health authorities?**

→ Please state.

**19. Is this notification carrying the name and the address of the patient?**

yes  no

**20. Are there epidemiological surveillance mechanisms in place that allow knowing the number of existing or new cases of the following diseases at local, regional and national level:**

Avian Influenza  yes  no

Babesiosis  yes  no

Cockroach allergy  yes  no

Cryptococcosis  yes  no

Dengue fever  yes  no

Dust mite allergy  yes  no

Encephalitis other West Nile  yes  no

Erlchiosis  yes  no

Hantavirus pulmonary syndrome  yes  no

Hepatitis A, acute  yes  no

Histoplasmosis  yes  no

Leptospirosis  yes  no

Lyme disease  yes  no

- |                                       |                              |                             |
|---------------------------------------|------------------------------|-----------------------------|
| Malaria                               | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Meningitis                            | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Plague                                | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Psittacosis                           | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Rabies                                | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Q fever ( <i>Coxiella burnettii</i> ) | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Salmonellosis                         | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| SARS                                  | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Tick-borne encephalitis               | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Toxoplasmosis                         | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Tularemia                             | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| West Nile fever                       | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| West Nile encephalitis                | <input type="checkbox"/> yes | <input type="checkbox"/> no |
| Yellow fever                          | <input type="checkbox"/> yes | <input type="checkbox"/> no |

**21. Are there conscious-raising campaigns aiming at giving information on the risks of pest infestation?**

- yes    no

→ If yes, please state.

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## **PART 8: SOCIAL NET**

***Please give the name, function, e-mail address and telephone of the answerer:***

**1. Is there a registration of the number of households cut off water access?**

yes    no

→ If yes, please state.

**2. Is there a registration of the number of households cut off electricity access?**

yes    no

→ If yes, please state.

**3. Is there a registration of the number of households cut off gas access?**

yes    no

→ If yes, please state.

**4. Is there a registration of the number of households cut off access to emergency communications?**

yes    no

→ If yes, please state.

**5. Is there a registration of the number of households cut off access to local communications?**

yes    no

→ If yes, please state.

**6. What are the actions taken by landlords or public authorities in case the occupants cannot afford to pay for water, electricity or gas?**

→ Please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rationale which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**7. What does the law require in case of an occupier who pays for electricity to his landlords but is cut off electricity because the landlord doesn't pay the bill?**

→ Please state

**8. Is the electricity service interrupted if the electricity bill is not paid?**

yes    no

→ If no, please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rational which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**9. Is the gas service interrupted if the gas bill is not paid?**

yes    no

→ If no, please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rational which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**10. Is the water service interrupted if the water bill is not paid?**

yes    no

→ If no, please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rational which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**11. Is the access to emergency and local communications denied if the telephone bill is not settled?**

yes    no

→ If no, please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rational which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**12. Is it illegal to evict an occupier because the rent has not been paid?**

yes  no

→ If yes, please state under which conditions.

**13. Do regulations exist to protect vulnerable households\* from being evicted?**

yes  no

If yes, please state:

The content of the regulation:

The references of the regulation:

When it has been promulgated:

When it came into force:

The standards that may be referred to in this regulation:

The authority involved in its design, and the rationale which has led to the development of this regulation:

The references of the research institutes and/or professional bodies that may have been consulted when preparing the regulation:

The authorities or bodies in charge of its implementation:

The penalties associated with non-compliance:

A short evaluation of the efficiency of the given regulation:

**\* please specify the criteria for being considered as a vulnerable household**

*Please elaborate on any other specific regulation in your country (or region) that is not covered by the questionnaire and which is relevant to this topic. Please state also if any changes in the mentioned regulations are planned and explain why.*

## LIST OF CONTACTS

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Please provide us with a list of the administrative authorities, research centers, institutes, professional bodies, consulting agencies that you have contacted including the name, function, e-mail address and telephone number of persons with whom you personally got in touch.