3rd European Ministers Conference on sustainable housing

Belgium, 27-28 June 2002

Sustainable housing policies in Europe

Report prepared by
Novem

SUSTAINABLE HOUSING POLICIES IN EUROPE

Synthesis Report on Sustainable Housing Policies
for the Third EU Ministers' Conference on Sustainable Housing
27 and 28 June 2002, Genval, Belgium

Contents

Colophon

This report has been prepared by Novem for the Ministers of Housing of the Walloon and the Brussels Regions

Focal Point	Charles Mertens (in collaboration with Sebastien Fontaine), Ministère de la Région wallonne, Direction générale de l'Aménagement du territoire, du Logement et du Patrimoine, Namur, Belgique

Novem:

Project strategy	Ronald Rovers
Authors	Ronald Rovers, Antoinet Smits, Cuno van Geet, Rolinde Oosterheert, Frank Klinckenberg
Final Editing	Antoinet Smits, Johan Havinga
Consulted Experts	Anke van Hal, Johan Havinga, Minna Sunnika, Birgit Dulski
Photography	Ronald Rovers
Project coordination	Johan Havinga

The Netherlands Agency for Energy and Environment, Novem, P.O. Box 17, 6130 AA Sittard, The Netherlands. Tel.: +31.46.4202202

The Ministers of Housing wish to thank Mr Hubert VAN EYK, (Netherlands Minstry of Housing, Spatial Planning and Environment) for his collaboration in the preparation of the Conference.

Chapter 1. - Introduction

1.1. Sustainable Housing: history and background

Sustainable housing is not a new phenomenon, but rather a time-honoured technique that is making a comeback. Many houses from the past are good examples of what we now call 'sustainable housing', especially when we consider sustainable building to be the logical outcome of building with quality [(1)]. In the past, buildings were designed and constructed within a natural, social and cultural context. Societies were well aware that energy and water had to be conserved and they knew how to recycle materials, mostly for economic reasons.

Nowadays, there is another reason for building in a sustainable way: to preserve the quality of the environment. Today's building methods and our modern standard of living are draining our natural sources and damaging our natural environment. And although we have developed many technical innovations to improve the environmental quality of buildings and dwellings, their implementation depends on successful long-term policies, the adaptation of organisational structures and the inclusion of social and cultural infrastructures.

The political focus on this issue – and the terminology – are based on a report published by the UN World Commission on Economy and Development in 1987. The report – generally referred to as the Brundtland report – was titled 'Our common future'[(2)] and sustainable development has been on the public agenda ever since. It was provided with a regulatory framework by the Rio Declaration issuing from the 1992 United Nations' Earth Summit and by the 1997 Kyoto agreement on the reduction of CO_2 emissions [(3)].

At first, every country focused on its own situation, some more than others. However, thanks to EU programmes and subsidies, more intensified international cooperation and knowledge exchange was initiated some years later. Other initiatives were also taken, such as the Green Building Challenge in which 20 countries are working on new research system for sustainable building (Gbtool), the CIB's International Agenda 21 that deals with sustainable construction, a number of diverse platforms, and the international magazine 'Sustainable Building'.

These and other developments have led to a greater understanding of the concept of sustainable building and to more awareness of sustainable housing, which includes social and cultural aspects as well as resource management and economic restrictions.

1.2. Scope of the relevant policies

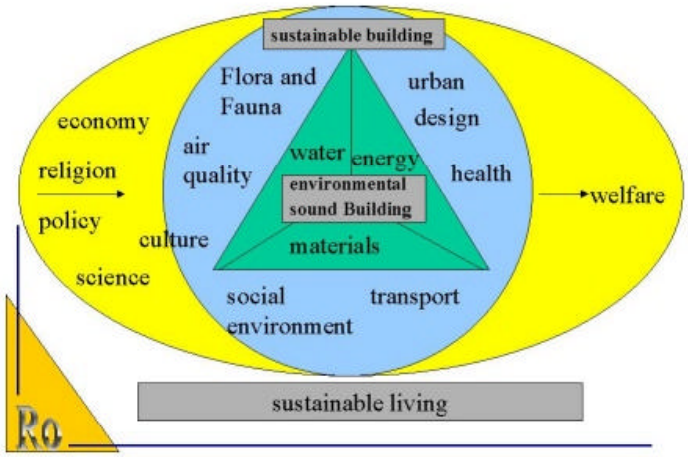
The starting point for the development of a political approach towards sustainable housing is the following general philosophy for sustainable building[(4)]:

(I) The basic resources required to minimise the ecological impact of building and construction activities are energy, material and water. When these cycles are optimised, the negative environmental impact is reduced. The process should be developed and implemented within a sustainable context – that is, first reduce the demand, then supply with renewable sources and, finally, meet the remaining demand as efficiently as possible.

(II) Next, there are certain factors that support the establishment and continuance of a social and durable community in the long term. These also reduce the environmental impact. The emphasis may vary for each country and culture, but these factors mainly involve health, traffic, indoor climate and air quality, flora and fauna, urban design, and the social environment.

(III) The changes required to improve these factors must be instigated within existing political, economic and mental systems, in which religion, economy, common values and science all have a part to play.

Since all of the above factors are interrelated, reducing the environmental load requires political, economic and mental driving forces. After all, economic growth is only beneficial when it assures the survival of a community in the long term and when environmental demands allow the community to proceed without being disturbed by climate, biological changes, the depletion of resources or alienation.



To develop policies that support sustainability in general and sustainable housing in particular, one should start by analysing the optimal resource cycles within the limits set by sustainable factors and individual cultural and social preferences. These analyses will furnish the aims and objectives for policies, and will also demonstrate the economic possibilities of change.

Figure 1: The different aspects of sustainable building in their in-between relationships

Policies and economic intervention can be directed at three levels:

- National level: providing system adaptations and changes, in which a stimulating and facilitating environment is created for sustainable improvement
- Regional/Urban level: developing and implementing directives on infrastructure, spatial planning, water management, architecture, energy supply, and resource management
- Building level: organising and structuring construction activities, the use of materials, product security, and energy use.

Two points to illustrate Sustainable Building in detail:

- Sustainable Building is the logical outcome of building with quality. A building with high quality is a building that is safe and healthy (not just for the people living in it but also for the builders), comfortable (thermal, humidity, acoustic and visual comfort), durable, resource-efficient (in relation to capital, energy, water, spare parts and materials, transportation), adaptable and aesthetic.
- Sustainable Building is not a new technique. It is more a frame of mind, taking into account the consequences of all building-related decisions. In most cases, the technique or know-how already exists.

The Central Market in Brussels

1.3. The Third European Ministers' Conference on Sustainable Housing

The main advantage of gathering 27 European countries, EU and aspirant EU member states is the opportunity it presents to look for common insights and to profit from co-operation by identifying common needs and overcoming mutual barriers. Therefore, while preparing for the Third European Ministers Conference on Sustainable Housing, the strategy was to:

- elaborate the concept of sustainable housing
- compile an inventory of shared interests in the related topics
- open up perspectives in the areas in which common action is conceivable.

The concept of Sustainable Housing

Sustainable housing includes environmentally-conscious building, sustainable building and social housing. Since housing has the most direct relation to the quality of life and is the basis on which people organise their lives, the social aspects are of the greatest importance in this sector. Therefore, a strong focus on social aspects is added to the sustainable building basics. Another important aspect that has to be included is the affordability of houses. This is closely linked with the environmental parameters, however, since operating costs form a large part of the housing budget, which mainly consists of the use of resources for maintenance and energy costs. This leads to a view of sustainable housing from three perspectives: construction, social and economic factors, and eco-efficiency. These three perspectives are also reflected in the definition of sustainable housing as presented by the Belgian organisers of the conference (see Appendix 3).

Inventory on common interest

Based on this concept, the national policies were reviewed in three main areas of interest: environmental building and housing, social topics, and the general support for policies. A questionnaire was developed and sent to all participating countries. Completed questionnaires were returned by 25 of the 27 countries. Two countries were not able to complete the questionnaire but they did provide useful information by sending several reports and/or supplying oral information. The response, together with other available background material on the topics, forms the basis for this inventory.

Opening common perspectives

A cross-section of the information from the survey, an analysis of EU policies and the available knowledge revealed where national policies are diverging and where they are converging. The latter are necessary or desired areas on which common policies and perspectives can be based. This area is depicted in the central overlapping area in Figure 2.

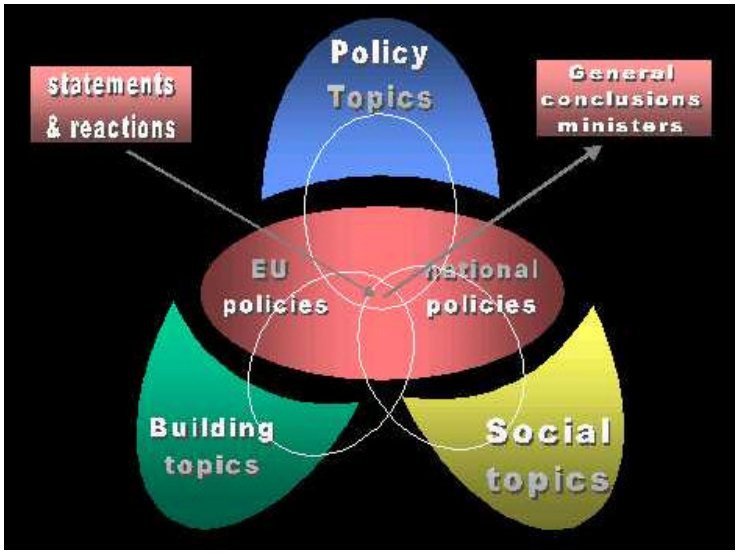


Figure 2: Illustration of the process of defining common policies on sustainable housing (the central overlapping area indicates the Pan-European operating space).

The objectives of the conference are:

- to elaborate the concept of sustainable development in the domain of housing policy
- to promote the implementation of measures within the scope of the concept of sustainable housing as defined by the conference, and apply them to the design, construction and management of new housing and the renovation of the existing housing stock
- to facilitate the exchange of information about policies related to sustainable housing, and to evaluate their implementation.

1.4. Structure of the report

The report mirrors the structure of the policy process. The results of the survey are described and analysed in Chapters 2, 3 and 4, which discuss policy instruments, the social aspects, and the building aspects, respectively. Chapter 5 contains an overview of EU policies related to Sustainable Housing. Chapter 6 summarises the conclusions.

Notes

(1) Beyond the Backyard, Anke van Hal, Review of an international comparison study on sustainable building

(2) Our Common Future, World Commission on Environment and Development, Dr Gro Harlem Brundtland, 27 April 1987

(3) Kyoto Agreement

(4) Sustainable Building, an international overview.

(5) Keynote paper for PLEA 2001, included in the proceedings, Ronald Rovers, October 2001, Florianopolis, Brazil

Chapter 2. - Key Policy Topics in Sustainable Housing

2.1. Sustainable Development in the Housing Sector

Sustainable development has many dimensions, which are usually organised into three distinct groups: ecological, economic and social. All three dimensions are equally important, and they must be targeted when implementing policy. This applies to all policy, of course, as sustainable development affects (or should affect) all aspects of society's activities, but it is especially relevant when discussing housing policy. Adequate housing is a central part of every country's social policy, given that it is a fundamental need for all citizens.

Housing can be directly linked to all three dimensions of sustainable development, as it has an ecological impact (energy and water consumption and the use of construction materials), an economic impact (the construction sector is a large economic sector employing many workers; housing takes up a large proportion of the average family's budget), and a social impact (inadequate housing can affect physical health and, on a larger scale, housing affects social interaction and processes in neighbourhoods).

UN-Habitat (established in 1978 as UN CHS) is an international policy framework for sustainable housing. The 1996 Istanbul Declaration and the Habitat Agenda (which constitute the Habitat declaration's planned activities) are often viewed as important guidelines when considering housing in developing countries, but they are equally applicable to industrialised societies. This was recognised by the European Union and its member states while preparing for the UN Istanbul +5 Conference in 2001.[1] As part of its Habitat approach, the European Union recognises the importance of a people-centred approach to sustainable residential development and adequate housing for all. In densely populated Europe, this especially applies to housing in urban areas, where most of the population lives. The Habitat Agenda explicitly recognises the quality-of-life aspects of housing, and the social and economic dimensions of sustainable development.

Public spaces and squares are key elements in social neighbourhoods (the non-built environment) and function, in a historical setting, as a link to inhabitants' social and cultural perspectives. This square is in Warsaw, Poland.

2.2. Focus on the Built Environment

The existing built environment is the key to sustainable housing. In 2000, the European Union countries housed 377 million people in 171 million housing units.[2] This building stock will be the prime source of housing for the European population for many years to come.
New dwelling production in the European Union is at 1,9 million units per year[3], or approximately 1% of the building stock. Dwellings are being demolished at a much lower rate, although no aggregate figures are available. A simple calculation reveals that the current housing stock will continue to make up the greater proportion of dwellings for more than fifty years, and dwellings yet to be built will constitute no more than around 15% of all houses in 2020 (and a mere 5 to 10% in the Kyoto period 2008 to 2012.

The existing housing stock is not just destined to be the main component of housing for the next half century, it is also one of the larger (and probably the largest) capital stock for the European population. The total capital investment in additions to existing dwellings, refurbishing, remodelling and redecorating dwellings are not registered, but it may well be equal to or greater than the total capital investment in newly-built housing. Preserving this capital and stimulating investments in a sustainable way should therefore be a key element of any sustainable housing policy.

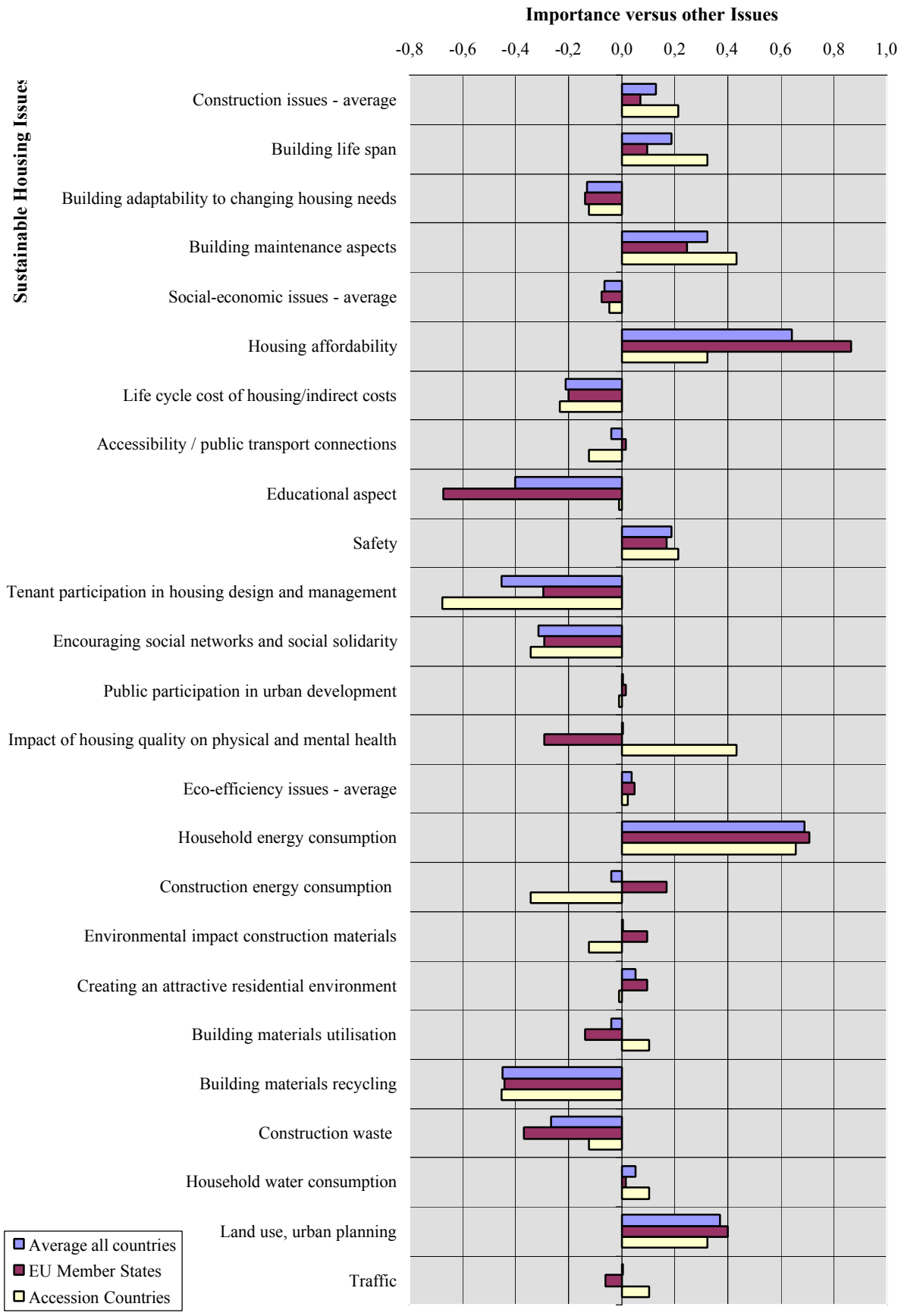
The need to take the existing housing stock as the focal point for sustainable housing leads to a more critical view of the sustainable development issues that must be targeted when designing and implementing policy. These include[4]:

- the ecological upgrading of existing housing (reducing its environmental impact, such as energy and water consumption) and minimisation of the ecological impact when adding new dwellings to an urban area (for example: minimised use of construction materials and land)
- the social aspects, such as improving living conditions, especially in deprived urban areas; accessibility of housing for elderly or disabled people; adaptability of housing for the changing needs of occupants; and the impact of the residential environment on the well-being of residents
- the economic aspects of sustainable housing, especially the affordability of housing, the effects of spatial planning on commuting and necessary travelling, and the lifespan of dwellings (based on the quality of the construction and adaptation to future housing needs)

2.3. Housing Policy Priorities

Housing policy has many dimensions and involves many important aspects. All of these aspects must be reflected in the national and European policymaking process. Moreover, housing policy priorities are not a static entity, because society's priorities are constantly changing in response to developments in the housing situation, economic circumstances and other developments. Governments respond to society's needs and adapt their policies to reflect those needs. Therefore, different European countries have different policy priorities.

An enquiry among the governments of EU member states and accession countries[5] has produced a ranking of the relevant issues. Governments were asked to indicate the importance of the listed issues on a scale from 'not important at all' to 'very important'. The questionnaire included construction, social-economic and eco-efficiency issues. The results have been normalised to reflect the relative importance of an issue to a government, and have been averaged for EU member states and accession countries.


Importance versus other Issues
-0,8
-0,6
-0,4
-0,2
0,0
0,2
0,4
0,6
0,8
1,0
Sustainable Housing Issues
Construction issues - average
Building life span
Building adaptability to changing housing needs
Building maintenance aspects
Social-economic issues - average
Housing affordability
Life cycle cost of housing/indirect costs
Accessibility / public transport connections
Educational aspect
Safety
Tenant participation in housing design and management
Encouraging social networks and social solidarity
Public participation in urban development
Impact of housing quality on physical and mental health
Eco-efficiency issues - average
Household energy consumption
Construction energy consumption
Environmental impact construction materials
Creating an attractive residential environment
Building materials utilisation
Building materials recycling
Construction waste
Household water consumption
Land use, urban planning
Traffic
Average all countries
EU Member States
Accession Countries

The graph clearly shows that two issues – housing affordability and household energy consumption – are considered to be of a very high importance. On the other hand, tenant participation in housing design and management, encouraging social networks and solidarity in neighbourhoods and recycling building materials are considered to be of far less importance.

Construction issues (building lifespan and building maintenance) and land use/urban planning are considered more important than other issues, in both EU member states and accession countries. The impact of housing quality on the physical and mental health of occupants is of relatively major importance to accession countries, but is not especially relevant to EU member states, while construction energy consumption is of little importance to accession countries. The 'educational aspect' of housing (to teach people to live together and to respect their housing and its surroundings) is of particularly low importance to EU member states, but of average importance to accession countries.

It can be concluded that the housing policy measures that are currently being implemented in most of the investigated countries mainly use a 'physical approach', focusing on the supply side. An approach that focuses on the demand side – that is, the end-users, for example, with regard to their need for information and support, their involvement and their education – receives much less attention.

2.4. The Challenge for Sustainable Housing

Sustainable Housing is a key component of European sustainable development. The residential sector has a large environmental impact[6] and has important social and economic consequences. These effects stem mainly from the existing building stock. The environmental, social and economic effects of newly built homes – and certainly of newly built neighbourhoods – are secondary to those of existing dwellings.

Sustainable housing must therefore tackle the development of the existing housing stock: the reduction of its environmental (or ecological) impact and the improvement of its social and economic consequences. EU member states and accession countries have stated that improvement of the energy performance of houses is of vital importance for a sustainable housing policy. High importance is assigned to spatial planning and land use issues. This will require advanced planning approaches, especially in existing urban areas. Other environmental issues are all considered to be important too, and must be taken into account.

However, sustainable housing is not just an environmental issue. Social and economic aspects are equally important and they must also be integrated into a sustainable housing policy. In particular, the affordability of housing, which is partly related to the cost of energy, is a key issue. Improvement of the availability of good-quality, affordable housing is urgently required. Other social issues, such as tenant participation in housing issues, are considered to be of less importance for a sustainable housing policy. Nevertheless, public participation is often regarded as an essential element in a sustainable development strategy – for example, it is an integral part of the Agenda 21 activities.

Indoor air quality and the accessibility of houses for elderly and disabled people have not been included in the ranking of issues in the questionnaire, but they were mentioned several times as important issues. A similar issue involves the adaptability of dwellings to changing occupant needs, which relates to the usefulness of houses in the longer term. These issues reduce the need for new housing and reconstruction, which would seem to be an ideal sustainable development.

A similar challenge applies to the preservation or re-use of older residential buildings rather than their demolition. When properly done (for example, upgrading the housing quality, minimising the environmental impact), this also seems to be one of the keys to sustainable development. Demolition has never been popular in Europe, as it often results in the breaking up of neighbourhoods and in unwanted interference in social interaction. Its prevention therefore not only minimises the environmental impact (of construction), it also prevents a negative social impact.

A little creativity and social awareness can create very attractive living areas out of dreary apartment blocks. Belgian designer Lucien Kroll designed this building in Bethoncourt, France (left: old situation, right: renovated blocks).

There are many technical solutions that can bring sustainable housing closer. A good example of an integrated sustainable housing approach, including environmental, social and economic issues, can be found in the City of Rotterdam. The study 'Sustainable District Renewal in Rotterdam[7] clearly shows that major improvements of up to factor 8 (this implies a reduction of 87.5% in the environmental impact) can be achieved in an existing neighbourhood, while both the quality of life and the economic prospects of the neighbourhood are also improved.

The true challenge will be to implement these and other good ideas throughout Europe's urban and rural areas. This will require intensive work by European, national and local policymakers, as well as the exchange of good approaches, new insights and best practices. A number of best practices in policymaking for sustainable housing are summarised in the following section.

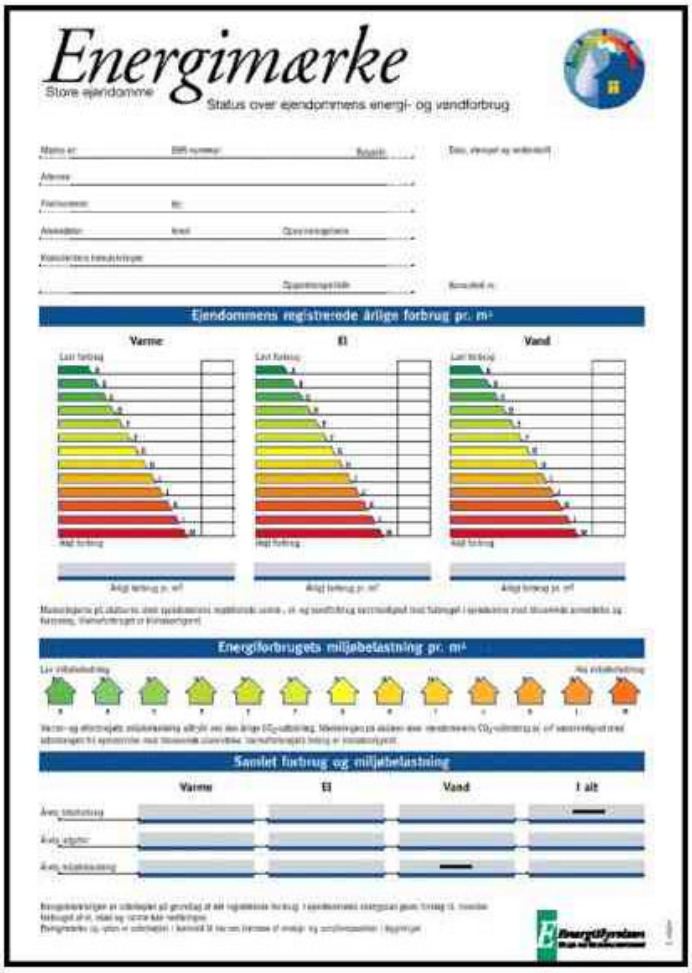
2.5. Best Practices in Policy Development

A sustainable housing policy covers a wide range of issues and can include many ways to improve sustainability. Policy practices in the EU member states and accession countries include a variety of legislation, building codes, incentives, levies, information tools and other useful instruments. Some examples of best practices are described here to illustrate successful approaches in European countries that could be a valuable lesson to all of Europe.

Demonstration projects can be a very effective tool for introducing and testing a new policy. The Zukunft Wohnen project in Das neue Brunckviertel, Ludwigshafen, Germany and, in a smaller scale, Sweden's experience with the BO01 in Malmö prove that integrated sustainable housing development – including social-economic, construction and eco-efficiency perspectives – is viable and manageable within the normal economic process[8]. A combination of market actors, municipalities and construction companies has developed these two new housing areas with a view to a sustainable society. The goals of the projects were to solve a major shortage of dwellings, to resolve local environmental problems and to promote innovative construction techniques. The projects have resulted in lower energy consumption, the use of renewable construction materials and reduced car traffic and more public services in the residential area. The lesson for other countries is that demonstration projects can be applied not just to promote sustainable building among construction professionals, but also as an approach to promote sustainable housing among housing professionals and the general public.

One best practice not specifically linked to any one country involves the European networks on Urban sustainable development that have been set up to support the local implementation of sustainability. Many of these networks have been established – by the United Nations, the European Union and by countries and cities across Europe – to exchange knowledge and experience and to jointly build new approaches to work towards urban sustainability[9]. Some of the networks cooperate, but many seem to be working independently, each focusing on their own – specific but limited – topic. Many European cities and regions participate in networks and pass on their positive experiences to other interested parties. One example of a very active city can be found in Italy, where Bologna has worked extensively on urban planning, traffic management, air quality and energy conservation. The lesson for other European countries is that national activities are not the only issue important to a sustainable housing policy, and local policy processes and local implementation also deserve the appropriate attention.

The mandatory labelling of buildings is a Danish policy that was implemented to improve the eco-efficiency of all residential, public, trade and private service buildings in the country [10]. It is a policy that is targeting the energy and water consumption of both new and existing buildings using a labelling scheme – comparable to the familiar EU labelling of household appliances – applied to all existing dwellings when they are sold to a new owner. This policy has proved to be successful, as it results in significant energy savings, especially in the existing building stock (which is known to be a difficult subject for traditional housing policies). One important lesson for other European countries is the proven ability to inform house owners about the eco-efficiency of their homes and to stimulate them to improve this at a time when house owners have the most favourable opportunities to implement such measures.



Denmark has already had several years of experience with a mandatory building labelling scheme (for water and energy performance).

Taxes and levies are a normal source of income for a government, but they can also be designed as an incentive for sustainability. A good example of this approach can be witnessed in Bulgaria, where a discount in the Immovable property tax is provided for basic housing, with an additional discount for housing for disabled people[11]. Conversely, this tax is increased for non-built up plots in urban development areas, thereby creating an incentive for the improved utilisation of land, a non-renewable source par excellence. The United Kingdom is adopting a similar approach, providing tax relief for property transfers in disadvantaged areas, for cleaning up contaminated land, for creating flats over shops and similar commercial premises, and for converting houses into flats, especially when they have been empty for some time[12]. This all stimulates the availability of housing, especially in areas of high demand, without requiring additional land to be assigned to housing. To further support sustainable developments, the UK government has introduced an aggregate levy on the extraction of virgin construction materials, and a reduced VAT rate on energy-saving materials. The lesson from these examples for other countries is that taxation can be a strong incentive for sustainable housing development, provided that it involves a well-designed scheme that fits the needs of a particular country. A third good example can be found in Belgium, where the federal government grants a 6% reduction in VAT for the renovation of dwellings and for their adaptation to the needs of the disabled[13] .

2.6. Conclusions

1. International frameworks and agreements such as Agenda 21 and the Habitat Agenda, to which Europe has committed itself, include important issues related to the sustainability of housing. These international frameworks are supported by the EU and the European countries, but full implementation of the principles and recommendations of the international framework seems to be a long way off. These principles and recommendations are very valuable, however, not just for the non-industrialised countries in other parts of the world, but also for the European countries. It is therefore expected that improved implementation of Agenda 21 and the Habitat Agenda in Europe would considerably benefit sustainable housing.

2. The existing housing stock is by far the most important subject for sustainable housing development. It will be the main source of housing for many years to come, but also the main contributor to the environmental impact of the residential sector. However, it receives little attention in national policies, which focus more on newly built dwellings. There are nevertheless some good examples of policies affecting the existing housing stock that deserve more political attention.

3. The priorities of national sustainable housing policies vary to such an extent that, at present, a common agenda for sustainable housing in Europe scarcely exists. There are many different views and opinions about sustainable housing, and national priorities seem to be driven more by nationally-oriented housing priorities than by a jointly felt need for sustainable housing. It might be more effective to increase efforts to create a common view on sustainable housing and all its aspects and to share and build upon good practices, rather than the harmonisation of sustainable housing policy).

4. There are many good practices in European countries, regions and cities that require further analysis of their usefulness in other locations in Europe and that could benefit from an increased effort to create a joint (scientific and policy) framework on sustainable housing. A European focal point for sustainable housing policy – not to manoeuvre the issue but to coordinate joint developments and knowledge-sharing with countries, cities and regions – could be a very valuable addition to the existing infrastructures.

5. It is essential for the future progress of sustainable housing that housing and construction professionals and society are informed about its possibilities and effects. Experiences with building labelling and with demonstration projects prove that they can be very effective instruments in achieving this goal. Further development of these tools, in European countries and for Europe as a whole, would therefore seem to be an essential step forward for sustainable housing. In addition, it is vitally important that government policy measures directly aim at the end-users in order to be effective. Awareness and participation of end-users facilitates the implementation of sustainable housing policies.

6. National policies, such as taxation and building codes, have been shown to be effective instruments in implementing a sustainable housing policy. A European framework for this kind of policy may not be in line with the current status of European integration, but further analysis and the sharing of experience with these instruments could be a vary valuable tool for helping countries to implement national sustainable housing policies.

Notes

(1) Implementing the Habitat Agenda, The European Union Experience, Swedish Ministry for Foreign Affairs (President of the European Union), 2001

(2) Housing in the European Union 2000, European Housing Statistics, Ministry of the Environment, Finland (www.euhousing.org)

(3) 1999 data (later aggregate data unavailable)

(4) source: Definition of sustainable housing, Wallon and Brussels region Ministries of Housing (applied to existing housing stock)

(5) This enquiry was part of a questionnaire sent to all EU member state and accession country governments when this report was being prepared. 12 EU member states and 9 accession countries responded to this part of the questionnaire.

(6) For example: The European Commission estimates that 30% of all final energy consumption takes place in the built environment, and a large proportion of this in the residential sector. (Energy Efficiency Action Plan, European Commission DG TREN)

(7) Key to Housing, Sustainable District Renewal in Rotterdam, Interdepartmental Research Programme Sustainable Technology Development (DTO), 1997

(8) Questionnaire on Sustainable Housing in Europe: Sweden, Novem, 2002

(9) From Policy to Reality, An exploration of urban sustainable management in European cities, Novem, 2001

(10) Mandatory labelling of buildings: the Danish experience, Jens. H. Laustsen, Danish Energy Agency, in: Sustainable Building 2001, Aeneas technical publishers, Boxtel

(11) Questionnaire on Sustainable Housing in Europe: Republic of Bulgaria, Novem, 2002

(12) Questionnaire on Sustainable Housing in Europe: UK Response, Novem, 2002

(13) Questionnaire on Sustainable Housing in Europe: Belgium, Novem, 2002

Chapter 3. - The socio-economic perspective of sustainable housing

"Human beings continue to face a compelling challenge; how to make cities fit places in which to live, work and dream…
Projections for the year 2025 show that two-thirds of us will be city dwellers. Already straining under the pressures of meeting the people's needs for housing, jobs and basic services, cities must also address the environmental and social consequences of rapid urbanisation."

Kofi Annan, on the occasion of World Habitat Day [1].

3.1. Introduction

The integration of social housing and sustainable building is new to the majority of countries. However, every country has a social housing policy and many countries have a separate policy on sustainable housing based on ecological efficiency, with the Kyoto protocol as the driving force. A few countries, such as Finland, Belgian Regions[2] and Sweden, have a more integrated approach that also incorporates social, economic and environmental issues.

In several Applicant Countries, policy formulation on sustainable aspects is still in the preliminary stages and a basic awareness is lacking. In practice, however, the environmental pressure is much lower compared to EU countries, and traditional building methods are often environmentally friendly. The different situation creates opportunities for Applicant Countries to develop a sustainable housing policy based on socio-economic aspects. In most EU countries the integration of social and economic aspects provides opportunities to accelerate existing sustainable building policies.

An integrated approach and international cooperation require a stronger focus on the perception of the social dimension of sustainable housing. Some countries interpret this dimension mainly as the economic aspects of housing that relate to environmental issues, some interpret it as the environmental issues that have a social and economic impact, while others consider particularly the more human social values to be an important link to sustainability.

3.2. Key policy issues

When the social aspects are compared in European countries, both differences and similarities occur, but almost all countries face important social and economic problems, especially in urban areas. Common policy issues for almost all countries are unemployment, poverty and social exclusion among certain groups, affordable housing and the integration of different population groups and cultures and related social tension.

The housing policy topics that relate to these social issues are safety, the deprivation of certain urban and rural areas, adequate housing for specific groups such as the aged, disabled and young families and differentiation of dwellings to meet all needs of occupants. Key aspects in this respect are the affordability, and the quality of the buildings and the neighbourhood.

In this respect, the strategy of several countries has changed over the years. The clustering of similar buildings for certain groups has been replaced by a policy to create mixtures of various types of buildings in price, type and quality. This will make them attractive for different population groups and cultures and should improve the quality of the neighbourhood and reinforce social cohesion. [3]

The changing housing needs are especially present in housing for the aged. Europe faces a demographic shift that imposes other demands on buildings. In this context, adaptability and accessibility become increasingly important.

The relation between social housing policy issues and sustainable building is still very unclear in all countries. Although some countries mention relationships between both physical and mental health and sustainable building, experience with and research on this subject are in short supply. Policy integration can provide a synergy. However, to further develop policy in this field, experimental projects and research – including social, behavioural and environmental aspects – is required.

3.3. Social and economic housing issues

3.3.1. Adequate housing for all

Almost every country is faced with the problem of providing adequate (affordable and suitable) housing for all groups in society. Although the origin and the scale of the problem differ for each country, it does not seem to be diminishing in the short term. All over Europe, countries are taking on the challenge of regenerating building stock from the 1950's, 1960's and 1970's that no longer satisfies modern standards. In addition, several countries need to build a greater number of new dwellings.

Housing policies are affected by developments in society. Economies that are flourishing are faced with problems due to rising prices, which are making housing unaffordable for the lower economic classes in society. This is causing social polarisation and social tension. Less prosperous economies have to deal with unemployment and rising dissatisfaction among the population, aggravated in some regions by cultural or religious tensions.

In order to deal with these social and economic problems, especially in urban areas, some countries have developed a neighbourhood-wide approach, which combines the diversification of housing to attract different groups in society with activities to improve the environment, local services, the infrastructure and safety. Although still in the preliminary stages, efforts are being made to integrate economic, social and environmental issues in local housing policies.

The above situations illustrate the challenge facing housing policies to meet future demands and to anticipate trends and developments in society. A number of countries are developing strategies to make dwellings more adaptable to changing demands. These are aimed at facilitating early intervention to prevent the deprivation of communities and related social tensions.

Despite the differences in each country, housing policies are guided by two basic principles:

- The first principle involves allowing each individual to live in a dignified manner. This is the basis for the "right to adequate housing" concept. The opportunity to gain access to and remain in appropriate housing is the result of a compromise between three conflicting objectives: low cost for the occupant, the quality of housing (which bears the cost), and the acceptable level of public subsidy in society.
- The second principle involves providing every citizen with freedom of choice in terms of housing, including status, type and location.

The implementation of these two principles requires a sufficient supply of housing in relation to quantity, quality, location and diversity, while avoiding spatial segregation at neighbourhood level [1].

Example in Belgium: Adequate housing for the disabled [4]

The Walloon housing corporation has created 10 centres with a total of 123 adapted houses for people with major physical handicaps. The disabled are a group in society that requires special facilities to realise the most elementary activities – for example, moving around the house. Adaptations made to the houses include creating more space and enlarging doors for wheelchairs, and installing a control and communication system.

In addition, the "Centres AVJ" (Aide à la Vie Journalière) provide daily assistance to severely disabled people who live in these houses. The services include support with dinner, hygiene and displacements and transport.

The project seems to be very successful. The measures and assistance enable people to live in adapted dwellings instead of in a home for the disabled which facilitates their integration in society.

It is too early yet to measure whether the local community's acceptance of disabled people has increased in the regions where Centres AVJ have been established in the past few years.

Example in Romania, Creating rental dwellings for young people [5]

This Romanian programme aims at building 38,000 dwellings specifically for young people and young families. Modern technologies of light and easy-to-build structures, dry finishing and the prevailing use of local materials are promoted and an attractive atmosphere is created.

3.3.2. The demographic shift

Although not specifically included in the questionnaire, housing the elderly will be a major challenge in the decades to come. Europe is experiencing a significant demographic shift. In EU countries the number of citizens aged 60 and over accounted for 15% of the population in 1960 and this figure is expected to rise to 25% by 2020. A secondary process – called "ageing of the aged" – involves the growing proportion of people aged 80 or older. In countries that still have the tradition of extended families, a high proportion of families are living with and taking care of elderly relatives.

As family patterns evolve towards more nuclear families and greater inter-generational independence, the proportion of single person households among the elderly is rising steadily across Europe. The ageing of the population will produce a demand for change in the provision and use of houses as well as in ancillary services such as social care. New policies are being developed, focusing on "growing old in your own environment". Countries such as France, Sweden, Belgium, Finland, the Netherlands and the UK are stipulating various activities such as involving the elderly in the decision-making process, improving accessibility and adaptability, and the use of information and communication technologies (ICT) to enhance safety and provide health-care services.

Example in Finland: Housing Policy Strategy, June 2000 [6]

A programme to encourage living at home was launched in cooperation with the Ministry of Social Affairs and Health. The goal is to help ageing people to continue living at home independently, and to promote neighbourhood services and independent mobility. The purpose of the programme is to draw up a quantity, quality and funding plan (qualitative, quantitative and economically) for new dwellings, the existing housing stock and the development of services. Such a plan would ensure the accessibility of suitable dwellings and their surroundings.

3.3.3. Upgrading housing and urban regeneration

There is a growing need in European countries for of the existing housing stock to be refurbished. Several countries have initiated certain levels of assistance through national programmes with subsidies and loans, while others have established national specialised agencies. Housing rehabilitation is often undertaken simultaneously with activities aimed at remodelling urban areas that are in decline.

Renovation of an old building in Budapest, Hungary. The building has been re-used and adapted by adding an extra floor (uptopping).

In some cities, the redevelopment of inner-city areas increases the value of land and raises rents in displaced social housing estates in the peripheral areas. Elsewhere, rented houses in inner-city areas are still available to low-income groups. These concentrations of people with a low income, little employment and low-quality housing – often badly served by transport and community facilities – have led to social problems and considerable friction.

In some countries, there is a trend in urban revitalisation plans to solve these problems by mixing dwellings for different income groups in one area and combine them with adequate facilities and infrastructure. In this new approach, existing dilapidated areas are not simply replaced by new buildings. Instead, parts of the existing community and structures are retained, parts are adapted to meet the new demands, and parts are replaced by new buildings, infrastructure and facilities. This concept is based on revitalising areas by retaining the best of the existing structures. New diversity in occupants and cultures and a pleasant and safe environment should guarantee the rehabilitation of the area.

Example in Ireland: Redevelopment of the Ballymun Area of Dublin [7]

The overall strategy for the redevelopment of Ballymun is set out in the Master Plan and involves the social, economic and physical renewal of the area. The strategy involves both replacing existing apartment blocks with housing and creating a vibrant Town Centre and Main Street with a variety of commercial activities. The plan also includes the relocation of important public services to a cluster of civic buildings as well as improved educational and employment opportunities.

Significant emphasis is placed on the provision of community and recreation facilities in order to provide the neighbourhood with its own distinctive identity. These include play areas, football pitches and changing facilities.

3.3.4. Sustainable urban development

The European Union is the most urbanised continent in the world, and urban development and sustainable housing policies are becoming more and more interlinked [2]. The major challenges for sustainable urban development are increasingly seen as complex interrelationships between different types of deprivation, low income, low quality housing and inadequate facilities. It is therefore important for urban and housing policies to not just address the physical characteristics of an area, but also the social and economic aspects.

Within the context of urban development, a need for better coordinated action has been identified for a more human-oriented approach. This also includes the health and well-being of the occupants, appreciation of existing social structures, and the preservation of cultural heritage to make the area attractive to live in.

Example in Spain: Revival of lost building tradition [8]

"Sustainable building in Amayuelas de Abajo (Palencia).

Revival of a lost building tradition through historical construction and community design. The project is characterised by:

- Revitalisation of a depressed area by implementing new residential developments.
- The restoration of the cultural heritage implicitly recognises the social and cultural values of rural areas. This will help revitalise a depressed area. The activities include the renovation of traditional buildings, such as pigeon lofts, wine presses and rural guesthouses.
- The new approach means a shift from “less appropriate” modern architecture to recognition of the implicit social and cultural values of rural areas.
- Environmentally friendly, traditional materials with excellent thermal qualities are combined with new technologies, such as solar energy systems. The traditional building systems are made compatible with modern levels of comfort.

3.4. Social and environmental integration

With just a few exceptions, environmental issues have not been integrated into socio-economic housing policies. On the other hand, the policies that focus on environmental issues such as energy, water and materials include hardly any socio-economic aspects. A few countries especially value the human social aspects, such as social cohesion, in their policies in combination with sustainable housing.

The social standpoint in relation to sustainable housing stresses good social conditions for housing that are not harmful to the environment in the long term. In this context, the challenge for policy makers is to develop win-win policies – that is, policies that result in social, environmental and economic progress all at the same time. This implies that policy measures for improving the socio-economic conditions for residents should be combined with environmental aspects.

Example in Denmark: Environmental accounting for housing [9]

When setting up an eco account homeowners can, for example, calculate their individual contribution to the environmental impact. The eco account produces 5 key figures on environmental behaviour in relation to heat, electricity consumption, water consumption, waste production and CO_2 emissions. The figures are related to the number of residents in each home and the average consumption of a Danish household. The principle behind eco accounts is that awareness raising is combined with social mobilisation. The evaluation of projects shows that the eco accounts can help reduce energy consumption by 10% to 15%.

3.5. International cooperation

The theme of socio-economic and sustainable housing is a broad one and is essentially a new field of activity. Most of the policy issues are on a national level, with options for voluntary cooperation and knowledge exchange. Some policy issues are on a European level or relate to groups of countries, and these provide opportunities for an international approach.

The following are a number of policy issues for international cooperation based on knowledge exchange and capacity building:

- Learning and cooperation programmes (capacity building, environmental education and knowledge exchange programmes) to upgrade the existing stock and cope with urban renewal that deal with financial, social, cultural and environmental challenges.

  An example of this type of cooperation is the Score Programme, Supporting Co-operative Organisation of Rational Energy use (financially supported by the Matra Programme), a Dutch society-to-society programme using a cooperative approach aiming at creating self-supporting structures.

- City-level partnership (city-to-city approaches) – for example, to develop new strategies to deal with urban problems. An example of this type of cooperation is The Sustainable Cities Programme (SCP), a joint UN-HABITAT/UNEP (United Nations Environment Programme) facility for building capacities in urban environmental planning and management. The programme is founded on cross-sector and stakeholder participatory approaches and contributes to promoting urban governance and cooperation in dealing with safety issues.

- Integrating the preservation of cultural heritage into national housing policies and local policies to promote national and local identity, reinforce existing social bonds and establish a secure and pleasant environment in which to live. This could be integrated into both a society-to-society approach and a city-to-city approach.

- International policy topics for monitoring and cooperation to develop indicators to measure developments in both social and sustainable housing. The existing Housing Statistics in the European Union [see also 3] could be extended for this purpose.

- Special programmes for (sub)urban areas to stimulate the quality of life and to reinforce social cohesion. An example of this type of activity is UNESCO's MOST programme (Management of Social Transformation Programme[10]) which promotes international, comparative and policy-relevant research on contemporary social transformations and issues of global importance.

- The provision of databases with best practices and promotion material to local coalitions. An example of an international database is www.efficient-appliances.org with a database on energy-efficient appliances in Europe. Other initiatives for the exchange of promotion materials on sustainable cities are under development.
- The creation of a link between sustainable development and social sustainability in EU policies, especially in the context of urban renewal and regeneration [2].

3.6. Main conclusions of this chapter

1. The questionnaires show widely varying interpretations of the social perspective of sustainable housing. A clear distinction exists between i) countries using social housing as a starting point (mainly Applicant Countries) in which environmental aspects are (to be) integrated and ii) countries using environmental aspects as a starting point (mainly EU countries), which appear to be unconnected with existing social housing policies.

2. To get a better grip on the social aspects of sustainable housing, further analysis is required, including work on human and social capital and the interaction between social, economic and environmental aspects;

3. Based on the foregoing conclusion, there is a lack of uniform methods, terminology and indicators that measure the progress of the socio-economic perspective of sustainable housing.

4. To properly assess the impact of sustainable housing on socio-economic aspects and the impact of socio-economic housing policies on sustainable aspects, pilot projects are an important instrument for analysing strategies and success factors and demonstrating the possibilities.

5. With a few exceptions, the human social aspects of sustainable housing are an undeveloped area in all countries. Topics such as the quality of living and physical and mental health in relation to the environment are a key issue with regard to the well-being of inhabitants, but they are not integrated into sustainable housing policies.

6. Some countries have introduced a shift in subsidies and taxation to create long term structural incentives for sustainable housing. The shift financially favours sustainable housing activities (economically and socially viable in the long term) over environmentally harmful activities (only economically and socially viable in the short term).

7. The social and economic aspects of sustainable housing directly relate to policy issues such as the preservation of cultural heritage, urban management and historical and traditional community values. In practise, these are separate policy areas. Programmes such as European sustainable cities stimulate the integration of these policy topics.

Notes

(1) Implementing the Habitat Agenda, the European Union Experience, booklet prepared under the auspices of a Working Group comprising representatives of the EU member states, Swedish National Committee on Agenda 21, Ministry of the Environment, SE-103 33 Stockholm.

(2) Belgium is a federal state with 3 regions (Walloon, Brussels and the Flemish region)

(3) The Social Dimensions of Sustainable Development, by John P. Martin (Director of Education, Employment, Labour and Social Affairs, OECD), Speech delivered to the Conference on "The European Social Agenda and the EU's International Partners", Brussels, 20-21 November 2001.

(4) Questionnaire on Sustainable Housing in Europe: Belgium, Novem, 2002

(5) Questionnaire on Sustainable Housing in Europe: Romania, Novem, 2002

(6) Questionnaire on Sustainable Housing in Europe: Finland, Novem, 2002

(7) Questionnaire on Sustainable Housing in Europe: Ireland, Novem, 2002

(8) Questionnaire on Sustainable Housing in Europe: Spain, Novem, 2002

(9) Questionnaire on Sustainable Housing in Europe: Denmark, Novem, 2002

(10) MOST (Management of Social Transformation Programme, http://www.unesco.org/most)

Chapter 4. - Environmental Aspects of Building Practices

4.1. General principles of sustainable building

The construction and renovation of buildings implies the use of materials, natural resources such as energy and water, and land and space. In addition, building activities have an impact on the environment in the short and long terms due to the following, for example:

- the emission of gases such as NO_x, SO_2, CO_2 during energy production that contribute to environmental problems such as the greenhouse effect and acidification
- the creation of different types of waste through the use of certain materials for (new) construction and, in the long term, when buildings are being renovated or demolished
- the generation and accumulation of toxic substances such as chemical substances and products
- the use of water and the depletion of water stocks
- the change in the landscape and the availability of land and space.

When defining the principles of sustainable building, it soon becomes evident that sustainable building encompasses a wide range of issues and involves long time lines, of which the environmental issues are the core elements. In order to benefit both current and future generations, the ultimate principle and challenge for environmentally conscious building should be to close the cycles of resources such as energy, water and materials and minimise the volume of these cycles[1].

A number of technical and other measures that support environmentally sound building practices are currently available. Thermal insulation is a simple but crucial measure, as is the replacement and maintenance of heating installations. In some countries, the materials have been improved by imposing stringent waste standards and introducing a labelling system and/or lists of environmental-friendly materials. To a large extent, the use of water is related to local and regional circumstances. However, water conservation is a general and preferred policy.

The questionnaires show that all of the countries are attempting to promote environmentally conscious building, but priorities and ambitions differ for each country. Factors such geographic and climatic conditions, population density, national economy, institutional setting and previous experience with housing and energy policies evidently play an important role. Many countries are committed to the principles of environmentally conscious building without indicating the level of their (measurable) aims in its actual implementation. During the last decade, the member states tended to focus more on new buildings, whereas the applicant countries also focused on renovating their existing building stock. In the sustainable building policies of individual countries, energy appears to be playing a major role at the moment, although there are also many activities to reduce the consumption of materials and water. Waste is not really a priority in national policies, neither in the EU nor in the applicant countries, except for Germany and The Netherlands.

4.2. Current Building Practice

A comparison of building practices in all of the countries results in differences as well as similarities. In all countries, the Kyoto protocol appears to be the driving force behind more specific efforts to enforce energy conservation. All of the countries regard housing affordability and household energy consumption as major aspects of a sustainable housing policy. In addition, almost all countries give less priority to public and tenant participation in housing design and management and in urban development, the encouragement of social networks and social cohesion in neighbourhoods. Viewpoints regarding the long life cycle of buildings and building adaptability vary among the countries.

In all applicant countries, the social and economic aspects of sustainable building are the main focus. Most of them are experiencing an urgent need to increase the following:

- the quality and affordability of the housing stock and reduce the cost of living in the total budget by reducing energy use
- the number of houses available for their inhabitants
- the energy efficiency of the existing building stock.

The applicant countries are focusing mainly on the energy aspects. Many measures are being implemented to renovate the existing building stock, conserve energy through insulation, install energy and water meters, and replace and more efficiently maintain heating installations. Unfortunately, one significant bottleneck for the these countries in their efforts to reduce energy consumption in buildings is their lack of financial resources and knowledge. Many instruments have been developed by the applicant countries to overcome the financial barriers – particularly for low-income groups – but the requisite investments remain high nonetheless. As a consequence, the huge potential for energy conservation in these countries is only being utilised on a small scale. Health problems are rarely considered in the building sector and the separated collection of waste has scarcely been developed in most of these countries. A few countries, such as Slovenia, are focusing on and promoting the use of renewable energy sources, but this is still an exception. However, CEE countries do regard environmental education as very important.

In most member states, the environmental and economical values of sustainable building are well represented. Building codes, minimum efficiency requirements, thermal insulation requirements and regulations on materials that affect the indoor air quality and health exist in most countries(2). The environmental aspects of building materials receive more attention in EU countries than in applicant countries, although there is no standard tool available for the environmental assessment of the use of materials. Only few countries, like Finland and The Netherlands, are working on a practical and widely applicable environmental assessment system, including the resources of energy, water and materials. When it comes to energy, Denmark has a mandatory labelling scheme up and running (including water). Some countries cite voluntary agreements with the building sector on the use of materials, or with housing corporations on improving the energy efficiency of their building stock. In addition, the EU waste disposal directives seem to have stimulated the sorting and recycling of waste(3). However, the focus in the EU countries has been limited to new buildings for a considerable time. It is only recently that EU countries acknowledged that the existing building stock is the main challenge for sustainable housing and shifted their policy focus to the existing building stock.

4.3. Successful approaches

The questionnaires provide many examples of successful approaches to sustainable building. Several approaches are described in more detail below to illustrate what sustainable building means in practice.

Adaptation and Repair scheme, Housing Authority, Malta

Low-income families and other vulnerable groups in society such as elderly people and single-parent families lived in areas where out-migration was intensive and the quality of the buildings was poor. The authorities wanted the families to remain in their homes and therefore offered them help in organising repairs on their dwellings. The funds came from the national budget, and direct grants were issued to the households upon receipt of the renovation bills. A list of inadequate amenities was drawn up. The project appears to have been successful, helping more than 1700 families over a period of 5 years. This prevented further deterioration of the building stock, increased demand for new housing , pressure on land and affordability of housing. However, in a follow-up to the project, fieldwork will be increased in order to more effectively reach the most needy households and provide tenants with more information and training on how to access social housing funds and safeguard their properties.

Refurbishment of Large Prefabricated Apartment Blocks in Brno, Czech Republic

This project involved close cooperation between the city of Brno as owner of most of the homes, the city district in charge of the estate, private developers, tenants and the competent ministries. The aim was to refurbish a housing estate that includes a number of large-scale prefabricated apartment blocks. Measures implemented included confirmation of defects in the original prefabricated structures and a reduction in the demand for thermal energy (by up to 40%) through heat proofing and other measures. A gable roof design dealt with the problem of leaks encountered in most of the flat roofs of the prefabricated buildings. The project resulted in "a new housing estate", or rather a new part of an old estate, featuring an attractive aesthetic appearance with uniform features. With regular and careful maintenance, the expected life of the houses is 50 years until the next required overhaul. A major reconstruction was accomplished with a 40% reduction in energy requirements, while tenants continued to live in their homes during the refurbishment. With some minor variations, the approach can be used for other housing estates with prefabricated buildings.

Low-Energy Building Cluster, Tyrol, Austria

In Austria, a large number of private firms in the construction industry and the Austrian Federation of Industry Tyrol established a private Association in 1999 with the aim of accelerating the market diffusion of low energy buildings. To achieve this objective, activities are being implemented in the following areas:

- standardisation of products among firms (Passive Houses)
- development of innovative products and services (contracting)
- motivation and training of employees (and firms)
- amendment of public regulations and general market conditions in favour of low energy building
- clustering of independent firms into teams.

The society is financed through membership fees, private and public sponsoring, and credits from the Tyrol Future Foundation. The society opted for a bottom-up approach, following a top-down analysis of the regional economy that defined the economic priorities for Tyrol. The approach has been successful over the past years and comparable networks have been established all over Austria. The main problem confronting the Association is the difficulty in securing a specific economic advantage for the members to justify the annual membership fee.

Targoviste City in Romania

Rehabilitation of homes for single persons and low quality apartment buildings in Targoviste City

The revitalisation of apartment blocks has extended the life span of existing building blocks and halted deterioration. The quality was improved by protecting the blocks against seismic risk and improving thermal insulation. The heating system was individualised, thus creating energy autonomy. Evaluation shows that the price of dwellings per square meter is considerably lower than prices of similar new buildings. the success of the project can be explained by the revitalisation of the area and the achievement of higher economic efficiency.

Energy Savings in Housing, Baltic States

This project involved the three Baltic States and was carried out jointly by the relevant ministries, a building consultant, and the Danish Building Research Institute. The project was divided into two parts:

1. The performance of energy audits on different residential buildings, representing different ages and building construction methods. A catalogue of energy-saving measures was prepared on the basis of the outcome.
2. The design and implementation of a demonstration project in each Baltic State, including monitoring and analysing the performance of the improved building. In addition, a training programme for three local participants was implemented in Denmark.

For the heating installations, four improvements were implemented in the buildings:

- installation of automatic temperature control
- balancing of the internal heating system
- installation of thermostatic valves
- consumption-based metering.

In each demonstration building, the new heating system has improved utilisation of the heat supply. Furthermore, the automatic controls have been effective during the periods in which there is free heat supply from solar energy at the beginning and the end of the heating season. The tenants' energy bill for heating and hot water was reduced by approximately 33%. Payback periods differ for each country, varying between 6 and 10 years.

The pilots described by applicant countries show that a major energy saving potential is available in the existing building stock. However, most pilots were only possible with the financial support of the government of another country or the EU. The same applies to the member states, although the financial barrier is less severe in these countries. However, it can be concluded that bridging the gap between a unique and successful demonstration project or pilot and follow-up activities on a large scale is a major challenge to any government.

4.4. Integrating different functions

The answers to the questionnaire show that sustainable building can integrate and therefore stimulate several issues simultaneously. A good example of this is the insulation of apartment blocks that reduces energy consumption and energy costs for individual households. In some cases, the insulation can also significantly reduce noise levels in these low quality buildings. The same applies to the reduction in energy requirements. In many countries, it results not just in a reduction in CO_2 emissions but also in reduced imports of fossil fuels. Lithuania describes this as an additional objective, and hopes it will delay the need to built new generators. A final example involves retro-fitting old, existing houses. Renovating these houses reduces energy costs and also reduces the demand for energy. But it also halts the process of dilapidation in existing buildings and forestalls any increase in the demand for newly built houses and therefore in higher prices. Furthermore, renovation can improve the indoor air quality and thus have a positive impact on human health.

Local municipalities should aim for an integral approach when cooperating with housing corporations and residents, since it is evident that more can be accomplished when objectives from the social, economic and physical sectors are combined into one integrated programme or approach.

4.5. Future challenges

The questionnaires provide quite an accurate overview of the future policies that individual countries are planning to develop and implement. Of course, different countries will take different routes at different speeds, but some aspects appear to be common challenges in all countries.

Every country considers regulation and legislation to be an important instrument that should be enforced. Some countries, such as Malta, still have to establish a legislative framework for building regulations, minimum efficiency requirements and waste disposal. Others, such as Sweden, already have a well-developed legislative framework but acknowledge the need to extend this framework to the existing building stock and/or to define stricter efficiency standards.

All of the countries acknowledge that the existing building stock is a challenge in many respects. The renovation of existing houses can support the sustainability of housing and neighbourhoods. It will increase the affordability and quality of housing and can reduce the environmental impact of the consumption of energy, materials and water.

The richer European countries have more environmental policies and regulations than the less rich countries. However, the latter group has a more sustainable approach to several aspects of sustainable building, as was already concluded in the report for the 1997 conference on sustainable building, a conclusion which still looks viable. The latter countries remain more locally oriented in their building activities, and they apply methods and techniques that correspond with their society's cultural background and natural resources. The challenge for the pre-accession countries is not just to adapt the policies and legislation developed by the EU, but also to list and secure the existing sustainable approaches and methods. The challenge for EU countries is to cooperate with the pre-accession countries and to exchange knowledge about sustainable housing.

When environmental conscious building policies in various countries are viewed as they evolved over the last decade, it is clear that instead of product innovations there is more need of process innovations that will help to implement the existing knowledge processes and innovations. As a consequence, they need more policies that facilitate changes in processes. This is a challenge on both a national and an international level.

More attention needs to be paid to closing the materials cycle in the broadest sense. The challenge, both on national level and EU level, is to develop a practical environmental assessment system and to introduce a labelling system that supports the practice of sustainable building.

4.6. Main conclusions

1. Health, notably a good indoor climate, is an opportunity and a driver for sustainable building. Insulation measures do have an impact on indoor climate and can increase susceptibility to allergies. The health item therefore has a major potential for cooperation, but is not yet frequently used.

2. In addition to minimum standards in relation to main pollutant resources, the European Union and its member states provides a wealth of knowledge on the development of national and regional environmental conscious building policies. However, the information is neither streamlined nor easily accessible.

3. All policies could encourage energy efficiency, since improved energy efficiency is recognised as a key factor for economic development and for improving affordability by decreasing the total housing costs and achieving social objectives and long-term environmental quality objectives.

4. Due to a lack of an agreed method for the environmental assessment of the impact of the use of energy, water and materials, national policies differ considerably and knowledge is limited. Furthermore, different countries use different terminology for issues concerning the recycling of waste materials and products. The industry is confronted with different legislation, based on different information and databases, and countries are developing their own tools for the same products to be assessed. Materials and products in particular are the main asset in free trade and cross border activities within the EU. In order to harmonise the different national approaches, a strong supra-national effort has to be made.

5. Sustainable housing activities can be very profitable for businesses, but they require more favourable conditions. For this purpose, the Green Public Procurement promises to be a useful tool. Furthermore, tax measures (on labour, product resources and appliances) that financially benefit environmentally conscious activities over environmentally harmful activities are also regarded as effective tools.

6. Demonstration projects are being implemented in many countries. However, the focus is still on new buildings, and the lessons being learned from the many demonstration projects are not being systematically documented and disseminated.. Demonstration projects should be more systematic in their approach so that lessons can be learned and measures can become part of normal daily practice for all. In addition, attention could be shifted towards demonstration projects aimed at existing buildings.

7. There is a need to identify how obstacles to policy reforms can be overcome. The EU should particularly focus on integrated policy instruments beneficial to both social and environmental aspects and on opportunities and options for reducing environmentally harmful subsidies.

Notes

(1) Policies for environmentally sustainable buildings, synthesis report of the OECD sustainable building project, OECD, Taka Hasegawa, Paris, April 2002

(2) Environmental Regulations for Building Materials in several European countries, Ministry of VROM, The Hague, The Netherlands, 1997 (second Ministers' Conference)

(3) Policies and regulations for sustainable building, a comparative study of five European countries, M. Sunnika, Finland/Delft, The Netherlands, 2001

Chapter 5. - EU policies on Sustainable Housing

5.1. Introduction

Sustainable development is a priority on the European Union's political agenda. The 1997 revision of the European Union Treaty, also known as the Amsterdam Treaty, has led to greater efforts in the EU Directorates to incorporate sustainability into the development and implementation of policies in their areas of responsibility. Legislation and standardisation are core activities, supported by various programmes for research and development, deregulation and the transfer of knowledge.(1)

Key elements related to building and sustainability in general EU policy include the competitiveness of industry, strong economic and social cohesion, quality of life issues and sustainability in general. A number of principles and guiding visions related to these topics are being developed, and these can serve as the basis for the various policies and legislation.

The aim of the EU policy on energy is to reduce CO_2 emission in Europe and decrease the EU's dependence on energy. The Kyoto treaty is a guiding principle for energy measures and the introduction of renewable energy. Another important area of focus for the EU is the 'materials' resource. The 6th Environmental Action Plan describes this policy as: 'to ensure that the consumption of resources and their associated impacts do not exceed the carrying capacity of the environment, and to break the links between economic growth and the use of resources ".

The aim of the EU policy on waste is to reduce the amount of waste and stimulate the use of recycled materials. The producers of materials are held responsible for the breakdown of a product until the end of its life cycle. Principles that apply include "the polluter pays" and 'Integrated Pollution Prevention and Control'.

With regard to the third main resource, water, the basic principles of the policies and directives are to prevent further pollution, maintain the quality of unpolluted groundwater, restore – where appropriate – polluted groundwater, and prevent the over-exploitation of groundwater resources. More specific points of focus include a reduction in water consumption, the protection and use of groundwater, and less cross-border pollution in the air and in the waterways.

These three resources – energy, water and materials – are also the core elements with regard to reducing the environmental load of building activities. In addition to these key elements, there are other factors linked to sustainability, such as health ("to reduce the health risk to the population"), nature ("the protection of natural habitats and the flora and fauna that inhabit them"), and air pollution. There are several approaches for horizontal themes, such as that for products: "to provide the basis for the preparation of harmonised standards at European level; to achieve the greatest advantages for a single internal market (…) and to ensure conditions for a harmonised system of general rules in the construction industry".

The Directorate General for the Environment has also drawn up policies for land use planning. The aim of these policies is to ensure ecological coherence and to maintain the landscape features important to wildlife.

Though the EU has no mandate for housing policies, all of the above-mentioned factors affect the building and housing sectors in the member states.

5.2. Activities in the European Commission's Directorates General

In the field of building and housing, several Directorates General of the European Commission play a role. The following is a short overview is giving of their main activities. Besides EU-related activities, globally active organisations are involved in sustainable housing. The most important organisations and their activities are listed in Annex 4.

DG Enterprise

DG Enterprise is responsible for construction and has taken the lead in developing a strategy towards sustainable construction practices. Since 1997, the department has focused on competitiveness in the construction sector. This covers several issues, the main issue being sustainable building with the focus on construction. A permanent working group, in which 18 industrial partners, 9 member states and 4 EU directorates are participating, has developed strategies for four major topics:

1. environmentally friendly materials
2. energy efficiency in buildings
3. construction and waste management
4. whole life costing.

Recommendations on the first three topics have already been published[2] , while the fourth is still in progress. The working group has also developed an agenda for sustainable construction in Europe. Its main objective is to review current developments in the member states and promote a common agenda that serves as a focal point for the development of national plans and strategies.

The main recommendations for the implementation of sustainable construction are:

- Establishing guidelines for LCA and LCC
- Sustainable procurement
- Sustainability performance indications
- Encouragement of national plans and European programmes
- Development of software tools
- Education and awareness
- Research and development.

DG Energy and Transport

Because of its potential impact, energy has been one of the main areas of focus in EU policy on sustainable housing for some time. The principle aims are the reduction of energy consumption in the built environment, which accounts for one-third of all energy consumption, and the diversification of fuels in the transport sector, 89% of which is currently dependent on oil.

The actors that must become involved in the construction sector policy are numerous and various. They include planners, decision-makers, designers and builders, but also the manufacturers of technical appliances. In TREN, buildings are considered to be the central element of the various policies. The main aim is to turn buildings and other areas from main energy consumers into producers of energy. It has also been acknowledged that the design should contribute more to the overall goals of society and of the relevant policy.

In DG Education and Culture, which is not dealt with separately in this section, architecture is a major department. However, this department's activities exhibit no connection whatsoever with sustainability.

The launch of a new directive on the Energy Performance of Buildings is expected towards the end of 2002. This directive relates to both new and existing buildings. If buildings and dwellings are forced to meet an energy performance standard, a substantial increase in energy saving measures can be realised, especially when combined with (national) financial incentives and subsidies.

TREN's key activities also involve renewable energy sources. The introduction of RES into the built environment is high on the agenda, and the ultimate goal is to have communities supplied with 100 percent renewable energy. A key activity is up and running, although at present it just involves drawing up an inventory of nationally established initiatives and demonstration projects.

The use of appliances is even more important than minimum standards in construction or in the appliances themselves. A directive has already been implemented on the labelling of electric appliances. However, the use of appliances during their lifetime is a crucial factor when actually conserving energy. This is leading to a greater focus on the behavioural aspects of residents. Technical solutions related to behaviour (such as a sensor for lighting in rooms), and cost-effective measures are currently being explored. The various labelling directives enable the public to choose energy-efficient options. A modification is being prepared that will deal with the standby function, which is a relatively new feature that consumes a significant amount of energy. There are directives both for electrical and thermal appliances.

Further work is being carried out to modify the framework of directives on labelling.

DG Environment

With regard to legislation, until now the Directorate General for the Environment, which is responsible for all generic environmental issues, has been the most influential directorate with regard to Sustainable Building and housing. Directives have been issued for air, noise, water, and others. Three of the seven thematic strategies defined in the new 6th Environment Action Programme (6 EAP) are expected to relate more directly to sustainable housing: the sustainable use and management of resources, waste recycling and urban issues. The strategies for these themes, including specific means and measures, must be developed within the next three years.

DG Environment considers renovation to be the most important building topic for this century. Its Urban Strategy will emphasise the maintenance and renovation of old houses and neighbourhoods in a sustainable way, but more as an urban issue than as a construction issue. There will be a strong focus on both human behaviour and bio-diversity in neighbourhoods and cities.

The current use of resources means that future generations and developing countries will be deprived of their share of the planet's scarce resources, and its impact may cause serious damage that far exceeds the capacity of the environment. The objective of a strategy for the sustainable use of resources is: "to ensure that the consumption of resources and their associated impacts do not exceed the carrying capacity of the environment, and to break the links between economic growth and the use of resources." The waste recycling strategy theme aims at achieving a substantial reduction in prime material. The general philosophy is not just to use less, but also to use better. Activities related to resources and waste are not specifically directed towards building, but they will provide general approaches and measures.

The Green paper on Integrated Product Policy will lead to several new initiatives that have a major influence on building. One very interesting follow-up will be Green Public Procurement. Other areas are currently being studied – for example, environmental product declaration schemes.

Two other fields of activity in DG Environment are also relevant to this report: the Eco label and EMAS strategies and tools. In sustainable building, the Eco label can play an important role in promoting and stimulating the demand for environmentally friendly housing and building products and services. It can also be used as reliable benchmark for public procurement. At present, the Eco label is already being used for several products related to housing and buildings, such as "Hard floor coverings" and "Indoor paints and varnishes". Others, such as "Heating systems", "Building components", "Building services", "Insulation", "Furniture", and "Air conditioners", are being considered as possible additions to the future Eco label product group. EMAS is an effective instrument for managing the environmental impact of companies and other kinds of organisations (public sector, NGO's, etc.). At the moment, the sites and buildings of approximately 4000 organisations across Europe are being managed using the EMAS environmental management scheme. This includes 30 construction companies and their services.

One specific aspect that is considered to be missing from all activities throughout the directorates is a clear focus on the behaviour of people.

DG research

DG research is mainly concerned with EU-wide technical and scientific research. Every four years, the framework programmes provide the basis for projects related to different themes. The 5th Framework Programme that has just been completed consisted of two main activities that relate to sustainable building and housing to a certain extent:' The City of Tomorrow and Cultural Heritage' and 'Sustainable rehabilitation of large post-war housing estates and their integration into the urban network'. Programme 3 on Competitive and Sustainable Growth includes Key Action 1 on Products, Processes and Organisation.

The Key Action "The City of Tomorrow and Cultural Heritage" includes a specific priority topic on the sustainable construction and reconstruction of large groups of buildings and infrastructure. A cluster of four projects is now up and running, dealing with sustainable buildings and neighbourhoods. Together they should constitute a major step forward in establishing and promoting sustainable building and renovation practices in the EU.

The work programme of Key Action 4 identifies the "sustainable rehabilitation of large post-war housing estates and their integration into the urban network" as a particular target. This topic is addressed by the largest project in SUREURO (Sustainable Refurbishment Europe) which is led by 7 Housing Corporations. They aim, together with their research partners, to develop practical management tools for integrating sustainable development and tenant participation in their refurbishment management process, while maintaining normal and affordable costs for tenants.

Other projects in the cluster aim at developing tools or deliverables that will help harmonise the approach to "best practice" for sustainable building (PRESCO, Practical Recommendations for Sustainable Construction) and to measure the sustainability of urban construction and renovation projects (CRISP, Network on Construction and City Related Sustainability Indicators/ Indicateurs de Développement Durable pour la Construction et la Ville). A further project (HQE²R, Sustainable renovation of Buildings Research project) aims at developing a methodology for the sustainable renovation of buildings to ensure a positive impact on the quality of life in the whole neighbourhood.

A key characteristic of these projects is that they deal with the environmental and social aspects of sustainability in an integrated way. In addressing the sustainability of the built environment, they consider more than just the building fabric and deal with it holistically within the context of the neighbourhood and the urban environment. Several other projects dealing with renovation strategies for housing are still under negotiation at present but are due to start later this year.

In the context of Growth, the objective is to develop the necessary technology and scientific knowledge to respond to the problem of achieving sustainable practices in this domain. One background requirement is the shift from the current prescriptive regulations to performance-based regulations. A network project recently started, led by the CIB, called Performance Based Building (PEBBU). Performance-based regulations provide space for similar parameters to be addressed in different regions, at different times and under different climatic conditions, and they help innovation find its place in the market.

Another key issue for sustainability is the adoption of life-cycle approaches in design, construction, maintenance and demolition practices. Owners of buildings and structures share the point of view that we cannot have sustainability without considering whole life-cycle cost and performance. On top of existing national activities, three RTD projects have been set up to achieve this aim: Lifecon, Eurolifeform, and Investimmo. The Lifetime Network is currently being prepared to coordinate this effort, exchange information, and create synergy among the various actors in the EU. The launch is expected in June 2002. This network will concentrate on developing standards and methods, databases, and dissemination through training, etc.

It must be realised, however, that Research has its own scientific and technological responsibility. It does not just involve research to support the need from other directorates. Moreover, the projects depend heavily on what the market (read scientists and engineers) can come up with. Although there is network cooperation and common discussion at this level, in general there is a lack of any guiding principle – especially on housing, for example. This lack is all the more evident given that experience has shown that national programs for new research and market development projects, and co-financiers of EU research, still work 'nationally', while the industry, as is evident from the networks, prefer to work internationally.

The 6th Framework Research Programme (the first call is expected in October 2002) adopts a more general approach and focuses on very large integrated projects. Sustainable building is not a specific topic, nor is housing, but sustainability is a major criterion for all the work, for example, on products and materials. Life cycle, the production process, and the system approach are all major areas of focus.

Old (right) and renovated (left) apartment blocks in Bratislava, Slovakia

The Directorate of Social Affairs

For the first time in the history of the EU, the Directorate of Social Affairs has addressed the topics of poverty and social exclusion in order to strengthen the European social model. The initiatives taken to gather and exchange knowledge on the different approaches for the risk groups and their direct environment has strong links with sustainable housing. It involves a large number of factors such as the affordability of houses, the environmental and social development of neighbourhoods, and citizen participation. Another factor that links the Directorate of Social Affairs to sustainable housing is that, amongst many other things, this department is responsible for inclusion of the applicant countries, all of which will need an extra stimulus to develop and implement sustainable housing policies.

5.3. Ongoing work and legislation under preparation [3]

Enterprise	• Whole-life costing working group • Eurocodes that will make up a set of 58 standards. These codes must provide structural rules for the design of structures (building and engineering works) and a number of structural products.
Energy	• Directive on the energy performance of buildings • COM(2000) 279 final, on promoting electricity from renewable sources • COM(2000) 247 final, Action Plan to improve Energy Efficiency in the European Union • COM(2000) 769 Green Paper, Towards a European Strategy for a Secure Energy Supply
Environments	• Green paper on an integrated product policy • Recycling strategy & accompanying measures • Resource strategy & accompanying measures • Urban strategy & accompanying measures, recommendations • Proposal on noise pollution 2000/0194(COD)
Research	• 6th framework research programme • Upcoming conclusions and recommendations from: o PRESCO o CRISP o Sureuro o Lifecon o Eurolifeform o Investimmo
Social Affairs	Community Policies to fight social exclusion (Lisbon decree)[4]

5.4. Main conclusions

1. The revision of the Amsterdam Treaty has led to an intensified policy on sustainability inall sectors for which the European Union is politically responsible. The more generic approach in the directorates means that the sustainable aspects of building and housing are receiving more general attention. In itself, sustainable housing is not really an issue – it just shows up in certain urban themes or as a subject for a few isolated projects in research areas. The only exception is the new directive for the Energy Performance of Buildings.

2. On the periphery of these separate actions, however, certain shared philosophies and opinions are evident among the people involved in the various directorates on how to proceed with Sustainable Building and housing. These include a strong focus on building level with the existing buildings stock as a starting point, the whole life cycle approach, preparation for the introduction of renewable energy, the need for more focus on neighbourhoods, and consumer behaviour and bio-diversity in the built environment. These shared opinions are closely linked to the latest insights in the Expert Networks, and they should be documented and used as general background conditions for new activities.

3. DG Enterprise's action plan for construction should act as a basis for building upon a more broadly sustainable building action plan, working it out in detail for housing policies. With this conclusion in mind, and the consequences of the social inclusion document it would be even worth thinking about considering setting up a Sustainable Housing Council. This could lead to a policy on Sustainable Housing, targeted to integrate and manage related aspects of housing, such as sustainability, social and cultural aspects and design.

4. Key actions in one of the directorates should act as a guide for new initiatives by other directorates. Moreover, a common vision or policy on sustainable building and housing will facilitate the realisation and stimulation of this objective. Although it is generally recognised that designers should contribute more to overall goals of society and policy, this is not covered by the activities of any commission.

5. Next, implementation of the intensified policies, considering the strategies that the DG Environment is developing, requires additional organisation of knowledge and information flows between the European Commission and the EU member states on the issue of sustainable building and housing. At the same time, the intensified European policies on the areas related to sustainable building and housing, and their hidden effects in generic activities, require the committed participation of all sectors involved.

Notes

(1) The information in this chapter is partly based on the results of an inter-directorate workshop on EU Sustainable Housing policies, organised as part of the Novem SCORE activities, supporting CEE countries in establishing Sustainable Building policies.

(2) http://europa.eu.int/comm/enterprise/construction/index.htm

(3) "EU-legislation & Sustainable Building", Score publication 2002

(4) Community Policies in support of employment, inter-Directorate report in which views and policies on social inclusion are covered; http://europa.eu.int/com/employment

Chapter 6. - Overview & Concluding chapter

6.1. Overview

Looking over the material provided by the 27 countries – supplemented by research from workgroups, networks, EU Directorates and other international organisations – it seems as if every subject relevant to sustainable building or housing is being addressed. This shows that there are several common starting points for sustainable housing policies in Europe. Moreover, an analysis of the information from different angles shows that common solutions and initiatives on several topics can be defined. However, there is a need for clear definitions and strategies to develop an integrated approach for the housing sector. There are many different opinions about how to proceed with this, and there are a lot of common sense ideas about the route to be taken. This chapter highlights these issues, and ends with the main conclusions.

6.2. Environmental aspects

Energy

Energy appears to be the most dominant topic in the Sustainable Building subject area. Energy efficiency in new buildings is a well-covered area in all national policies, and the subject receives adequate attention in EU/ activities. Moreover, the EU directive on performance indicators for buildings is the first step towards harmonising and directing the energy approach on a higher level than just nationally.

Energy efficiency in existing buildings and housing stock is receiving wide attention but there is generally no structural approach regarding energy efficiency. This is due to the specific problems of many types of buildings and structures as well as the ownership issue.

Additional attention is also required for the implementation of renewable energy. This will undoubtedly become a basic element in buildings. To avoid the large investments needed to adapt the building stock in the future, general provisions for the implementation could already be introduced in building design.

Materials

The second important resource is materials. Just a few countries are developing the initial elements of a framework to change from the traditional approach of using virgin material and dumping waste to the environmentally sound approach of a closed cycle with recycling at the highest level. This involves the re-use of buildings, which leads to lower volume in this cycle. In the opinion of many scientists, lowering the volume is the main challenge in any environmental approach in the coming years.

There are initiatives on EU level to guide this process, but they are not directly aimed at the built environment. A separate initiative seems necessary to address the typical organisational structure of the building process.

The main difference between energy resources and materials is that materials in products and buildings have a long life cycle and their management must be organised at a substantially higher level than for buildings. This is necessary in order to effectively manage enough volume quantities. Therefore , strategies should be implemented at national or regional level and should be supported by joint European definitions and targets, processes and instruments to optimise this cycle for local implementation.

The construction industry is already at the table. They are aware of the problems and the need to adapt the system. However, the construction industry is traditionally organised and focussed (which is essentially a sustainable habit in building). It prefers a harmonised approach in order to avoid being confronted with different requirements and legislation for each project. This is the case on a national level, but also increasingly on a European level with the mandatory European procurement for large projects as the driving force.

The building products industry is by far the most internationally oriented part of the building sector. However, some parts still adopt a national focus, but they are changing fast. Moreover, the product design phase is vitally important for optimising and reorganising the materials cycle. Therefore, this is certainly a subject that should be addressed with a policy framework on an international level.

The debate about placing the emphasis on a long life span for buildings and houses or on sufficient recycling is still ongoing. Different countries have different views, but all stress the importance these approaches. After examining the limits of resources and the energy input to make these resources available, the conclusion is that either the recycling of products and materials should be organised in a very sophisticated way, or, if not, houses should have a very long life span. In this respect, it is important to note that a long life span often requires that buildings are adaptable to the changing needs of the residents in the course of time.

Water

Water is the resource that receives the least attention in building and construction. Moreover, it has not been researched in-depth for this report. However, water has a good basic framework approach for the supply side at European level. The water cycle is nevertheless very locally oriented – sometimes it even differs from region to region – with vast differences in sources, demand diversity and recovery possibilities. It seems as if this is mainly a national or even local responsibility, where general principles of sustainability could be implemented.

6.3. Social aspects

The first point that emerges when analysing the material is the low interaction between the two approaches of ‘social housing’ and ‘sustainable building’. Both aspects clearly receive a lot of attention but they are not handled in an integrated or holistic way, which is considered to be a basic condition for creating a sustainable, secure and durable society. This is partly due to an inadequate definition and a poor understanding of the content of all of these elements. A common terminology and understanding of all these aspects is necessary to prevent the individual topics getting lost in too much communication. However, there is a shared understanding that the existing building stock and urban areas are core elements in the upcoming implementation of the social and sustainable wish list. This provides us with the opportunity to integrate an understanding of both approaches, and to take a substantial step forward.

One of the primary aspects of social housing is affordability. This is the most immediate factor for the residents. It is considered the most important subject by almost every country.

There is no widespread support for the idea that effects and costs should be taken into account in the long term. This would influence decisions on financial investments, as well as on resource management and the operation and durability of houses, and would stimulate the stability of social and cultural structures. One important component of long-term plan is the acknowledgement that maintaining the existing building stock appeals to a large extent to the social and cultural well-being of people, based on the historical focus on neighbourhoods. The familiar surroundings bind the different generations and help the individual to thrive; it is the setting in which people can live healthy lives. Secondly, in calculating our budget for housing, it may be more profitable to lower the operating costs instead of lowering the prime investments. This is currently being experienced in several Central and Eastern European regions, where energy costs are often a large part of the houshold budget. Therefore, Life Cycle Planning is preferable, focusing on the economy, the environment and social aspects, .

To acquire a greater understanding of this complicated process and to demonstrate the possibilities and create awareness, pilot and demonstration projects are key elements.

6.4. Society and economy

Economy

Alongside the need to integrate social and sustainable factors in housing, there is a broad-based understanding of the need to arrive at a wider integration of ecology and economy.

To achieve real progress not just in welfare, but also in well-being combined with sustainability , there is a need for system changes, policy involvement and economic interfaces with sustainability. We should quantify targets to ensure that there is a balanced development of economy and ecology. Switching from taxation and subsidy schemes towards a more social and sustainable direction, instead of a short-term economic direction, is seen as a potential successful approach. However, it is also clear that the relationship between ecology and economy requires greater study. It is important to switch from the existing, less sustainable habits and processes to more ecologically sound directions. It is a common belief that several other areas of economical policy will profit from this – for example, labour and the affordability of housing

Land-use for urban and rural areas and its free market pricing may disturb the carefully built system created to integrate social, sustainable and economic aspects into our building and housing approach. It is important, therefore, to study this relationship carefully and to develop strategies to handle it in a balanced way.

6.5. European Union

The European Union has no formal mandate to develop housing policies, as this is considered to be the responsibility of the member states. On the other hand, there are more and more activities in the EU that relate to housing. Energy, materials and urban regeneration are examples of EU housing related issues. Housing is also a key instrument in the European strategy to tackle social exclusion. The European Ministers of Housing welcomed this recognition at their 13th annual meeting in October 2001 under Belgian presidency. The Ministers especially welcomed the intention of the European Commission to support the national actions plans that are aiming to provide access for all to decent and sanitary housing conditions and basic services, and to implement measures that seek to prevent crises in people's lives that can lead to social exclusion, such as debt, exclusion from school, and homelessness [1].

Prior to that, in Gothenburg under Swedish presidency the European Council adopted a European strategy for sustainable development. In the conclusions, the management of natural resources is appointed as a priority area: "The relation between economic growth, consumption of natural resources and the generation of waste must change. Strong economic performance must go hand in hand with sustainable use of natural resources and levels of waste, maintaining biodiversity, preserving ecosystems and avoiding desertification."

In the communication from the Commission, which is the basis for the Council decision, it is also strongly stated that "although the Union has a wide range of policies to address the economic, environmental and social dimensions of sustainability, these have developed without enough coordination"

This communication includes many arguments and policy directions that support a European action plan on Sustainable Building and Housing, (i.e. the Green Public Procurement, shifts in taxes and subsidies, information gathering and exchange, etc.). Nevertheless, although the word urban can be found in the documents, no explicit reference is made to building and housing, despite their huge impact on the resources.

This situation might change when the Applicant Countries join the EU, as these countries are confronted with huge social and economic challenges and opportunities related to the housing sector if social and economic cohesion in the (expanded) EU is to be achieved. This stresses even more the need for proper, transparent and adequate guidelines, strategies and best practices in the housing sector.

The European village is an EU-supported demonstration project to evaluate the Products Directive for building, and to explore cross-border trading opportunities for construction and construction products. It is part of the Bo01 Housing Exhibition in Malmö, Sweden. This photograph shows the Czech contribution.

All in all, it can be concluded that sustainable housing should be recognised and acknowledged as a major European topic.

The most effective way to combine society's economic and ecological approach is to analyse and redirect subsidy schemes and tax instruments in such a way that environmentally harmful activities are discouraged. Therefore, the costs related to the environmental damage should be taken into account.

Although a lot of information is already available on different levels and on different topics, the terminology and the way it is documented are very different. This makes it quite difficult to access and compare the information. It is therefore crucial to streamline and improve the accessibility of existing knowledge on a European level. This can facilitate a common cross-border approach and cooperation on policy development and it can provide architects, industry and product manufacturers with a clear insight into how to adapt building and housing specifications with regard to sustainability. As mentioned before, the idea of establishing a European Knowledge Institute or Network is an effective way of addressing this problem.

Note

(1) Final Communiqué of the 13th annual meeting of the European Housing Ministers in Belgium, 2001

Annex 1. - OECD report: Policies for environmentally sustainable Buildings

In this annex the executive summary of the OECD report "Policies for environmentally sustainable Buildings" is presented as the report provide important and relevant background information. This report is the first draft of the Synthesis Report of the OECD Sustainable Building Project.

Source: OECD report, Paris 25 April, T.Hasegawa, ENV/EPOC/WPNEP(2002)5

For more information: Mr. Takahiko Hasegawa, OECD Environment Directorate, National Policies Division

Tel. +33 (0) 145 24 14 87, email: takahiko.hasegawa@oecd.org

EXECUTIVE SUMMARY

The OECD Sustainable Building Project was initiated in May 1998 as a four-year project with the objective of providing guidance for the design of government policies to address the environmental impacts of the building sector. Among the various environmental issues related to this sector, the reduction of CO_2 emissions, minimisation of construction and demolition waste (C&DW), and prevention of indoor air pollution were selected as priorities for the project.

As the final output of the four-year project, the Synthesis Report presents the results of four years of work done in the OECD Environment Directorate for this project. The report is intended to help policy makers in OECD countries to improve environmental policies for the building sector and stimulate further discussion on this issue in the future. The report could also be of interest to other international organisations, researchers, industry, and NGOs.

This report is divided into seven chapters.

Chapter 1: Introduction

Chapter 2: Environmental and economic impacts of the building sector

The building sector has a great impact on energy and material use, as well as on human health.

- The building sector accounts for around 25-40% of final energy consumption in OECD countries. An analysis of energy use in buildings indicates that space heating accounts for the largest proportion of energy consumption in both residential and commercial buildings.
- The construction sector accounts for between one-third and one-half of the commodity flow in selected OECD countries. Consequently, a great amount of construction and demolition waste (C&DW) is being generated in OECD countries. A breakdown of C&DW data shows that a significant proportion of this waste comes from demolished buildings.
- Indoor air quality can significantly affect human health. Indoor air levels of many pollutants may be 2.5 times - and occasionally more than 100 times - higher than outdoor levels. People usually spend as much as 90% of their time indoors.

Chapter 3: Current environmental policies for the building sector

The OECD questionnaire survey and subsequent supplemental studies have found that various types of policy instruments have been implemented to reduce the environmental impact of the building sector.

- A significant proportion of reported policy instruments for reducing CO2 emissions from the building sector target new buildings. Building regulations have long played a central role in improving energy efficiency in most OECD countries. Although the use of information tools, such as environmental labelling, is increasing, the use of economic instruments remains limited; and government intervention for upgrading existing buildings has been modest.
- Most of the reported policy instruments for minimising C&DW are implemented at the demolition stage. A landfill tax and regulatory instruments, such as a ban on landfill and mandatory separation, are widely used in European countries. A smaller number of countries have introduced policy instruments at downstream stages, such as an aggregate tax, certification scheme, etc. Few instruments were identified at upstream stages.
- The most widely used instrument for preventing indoor air pollution is the setting of target values for the concentration of pollutants. Regulations on the quality of building materials have been implemented in four European countries, and environmental labelling schemes covering the issue of indoor air quality exist in several countries.

Chapter 4: Unique characteristics of the building sector and barriers to improvement

The building sector has several unique characteristics in terms of its product, production process, and the way the product is used. These unique characteristics have created specific barriers to improving the environmental performance of buildings and building activities. For instance, the longevity of buildings makes the economic benefits resulting from energy efficiency investment uncertain, and discourages such investment. Moreover, the high level of discrepancy between owners and users has caused “principal-agent“ problems for improving the energy efficiency of rented buildings. Other unique characteristics that create barriers to improvement include the extended supply chain that construction requires, the spatially fixed nature of buildings and their high capital cost, and the dominance of a large number of small firms in the building sector.

Chapter 5: Policy instrument options for environmentally sustainable buildings

Policy makers in government can choose various policy instrument options, each of which has specific strengths and weaknesses. In order to make an appropriate choice, they need to take the characteristics of all these instruments into consideration. Both theoretical and empirical studies have been undertaken to evaluate the main policy instruments, and the findings have provided valuable insights into policy instrument characteristics and their implications.

Policy instruments for reducing CO2 emissions from buildings

- While mandatory standards for building design set in building regulations are usually not economically efficient, they do appear to be the most dependable instrument for achieving a given goal of energy efficiency if they are effectively enforced. Although it is often difficult to set standards that are strict enough to have a substantial impact on a significant proportion of new buildings, there may be room for upgrading such standards and improving their effectiveness in many OECD countries.

- Capital subsidy programmes could encourage energy efficiency investment for both new and existing buildings if the proportion of free riders were sufficiently reduced. However, it is unlikely that such programmes could have a major impact on a wide range of building activities because they require tax revenue expenditures. Although the impact of energy taxes on energy efficiency investment remains uncertain, the taxes are presumed to achieve the least-cost solution and provide continuous incentives to seek more cost-effective technologies.
- Empirical evidence suggests that energy audit programmes can encourage energy efficiency investment in existing buildings. Although environmental labelling schemes could theoretically play a large role in the sectors for new and existing buildings, no clear empirical evidence was found to indicate how the schemes could actually affect building design.

Policy instruments for minimising C&DW

- Empirical evidence indicates that a landfill tax can effectively reduce the final disposal of C&DW if the tax rate is set high enough. Although regulatory instruments, such as a ban on landfill, may have great potential to reduce the final disposal of C&DW, there appears to be no empirical evidence to clearly indicate their effectiveness. Some other regulatory instruments, such as mandatory reporting and demolition permission, may be effective in preventing illegal dumping which is often regarded as the main negative side effect of a landfill tax.
- At downstream stages, virgin material taxes may have great potential to promote recycling with modest administrative cost, although there is no supporting empirical evidence. Reliable certification schemes for recycled materials, coupled with specifications that assume the use of recycled materials, may encourage the use of recycled materials in the building sector.
- At upstream stages, there appears to be no instrument – except for greener public purchasing policies – that could effectively improve the performance of buildings with regard to waste generation.

Policy instruments for preventing indoor air pollution

- Empirical evidence indicates that regulations on the quality of building materials could effectively improve indoor air quality with modest administrative cost.
- Although it is theoretically presumed that environmental labelling schemes could improve building performance only indirectly through changing the behaviour of buyers, empirical evidence suggests that the schemes directly encourage manufacturers to produce materials that are better for health. The establishment of target value for the concentration of pollutants may be a good starting point for making stakeholders aware of the problem, and for helping with the implementation of other instruments.

General policy instruments

- Introducing a greener public purchasing strategy for construction procurement has great potential to improve the environmental performance of the building sector. This instrument may be particularly important in areas where no other policy instruments are feasible.
- Since the construction industry does not have much capacity to undertake research and development and is slow to adopt new technologies, it is important for government to provide support for environmental R&D and the diffusion of relevant technologies in a close partnership with the construction industry.
- Despite some of the industry's unique characteristics and the difficulties they pose for voluntary instruments, such instruments may work effectively if they target areas where participating firms could benefit economically from improving the environmental performance of their activities.

Chapter 6: Designing and implementing policies for environmentally sustainable buildings

In light of the unique characteristics of the building sector, it is important to establish a national strategy for improving the environmental performance of the sector. Such a strategy should be specifically aimed at the building sector, providing guidance that fully reflects the sector's needs, and it should help policy makers implement appropriate environmental policies.

- In order to achieve the most with limited resources, policy makers need to make appropriate choices with regard to the policy instrument and its target. There is great potential for improving the effectiveness and efficiency of policy instruments by targeting a specific category of buildings. Similarly, appropriately choosing the point of intervention improves not only the effectiveness of policy instruments but also their economic efficiency, and reduces administrative cost.
- Proper co-ordination of policy instruments is required at two levels. First, different kinds of policy instruments for the same environmental objective should be co-ordinated so that they can create greater synergy for improving the environmental performance of the building sector. Second, since environmental impacts of the sector are interrelated, policy instruments for reaching different environmental objectives could potentially conflict. In order to avoid such conflicts, basic principles for policy co-ordination need to be established.
- The establishment of a framework to monitor the environmental performance of the building sector would not only enable governments to set out quantified policy targets, but also provide policy makers with the information they need to use policy instruments in the most effective way. Collecting data on the environmental performance of the building sector, above all site-based data, is usually time-consuming and costly; however, this problem could be overcome by making the best use of a policy framework for environmental labelling schemes.

Chapter 7: Conclusions

On the basis of discussions in the previous chapters, the following general policy recommendations have been made:

General policy framework

- Establish a national strategy for improving the environmental performance of the building sector.
- Establish a framework to regularly monitor the environmental performance of the building sector.
- Develop a close partnership between government and industry.
- Introduce a greener public purchasing strategy for construction procurement.
- Minimise administrative cost by eliminating the duplication of administrative processes.
- Undertake more ex-post evaluation of policy instruments.

Policy instruments for reducing CO2 emissions from buildings

- Appropriately co-ordinate regulatory instruments and non-regulatory instruments.
- Improve the environmental effectiveness and economic efficiency of building regulation.
- Develop a synergy by combining economic instruments and information tools.
- Place more emphasis on energy efficiency improvement in existing buildings.
- Undertake extensive analysis on the cost-effectiveness of energy efficiency measures.

Policy instruments for minimising C&DW

- Create a synergy for minimising C&DW by co-ordinating policy instruments across the stages of the life-cycle of buildings.
- Reduce the final disposal of C&DW with a combination of economic and regulatory instruments.
- Establish a sustainable material flows within the building sector by promoting the use of recycled building materials in building construction.
- Continue to explore possible measures for improving the waste-generation-related performance of buildings.

Policy instruments for preventing indoor air pollution

- Improve the quality of building materials by implementing instruments that target building materials manufacturers.
- Avoid providing misleading information to consumers.
- Undertake more studies on the causal mechanisms of indoor air pollution.
- Establish a framework to identify newly emerging indoor health problems.

Annex 2. - DG Enterprise action plan and recommendations for sustainable construction

This summer, the EU Enterprise Directorate, member states and industry representatives have drawn up an Agenda for sustainable construction in Europe. Based on a consensus of the parties involved, the action plan should at least function as a focal point for joint developments in their approach to environmental and sustainable construction. Some of the EU countries have already started to develop and implement sustainable building-related policies and legislation, recognising that this is only possible by taking a broader and higher-level approach and that it is very important to act jointly. The work was undertaken by several task groups, and concluded with a set of recommendations. Their report was published last year[1]. The proposed strategies included: a progressive change in lifestyles and in patterns of consumption and production that will decouple economic growth from resource use and pollution, and recognised that promoting renovation, reuse and rehabilitation of existing buildings is vital.

A strong appeal has been made to industry to provide systematic, transparent and verifiable environmental information about their products and product standards. This fits in with European Commission requirements, which are working towards establishing cooperation with the standardisation bodies to develop these norms. This is already an important issue in Europe. The report strongly recommends that studies and R&D projects that establish guidelines leading to LCA (life-cycle analysis) and LCC (life-cycle costing) should become standard procedures. The report concludes that national governments and public bodies are the construction industry's largest clients. They ask these principals to take the lead in promoting sustainability. One interesting idea is to evaluate construction tenders not just on the basis of traditional parameters, but also on the basis of life-cycle costs, including environmental quality parameters. The report encourages these authorities to include environmental considerations in their tender documents. This is a noteworthy and significant proposal, since industry representatives helped write the report. This is in line with the upcoming EU DG Environment strategy for Green Public Procurement, part of the integrated policy measures product.

This should all be based, of course, on clear considerations as well as indicators and assessment tools. However, as part of this strategy the industry is challenged to examine the extent to which eco-efficiency can be increased in the sector, with the prospect of increasing it by a factor of 4, or even 10, over a longer period. Here again we see the factor principle being favoured as a target mechanism.

The total set of recommendations would seem to be a good starting point for specific activities in order to set the agenda, and it forms a basis that could be good enough to convince all parties. It is primarily aimed at construction, but it can also be amended for building in general and housing in particular. The key actions to be added are described in the other chapters in this report. The annex with the OECD conclusions for successful policies also provides input for a more broadly based action plan.

Issue	Recommendation
Whole life costs	Review work already undertaken and published and carry out further studies and R&D actions establishing guidelines that will lead to LCA and LCC becoming normal standard procedures aiming for convergence in methods and metric at the European level. Assessment of environmental impacts over the lifetime of built facilities as well as estimates of life cycle costs should be made available to clients before construction works begin. Consideration should be given to making such assessments mandatory for public works valued above a given threshold. This would facilitate benchmarking alternative development solutions.
Sustainable procurement	Clients, especially public clients, must take the lead in promoting sustainability in construction and the built environment.
	Sustainability impacts and their mitigation should, be addressed as far as possible in the planning and design (or even as part of the granting of planning permission) prior to commencing tendering procedures.
	Carry out a study to assess the advantages and disadvantages of awarding construction contracts on the basis of "concessions" and "facilities management" in order to determine procedures that produce built facilities with reduced environmental impacts. This could be done on the basis of a benchmarking exercise.
Sustainability performance indicators	That a set of shared indicators be agreed for the construction sector and that the results of CRISP be considered and adopted for use throughout the EU. These indicators will need to be reconciled with the "urban sustainability indicators" (Towards a local sustainability profile-European Common Indicators, EC DG Environment ISBN 92-828-9493-2, 2000) issued by DG Environment in November 2000 which municipalities are expected to adopt on a voluntary basis and use them as the basis for environmental reporting.
	Develop a system of life cycle costs performance indicators in order to facilitate comparisons of performance on a European basis and use these indicators to benchmark construction sustainability across Europe.
National plans and European programmes	All member states and accession countries should be encouraged to draw up and publish plans and programmes for "sustainable construction".
	The European Commission should draw up and issue guidelines – based perhaps on the work undertaken in PRESCO – explaining in general terms what these national plans and programmes should contain. Furthermore, the Commission should establish a website where all the documents can be easily found.
Software tools	ECCREDI (through E-CORE) and PRESCO should be asked to review the various software tools available and advise industry on any shortcomings or improvements that could be made. If feasible this should include a market survey in order to determine which software tools are the most useful and appreciated by users.
Education and awareness raising	Employers and professional bodies should phase out recognition of training and educational courses which do not take adequate account of the topic of "sustainable construction" in all member states and accession countries.

Issue	Recommendation
	The actors in the industry should raise the awareness of the general public, especially clients, in their daily activities. This could be promoted through the increased use of environmental labelling of products and buildings including energy and environmental quality labelling.
	The European Commission, through a dedicated website, should disseminate national plans and programmes and other related and relevant material.
	One or other European body (perhaps ECCREDI) should organise annual competitions for "flagship sustainable construction projects" in the member states and the accession countries. A jury would adjudicate the proposals submitted and a distinguished European personality would present the awards at an annual event in Brussels.
	Consideration could also be given to setting up a "European Best Practice Programme" for sustainable construction, which would act as a learning network and coordinator of national best practices. It should include a scheme for "European Awards".
	The actors in the industry should raise the awareness of the general public, especially clients, in their daily activities.
Research and Development	That ECCREDI through its responsibility in managing E-CORE, should act as a focal point for European RTD actions in the field of Sustainable Construction. The results of these thematic networks should be further developed and used in order to carry forward the agenda for sustainable construction as described in this report.
	E-CORE should develop further actions, policies and strategies aimed at promoting more sustainable construction including giving consideration to requesting the European Standards defining performance criteria which could be used as an alternative to prescriptive requirements in public procurement.

Annex 3. - Questionnaire on sustainable housing in Europe

The 3rd European Ministers conference on "Sustainable Housing" will be held in Genval, Belgium on 27 and 28 June 2002. This conference is being organised by Belgium (Walloon region and Brussels-Capital region) as an follow up of the first Conference on Sustainable Building in 1996 in Copenhagen, Denmark, and the second Ministers Conference on Sustainable Building in 1997 in Amsterdam, The Netherlands.

To prepare the conference all invited countries were requested to provide available information regarding relevant activities in the field of sustainable housing in the respective countries. To streamline this process a questionnaire was set-up (see next pages). Important starting point was the definition of the concept of Sustainable Housing as provided by the Belgium hosts of the conference.

The questionnaire was sent out by post and mail to all fifteen EU member states (Belgium, Denmark, Sweden, France, Germany, Portugal, Luxembourg, Finland, Ireland, United Kingdom, Netherlands, Italy, Spain, Austria and Greece).

The twelve EU candidate countries (Bulgaria, Romania, Latvia, Lithuania, Estonia, Slovakia, Slovenia, Czech Republic, Poland, Hungary, Malta and Cyprus) were also invited to provide their information on the subject by completing the questionnaire.

Completed questionnaires were finally received from 25 out of the 27 countries. Two countries were not able to complete the questionnaire. However they provided useful information by sending several reports and/or providing oral information.

The completed questionnaires are provided as pdf-documents on a separate CD-ROM. They will also be provided through internet.

The information from countries was carefully processed to get a good overview of the state-of-the-art on Sustainable Housing in Europe.

The effort and support of the countries in providing this information is appreciated very much.

Questionnaire on sustainable housing in Europe

Introduction

In view of the upcoming pan-European Ministers Conference on "sustainable housing", The Netherlands Agency for Energy and the Environment (Novem) has been commissioned by the Belgian hosts of this conference to collect basic information related to sustainable housing policy in the EU countries and the EU candidate countries.

This is the third European conference on sustainable housing. The first conference was in April 1996 in Copenhagen. The second conference was held in Amsterdam in September 1997.

This questionnaire is meant to assist in the preparation of an overview report as input for the conference by collecting information in a structured way. The general point of departure of this questionnaire is the definition of the concept of Sustainable Housing, which has been given by our Belgian hosts. This definition is provided in both English and French.

Basic guidelines

- The questionnaire consists of 5 parts:

  Part A: focuses on the existing policy context: policy documents

  Part B: focuses on the existing policy context: policy instruments

  Part C focuses on priorities of specific sustainable housing policy issues (related to construction, social-economic and eco-efficiency perspective)

  Part D focuses the best practices of national sustainable housing policy

  Part E focuses on future directions of sustainable housing policy

- Only official nation-wide policies and related activities are targeted in this questionnaire.
- This questionnaire is in English. The response may be in English or French. National policy documents as referred to in part A can be provided in your national language, if possibly with an English summary. The resulting report will be in English and French.
- For information you can contact the Novem Helpdesk Sustainable Housing:
  Novem BV
  P.O.Box 8242,
  3503 RE Utrecht,
  The Netherlands

  Phone: +31-30-2393430
  Fax: +31-30-2393702
  Email: sustainablehousing@novem.nl
- Contact persons: Mr. Cuno van Geet (EU-countries), Mr. Johan Havinga (EU candidate countries).

Definition of sustainable housing

Sustainability – a construction perspective

This aspect primarily refers to the quality of the construction and involves two main elements:

- lifespan, firmly dependent on the quality of the building materials used and their utilisation;
- adaptability, which needs to be met on two levels: on the one hand, the successive occupiers or occupational uses within the same accommodation, and on the other hand, the changing needs of the same occupant in the accommodation.

Sustainability – a social and economic perspective

This aspect refers to the 'viable' characteristic of accommodation for the occupier, whether tenant or owner which notably includes:

- affordability, based on the actual financial means of the occupiers, so that they are able to support the direct costs of the accommodation without having to neglect other essential needs (balanced diet, health, education, culture, etc.);
- indirect costs such as commuting and travel costs linked to the location of the housing;
- impacts of housing and more generally of the residential environment on the physical and mental health of the occupiers;
- psychological and social function of the housing and the residential environment: moving from a "place to live" to "home", while encouraging the development and maintenance social networks and various types of social solidarity.

Sustainability – an eco-efficiency perspective

Aiming for an increase in well-being while at the same time limiting the consumption of resources, this aspect encompasses the following elements:

- rational and efficient use of natural non-renewable resources, both in the construction and the use of accommodation; these resources can be regrouped under three main headings:
    1. energy: level of energy consumption (direct and indirect) and type of energy used;
    2. construction materials: their renewable character and notably their "embodied energy";
    3. space: the spatial use of land, a non-renewable resource, par excellence, and whose efficient management should aim to limit the use of land across a range of human activities including housing;
- "disconnecting" the increase in comfort, on the one hand, from consumption of resources on the other hand. A "disconnection" which is indispensable within a sustainable development perspective and which can be summarised by the phrase " do more with less".

Définition du logement durable

Le logement durable

Cet aspect fait en premier lieu référence à la qualité du bâtiment; il s'appuie sur deux éléments principaux :

- l'échelle de temps, fortement liée à la qualité des matériaux de construction utilisés et à leur mise en oeuvre;
- la notion de logement adaptable, qui doit être réfléchie à deux niveaux : celui de la succession d'occupants ou de types d'occupants différents dans un même logement et celui de l'évolution des besoins d'un même occupant dans le même logement.

Le logement soutenable

Cet aspect renvoie au caractère " supportable " du logement pour son occupant, locataire ou propriétaire; il fait intervenir notamment :

- la notion de logement abordable, c'est-à-dire partant des capacités financières réelles de son occupant, de façon à lui permettre de supporter les charges directes du logement sans l'empêcher de répondre à d'autres besoins essentiels (alimentation correcte, santé, éducation, culture);
- les coûts indirects tels par exemple les dépenses en matière de déplacements, liées à la localisation du logement;
- les impacts du logement et plus généralement, de l'habitat sur la santé physique et mentale de ses occupants;
- la fonction psychologique et sociale du logement et de son environnement résidentiel : il s'agit de passer du logement au " chez-soi ", tout en favorisant le développement ou le maintien du lien social et de solidarités de types divers.

Le logement " éco-efficient "

Visant l'augmentation du bien-être tout en limitant la consommation de ressources, il s'appuie sur les éléments suivants :

- l'utilisation rationnelle et parcimonieuse des ressources naturelles non renouvelables, tant lors de la construction que de l'utilisation du logement; ces ressources peuvent être regroupées en trois grandes catégories :
    1. l'énergie : niveau de consommation énergétique (directe et indirecte) et type d'énergie utilisée;
    2. les matériaux de construction : caractère renouvelable et " contenu énergétique " notamment;
    3. l'espace, c'est-à-dire le sol dans sa dimension spatiale, ressource non renouvelable par excellence, dont la gestion parcimonieuse doit viser à limiter la consommation par l'ensemble des activités humaines, en ce compris le logement;
- le " découplage " à envisager entre l'augmentation du bien-être d'une part et la consommation de ressources non renouvelables d'autre part : " découplage " indispensable dans une perspective de développement durable et qui peut être résumé par la formule " Faire plus avec moins ".

Questionnaire on sustainable building in Europe

Country: ……..

Contact information

Please provide the name of the person responsible for this questionnaire:

Name:

Ministry / organisation:

Address:

Country:

Email:

Telephone

Fax:

Website:

Please provide the name of the official focal point for Sustainable Housing:

Name:

Ministry / organisation:

Address:

Country:

Email:

Telephone:

Fax:

Website:

Part A: Existing Policy context

In view of the given definition of sustainable housing, which related policy documents exist in your country?

Please add the original documents/text (as links to internet-sites, electronically or on paper). The documents can be provided in your national language. When available an English version or English summary is preferred.

Policy plans

White papers

Discussion papers

Other

Part B: Existing Policy instruments:

In view of the given definition of sustainable housing, which nation-wide instruments exist in your country. Specify only the main policy instruments.

Please provide a title and a short description of the goal, expected result and if available the measured effects of each instrument (max. 15 lines per instrument). Add original documents if available.

1. Legislation (Measures of legal origin, as for example: energy performance regulations, labelling schemes and bans on unhealthy materials)

    - Building codes
    - Energy regulations for equipment
    - Energy regulations for buildings
    - Toxic substances
    - Labelling rules
    - Other:

2. Financial arrangements (direct or indirect economic incentives & financial schemes to support sustainable housing)

    - Tax measures / incentives
    - Ecotax / environmental tax
    - Investment subsidies
    - Grants / mortgage / loan arrangements
    - Subsidy schemes aiming at experiments and development of sustainable technologies
    - Research funding
    - Other:

3. Other instruments (any other official instrument created/introduced to enhance the introduction of sustainable housing)

    - Official information campaigns
    - Voluntary agreements with (private) market parties (e.g. housing associations, local governments, building, construction, material and equipment industries)
    - Demonstrations
    - Other:

Part C: Specific policy priorities

In view of the answers in part B please give the priority issues in your sustainable housing policy:

1 = not important at all
2 = of little importance
3 = important
4 = very important

• Construction issues	1	2	3	4
• Building life span	1	2	3	4
• Building adaptability to changing housing needs	1	2	3	4
• Building maintenance aspects	1	2	3	4
• Others (specify):…….	1	2	3	4

• Social-economic issues				
• Housing affordability	1	2	3	4
• Life cycle cost of housing/indirect costs	1	2	3	4
• Accessibility / public transport connections to shops, schools, work and recreational facilities	1	2	3	4
• Educational aspect (to teach to the people to live together and to "respect" their housing and its surroundings)	1	2	3	4
• Safety	1	2	3	4
• Tenant participation in housing design and management	1	2	3	4
• Encouraging social networks and social solidarity in neighbourhoods	1	2	3	4
• Public participation in urban development	1	2	3	4
• Impact of housing quality on physical and mental health of occupants	1	2	3	4
• Others (specify): …….	1	2	3	4

• Eco-efficiency issues	1	2	3	4
• Household energy consumption	1	2	3	4
• Construction energy consumption	1	2	3	4
• Environmental impact construction materials	1	2	3	4
• Creating an attractive residential environment	1	2	3	4
• Building materials utilisation	1	2	3	4
• Building materials recycling	1	2	3	4
• Construction waste	1	2	3	4
• Household water consumption	1	2	3	4
• Land use, urban planning	1	2	3	4
• Traffic	1	2	3	4
• Others: ……	1	2	3	4

Part D: Best practices in national sustainable housing policies

Please give a short description of three best practices of policy initiatives in your country:

1. Best practice – from a construction perspective

2. Best practice – from a social economic perspective

3. Best practice – from a eco-efficiency perspective

Note: The activities and practices can relate to either public initiatives or to non-governmental (NGO) initiatives with or without partners from the public housing sector. This means that consideration can be given to innovatory and pilot activities, which are not necessarily reproducible in time. In such cases the reasons for this lack of reproducibility are worth emphasizing

Provide the information on the best practices and successful actions according to the following format. Information should be kept concise (max 1-2 A4) and can refer to certain items already mentioned in the questionnaire.

Reporting Format for each of the three national success stories:

0. Title – Designation of the activity (type of action - initiative)
    - Characterize the activity/initiative
    - Indicate if the activity concerns: Best practice from a construction perspective, from a social economic perspective or from a eco-efficiency perspective.

1. Type of problem to be solved:
    - Describe the problem addressed, where?
    - In favour of whom (population targeted) was the action (or initiative) undertaken?
    - Describe the objectives

2. The legal framework or legal base for the action (date)

3. Methods of financing
    - Origin of the finance
    - Direct financial aid (e.g. to individuals or groups)
    - Subsidies granted to a legal entity……..

4. Operator(s)
    - Public operator – organizations with a social purpose – associations- private persons
    - Partnership (describe in a few lines)

5. General principles behind the action (initiatives and steps taken)
    - Describe in a few lines general background and principles

6. Evaluation

7. Comments
    - Comments considered to be useful concerning the interest of the practical activity – its outstanding nature – particular difficulties

Part E: Future directions for sustainable housing policy

Are there any new policy instruments in a phase of preparation?

Please indicate the goal and expected results (max. 15 lines for each item)

Annex 4. - International organisations and their activities

In the field of building and housing, many organisations – both governmental and NGO-based – are playing an active role. However, just a few of these organisations have Sustainable Building or Sustainable Housing as their immediate aim. Moreover, the most important organisations are either globally organised or are primarily EU-related. Several important global organisations and their activities are highlighted below.

IiSBE (International Initiative on a Sustainable Built Environment)

iiSBE is an international non-profit organisation and its overall aim is to actively facilitate and promote the adoption of policies, methods and tools to accelerate the movement towards a global sustainable built environment. iiSBE has an international Board of Directors with members from almost every continent, with a small Secretariat located in Ottawa, Canada. Its specific objectives include:

- mapping current activities and establishing a forum for information exchange on SBE initiatives for participating organisations, so that gaps and overlaps can be reduced and common standards established
- increasing awareness of existing SBE initiatives and issues among non-participating organisations and in the international user community
- taking action on aspects not covered by existing organisations and networks.

Specific activities include establishing a website and R&D database.

iiSBE will also host a Policy Knowledge project, a network of member states to research the policies and programmes related to Sustainable Building practices. The work will result in the establishment of a database, an annual comparison of the latest Sustainable Building policies in member countries, and the preparation of an input document for international ministerial meetings (for bilateral as well as IEA, EU, OECD and UN meetings). The Policy Knowledge project will supplement the useful work already being undertaken in this area by the OECD and this ministerial conference.

CIB (International Council for Research and Innovation in Building and Construction)

CIB 's prime target is the construction industry and research institutes. In recent years, CIB has decided to make sustainable construction one of its core issues. The number of environmental and sustainability-related groups is growing fast and currently totals over 30. CIB created and recently published Agenda 21 for Sustainable Construction, an overview of important issues and a list of key actions to be taken by the construction industry. Following SB2000, CIB took the initiative to prepare a separate Agenda for developing countries. CIB is also in discussions with the UN with regard to its support for their SB programme for developing countries. CIB has recently begun to actively participate in EU networks – for example, in research for defining performance-based building, and in a possible new network for sustainable construction.

IEA (International Energy Agency)

The International Energy Agency originally focused on energy, energy efficiency and renewable energy. Over the past few years, however, there has been a growing need for a discussion on how to broaden the scope with regard to sustainability, particularly in the building-related IEA Implementing Agreements. This has resulted in a Task Force on Sustainable Building that recently published its findings and recommended that Implementing Agreements should broaden their activities in the annexes to Sustainable Building, and become more market-oriented in their approach.

IEA groups have already undertaken some important work – for example, Annex 31 – in analysing a large number of assessment methods. One of the current projects of IEA groups is focusing on solar cities. This project is currently in the start-up phase, in cooperation with the renewable energy section, but it could lead to some promising projects.

UN (United Nations)

The United Nations is involved in sustainability in various ways There are a number of programmes that support related issues, including the programme for renewable energy home systems in remote villages, providing light in the evenings and access to information by means of TV and the internet, enabling villagers to improve their quality of life. Another well-known programme concerns the world heritage projects (see also their statement in Chapter 3). These are just two of a broad range of related projects. However, there is also another project targeting the built environment. This project is being carried out by UNEP, the UN environmental programme, and is being coordinated by one of the sub-programmes (IETC, the International Environmental Technology Centre). The programme is called SCDC, Sustainable Construction for Developing Countries, and it is this programme that CIB will join and operate. Last but not least, there is the important Habitat programme. See the chapter on policies for the relevance of this project to Sustainable Housing.

OECD (Organisation for Economic Co-operation and Development)

A few years ago, the OECD, strongly supported by Japan, set up a separate programme on Sustainable Building to analyse the Sustainable Building policies of OECD member countries. In its first phase, the project gathered information on policies and carried out an initial analysis, which concluded that there are many non-technical barriers to be overcome, and that policy instruments are essential in order to achieve this. The second phase concentrated on three topics – reducing CO_2 emissions, minimising waste, and preventing indoor air pollution – and analysed the success and failure factors of these policies. This is valuable research, and further activities will be carried out in co-operation with the new Sustainable Building policies network under iiSBE.

Others, Bottom-up

The above are mainly global activities and could be viewed as 'top-down' initiatives: governmental or institutional activities, mostly internationally organised. However, Sustainable Building cannot exist without 'bottom-up' activities. In fact, most activities start from bottom-up. And these activities are continuing, involving an endless number of people and small organisations, many based in Europe. WWF and Greenpeace can be seen as examples of very large and internationally operating bottom-up representatives, but there are many others more specifically aimed at building – for example, the Gaia and related eco-villages movement is still an important activity. These are people who do not wait until matters have been legally settled, but just start their own ideal sustainable settlement projects. The number of successful villages is growing . The phenomenon of eco-teams is another example of neighbourhood-based co-operation in environmental activities. This is closely linked to Agenda 21, the initiative taken at the Earth Summit in Rio 1992 to stimulate local activity. It will be evaluated this year and will probably receive another boost at Rio+10, the Earth Summit II to be held in August/September in Johannesburg, South Africa.

Annex 5. - Reading list / Bibliography

The following sources of information have been used in preparing this report.

The chapters 1.2 and 5 in the report are also based on ongoing research at Novem e.g. the Dutch financed Score Sustainable Building project.

General

Our Common Future, World Commission on Environment and Development
Dr Gro Harlem Brundtland, (Director-General World Health Organization since July 1998)
Publication date: 27 April 1987); info: http://www.who.int/director-general/

Beyond the Backyard, Sustainable housing experiences in their national context, Anke van Hal, Best, The Netherlands, 2000

Policies and regulations for sustainable building (a comparative study of five European countries, M. Sunnika, Delft, The Netherlands, 2001

Energy Efficiency for a sustainable world, B. Laponche e.a., Paris, 1997

Sustainable Building, an international overview of current and future activities, Keynote paper 18th Passive and low Energy Architecture Conference (PLEA 2001), Rovers, Florianopolis, Brazil, 2001

Policies for environmentally sustainable buildings, synthesis report of the OECD sustainable building project, OECD, Paris, April 2002

The Design of Sustainable Building Policies, Case Studies on Policy instruments for Environmentally Sustainable Buildings, Environment Directorate, Environment Policy Committee, Working Party on National Environmental Policy, OECD, 14, 15 November 2001

Policies for Environmentally Sustainable Buildings, Synthesis Report of the Sustainability Project, Environment Directorate, Environment Policy Committee, Working Party on National Environmental Policy, OECD, 24, Paris 25 April 2002

Participatory decision-making for sustainable consumption, Policy case study series, Environment Directorate, Environment Policy Committee, Working Party on National Environmental Policy, OECD Programme on Sustainable Consumption.

"Integrating Environment and Sustainable Development into Energy Policy" - Challenges for Candidate Countries -Workshop DG TREN/Taiex Brussels, 24 October 2000, Wolfgang Eichhammer, Fraunhofer Institute for Systems and Innovation Research FhG-ISI, January 2001

The Social Dimensions of Sustainable Development, by John P. Martin (Director for Education, Employment, Labour and Social Affairs, OECD), Speech delivered to the Conference on "The European Social Agenda and the EU's International Partners", Brussels, 20-21 November 2001.

Implementing the Habitat Agenda, the European Union Experience, booklet prepared under the auspices of a Working Group comprising representatives of the EU member states, Swedish National Committee on Agenda 21, Ministry of Environment, SE-103 33, 2001 Stockholm

From Policy to Reality, An exploration of urban sustainable management in European cities, Novem, 2001

EU

Housing policies as a method of reinforcing social cohesion, synthesis report 13th meeting of the Housing Ministers of the EU, 10-2001, Belgium

Final Communiqué of the 13th annual meeting of the European Housing Ministers in Belgium, 2001

Basic documentation for the 1st European Conference on Sustainable Housing Policies, The Hague, The Netherlands, March/April 1996

Housing statistics in the European Union 2001, Helsinki, 2001, (www.euhousing.org)

Environmental Regulations for Building Materials in several European countries, Ministry of VROM, The Hague, The Netherlands, 1997

Further than ever from Kyoto? Rethinking energy efficiency can get us there, 2001 Summer Study Proceedings Vol I-II, ECEEE, ADEME, Paris 2001

European Sustainable Cities, Expert Group on the Urban Environment European Commission, Directorate General XI, Environment, Nuclear Safety and Civil Protection, Brussels, March 1996

Mandatory labelling of buildings: the Danish experience, Jens. H. Laustsen, Danish Energy Agency, in: Sustainable Building 2001, Aeneas technical publishers, Boxtel

Community Policies in support of employment, interdirectorate report in which views and policies on social inclusion are covered; http://europa.eu.int/com/employment

Internet

General information

http://mrw.wallonie.be/dgatlp/logement/logement_euro/Pages/Focalpoint/FocalPointw.htm

http://mrw.wallonie.be/dgatlp/logement/logement_euro/Pages/Acteurs/Acteursw.htm

www.eiropainfo.lv/infocentrs/eng/infocenter63.htm

Statistics

EU, European Housing Statistics, http://www.euhousing.org/

International

EU general: http://europa.eu.int

DG TREN: http://europa.eu.int/comm/dgs/energy_transport/

DG Enterprise: http://europa.eu.int/comm/dgs/enterprise/index_en.htm

EU on research: http://europa.eu.int/comm/research/

IEA, energy efficiency updates: www.iea.org ; energy efficiency, country reports update

OECD, www.oecd.org

OPET, http://www.cordis.lu/opet/

UN, Data on sustainable development, http://www.un.org/esa/agenda21/natlinfo/countinf.htm

UN, Country reports on policy issues for sustainable development, http://www.un.org/esa/agenda21/natlinfo/

World Summit on sustainable development, United Nations convention, Johannesburg, South Africa, from 26 August-4 September 2002, http://www.joburgsummit2002.com/

Agenda 21 for Baltic sea region, http://www.ee/baltic21/

Energy cities, Local energy policies, www.energie-cites.org

Habitat, www.habitat.org and www.unchs.org

SUREURO, (Sustainable Refurbishment Europe , www.sureuro.com)

PRESCO, (Practical Recommendations for Sustainable Construction, http://go.to/presco.net)

CRISP, (A European Thematic Network on Construction and City Related Sustainability Indicators/ Indicateurs de Développement Durable pour la Construction et la Ville , Http://crisp.cstb.fr/)
MOST, (Management of Social Transformation Programme / Programme de Gestion des Transformation Sociales, http://www.unesco.org/most)

Country specific information

This list contains the documentation that was received as annexes and background material together with the questionnaires

EU countries

United Kingdom

- More then a roof, a report into tackling homelessness, DTLR, London, March 2002-05-14
- The governments new approach to tackling homelessness, London, March 2002

Ireland

- Social housing guidelines, Design guidelines, Dublin, 1999

Finland

- Finnish government housing Policy Strategy, June 200
- Programme d'action Logement. Nov 2001

Luxembourg

- Relevant legislation for the housing sector

Germany

- The 3-Liter house, An innovation in the modernisation of old properties, Luwoge, Ludwigshafen 2001

Spain

- Tercer catálogo espanol de buenas prácticas, Ciudades para todos. Habitat II (Third catalogue of good practices; Cities for all. Habitat II), Ministerio de Fomento, Madrid, 2001

Netherlands

- Key to Housing, Sustainable District Renewal in Rotterdam, Interdepartmental Research Programme Sustainable Technology Development (DTO), 1997

EU accession countries
Local Energy Policies in Poland and the Czech Republic, Local Energy Policies Contract, Save II Programme, N°4.1031/P/99.355, June 2001

Czech Republic

- Housing Policy concept, Ministry for Regional Development, Prague, 2001
- Housing related legislation, 2002:
  - Act N °50/1976 Coll.on town &country planning and on building regulations (the Building Act)in the wording of later regulations
  - Decree N °132/1998 Coll.on detailed specification of some Building Act stipulations
  - Decree N °135/2001 Coll.on non-statutory planning materials and planning documentation
  - Decree N °137/1998 Col.on general technical construction requirements
  - Decree N °369/2001 Coll.on general technical requirements related to the operation and utilisation of structures by the handicapped persons

Slovenia

- Housing Act
- Restitution (denationalisation) Act
- National Housing Savings Scheme Act
- National Housing Programme
- Project paper concerning updating property registration system

Slovakia

- The construction industry, 1999
- Assumptions and possibilities of the construction industry- the Slovak republic- after 2000, 1998
- The technical policy of the construction industry up to 2003, 2000
- Principles of the State Housing policy up to 2005 (with an outlook up to 2010), July 2000
- National Plan of Regional Development of the Slovak Republic, 2001

Romania

- Relevant legislation for the housing sector
- Multimedia presentation Sustainable Housing, Ministry of Public works, Transport and Housing, Bucharest 2002

Latvia

- National Environmental Policy Plan for Latvia, Riga 2001
- The List of Building Codes and Building Regulations of Latvia, 2001

Malta

- Housing & Poverty in Malta, an updated valuation model for Residential Premises, Denis H. Camilleri, 2001.
- Defining the Scale of the Problem of Social Housing and possible Land Use Approaches to its Solutions, G. Cassar, 2000
- Social Housing: The Cottonera – a case study, National conference Social Housing Now and in the Future, Carmen Delia, Malta, April 2000