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Energy Efficiency in Housing

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Note by the secretariat

Summary

This document informs about current and future activities of the United Nations Economic Commission for Europe (UNECE) Committee on Housing and Land Management related to energy efficiency, including a Casebook on Good Practices on Energy Efficient Housing, the work of an informal UNECE Network on Energy Efficient Buildings and the National Action Plans for Energy Efficiency Measures in the Residential Sector.

I. Introduction

1. Buildings are among the longest lasting physical structures with a lifespan of 30 to 150 years and more. This makes buildings a priority sector for green investments: “A failure to start acting now may result in environmentally damaging development patterns [...] that would be difficult and costly to reverse”¹.

2. Ensuring an efficient use of energy is one of the key solutions to address the energy crisis and to reverse effects of climate change. Increasing energy efficiency in residential buildings, in particular, provides multiple benefits, as it:

(a) Contributes to climate change mitigation through the reduction of emissions:

- The building stock accounts for 24 per cent of global CO₂ emissions. IPCC estimates in its 4th Assessment Report, that the building sector has the single largest potential to reduce greenhouse gas emissions at low or even no additional costs using technology already available;
- In the United Nations Economic Commission for Europe (UNECE) region a large share of the building stock, which will exist in the year 2050 have already been built. Hence efforts to increase energy efficiency in the housing sector should focus on retrofitting the existing housing stock in an optimal energy efficient manner and at the latest technological standard to avoid that the building sector is “locked-in” a much larger carbon footprint than necessary.

(b) Reduces energy bills and energy poverty and increases energy security through an overall reduced level of energy consumption:

- Increased energy efficiency reduces the energy bill of residents, which is of particular importance for a number of countries with economies in transition where energy prices are increasing. For instance, in Bulgaria residents pay up to 40 per cent of their household income for heating and cooling. Reduced occupant-related expenditures on energy would allow them to spend their income differently, which would provide economic stimulus and create jobs in other sectors;
- Reduced energy consumption at the national level due to increased energy efficiency reduces also levels of energy imports for energy importing countries as well as increases levels of energy exports for energy exporting countries thus increasing energy security.

(c) Supports regeneration of the built environment through retrofitting and refurbishment of large, deteriorated housing stocks in countries with economies in transition and, hence, improves overall living standards.

(d) Facilitates green transformation of the economy through the creation and promotion of green jobs:

- Making sustainable buildings a reality requires an integrated building design, development of energy performance standards and certification as well as on-site generation of energy from renewable sources. This leads to a longer

¹ United Nations Environment Management Group (2011): Working towards a Balanced and Inclusive Green Economy: A United Nations System-wide Perspective.

design and construction phase of buildings, which takes into account the life cycle approach and the flow of building materials. This requires also additional knowledge and training on green standards, labels, efficient heating, cooling, water and material use, etc. and hence generates new jobs and redefines existing ones. Certification and auditing of sustainable building standards also partly generates new jobs or redefines existing jobs.

- Around one-third new jobs are created directly through new business opportunities in the building and construction sector and around two-thirds indirectly due to economic multiplier effects as money which was saved on energy costs is spent elsewhere. As 90 per cent of the global construction sector is dominated by small companies with ten employees or less, new jobs will be created predominantly in small and medium-size enterprises².

3. Despite the advantages of energy-efficient housing, many countries in the UNECE region are caught in an energy inefficiency trap because they have comparably low levels of energy efficiency and are unable to change their respective status due to lack of information, motivation, experience, capacity, technology and funds.

4. Such regional challenges with regard to sustainable and energy efficient management of the housing stock include:

- (a) Creation of an institutional, legal and financial framework;
- (b) Access and incentives to finance the integration of energy savings in residential sector;
- (c) Management of the housing stock in an energy-efficient manner, in particular condominiums;
- (d) Refurbishment of existing housing stock in an optimal energy efficient manner;
- (e) Affordable and energy-efficient housing.

5. In countries with economies in transition, mass privatization in the 1990s resulted in owner occupation rates of 80 to 90 per cent. This is well above the 65 per cent average in Western Europe. Usually the transfer from public to private ownership took place within a very short period of a couple of years. In Albania, for instance, ownership of 98 per cent of public housing was transferred to existing tenants by law within one year. In contrast, the privatization of housing assets in the United Kingdom was 30 per cent over a period of 15 years.

6. As a consequence, no adequate regulatory framework for management and maintenance of these building blocks was set up. New homeowners have no experience or resources to fulfil the obligations and responsibilities with regard to the management and maintenance of the building and its facilities, especially in multi-family housing units. In many transition countries, this led to a severe neglect of management and maintenance.

7. The housing stock in many countries with economies in transition is deteriorating as a result of under-investment, poor management and lack of maintenance as well as the overall low quality of construction and materials used. Residential buildings are often highly energy inefficient. The legal, financial and organizational framework to manage the housing stock needs to be created or updated and enforced to meet new technical standards.

² UNEP (2008): Green Jobs: Towards decent work in a sustainable, low-carbon world

As a result, the structure and condition of the housing stock provides an immense potential to link its necessary rehabilitation with measures to reduce energy consumption.

II. Background

8. Since 2008, the UNECE Committee on Housing and Land Management has been working on increasing energy efficiency of the housing sector in the region. The study “Green Homes: Towards Energy-Efficient Housing in the United Nations Economic Commission for Europe Region” (ECE/HBP/159) illustrates the multiple environmental, economic and social benefits arising from a transition towards energy-efficient housing. It outlines the required institutional changes and provides some basic principles for successful policies. To assist member States in improving the sustainability of their housing sectors, the Committee has developed a concrete, comprehensive and integrated “Action Plan for energy-efficient housing in the UNECE region” (ECE/HBP/168). Through training courses and national action plans, the Committee on Housing and Land Management advises Governments on how to implement the Action Plan with the main objective being to help countries set up the legal and financial institutional framework for more energy-efficient homes.

9. For example, UNECE published the first “National Action Plan of Montenegro for energy efficiency measures in the residential sector” in March 2012 with concrete recommendations targeted to the country’s specific conditions. National Action Plans for other countries in the region are being planned.

10. Also, since 2011 the Committee on Housing and Land Management offers training workshops in different parts of the UNECE region. The main objective is to help countries set up the legal and financial institutional framework for more energy-efficient homes. For instance, a training course in this regard has taken place in Minsk, Belarus in 2011.

11. In January 2013, the secretariat to the Committee on Housing and Land Management conducted an online survey on challenges and priorities in housing and land management among focal points in the 56 member States. Respondents included members of the Committee and the Working Party on Land Administration as well as international experts, representing international, intergovernmental and non-governmental organizations, private sector and academia.

12. Results of the survey revealed that respondents across the UNECE sub-regions ranked “Inefficient use of energy in the residential sector” as the greatest challenge of the housing sector. “Lack of affordable solutions for young people who enter the housing market” and “Limited access to affordable, quality and healthy housing in the market” were ranked second and third.

13. The result on the major challenges in the housing sector is consistent with the responses regarding the priorities for the future work of the Committee on Housing and Land Management. “Energy efficiency in housing” has been given the highest priority by the respondents. The thematic priorities identified through the survey will be reflected in the strategy and targets 2014–2020 for the work of the Committee on Housing and Land Management as well as in the programme of work for the next biennium 2014–2015.

14. To implement its activities, the Committee works closely with the UNECE Committee on Sustainable Energy and its Energy Efficiency 21 (EE21) Programme and draws on its expertise. The cooperation between the two Committees was strengthened over the last year in order to create synergies and avoid duplication of efforts.

15. The two Committees jointly coordinated UNECE’s contribution to the Third International Forum: Energy for Sustainable Development held from 12 to 14 September

2012 at the Issyk Kul Lake, Kyrgyzstan. Energy efficiency in housing was featured prominently at the Forum. It facilitated the exchange of experience in this sector across Central Asia and neighbouring countries and supported the identification of good practices in energy efficiency in the residential sector, to be reflected in a good practice casebook, currently under preparation.

III. Good Practices for Energy Efficient Housing in the UNECE Region

16. To support the implementation of the over 170 actions included in the “Action Plan for energy-efficient housing in the UNECE region” (ECE/HBP/168) at a national level, the need was identified for concrete examples to illustrate good practices based on energy efficient residential buildings from across the region. These cases and examples are being compiled in a casebook on energy efficiency in housing.

17. The proposed report has a practical national approach: it should be a reliable source on what is and has already been working in the field of energy efficiency on a community level and beyond. The casebook will emphasize the viability of energy-efficient housing, trigger interest and increase the national stakeholders’ acceptability in this field to, eventually, create demand for energy-efficient retrofitting of existing residential buildings and construction of new energy-efficient ones.

18. The target audience is policy makers and practitioners involved in developing, managing and promoting energy efficient housing in Eastern Europe, Caucasus and Central Asia. The case studies in the report will also be of interest for policy makers and practitioners in Western Europe, as well as outside the UNECE region.

19. The preparation of this publication is a joint partnership endeavour between the UNECE Housing and Land Management Unit, UN-HABITAT (Housing Unit and the Best Practices Programme, with contributions from the Urban Energy Section), the UN-HABITAT Best Practices Centre for Central and Eastern Europe and the City of Vienna.

20. The Casebook will give a first-hand and trustworthy insight into projects that have been pursued and evaluated in recent years. Additional examples will be identified through a desk review of other good practice databases and partner networks. Moreover, a questionnaire has been sent to partners and networks to identify additional good practices from all UNECE sub-regions for consideration in the Casebook. The Casebook will also include documenting new case studies from countries of Eastern Europe, Caucasus and Central Asia as well as from South-East European countries.

21. The desk review and questionnaire were the first step towards an action-oriented strategy to help implement energy efficient technologies and strategies with the support of the international community and concerned partners from the region.

22. The proposed structure of the Casebook as well as the Good Practice case studies is being reviewed by different experts and partners to ensure the adaptability and relevance of the Casebook for countries in the region. In addition, an expert group meeting to peer-review the draft Casebook is scheduled to be held in February 2013.

23. The publication follows the thematic structure of the “Action Plan for energy-efficient housing in the UNECE region” and will be produced in English and Russian. Upon completion of the report in mid-2013, it is envisaged to develop an interactive web version of the casebook to make it available online. Funding for developing such an online platform (estimated budget US\$ 30,000) has yet to be identified.

IV. Informal UNECE Expert Network for Energy Efficiency in Buildings

24. In response to the importance the Committee on Housing and Land Management attaches to energy efficiency in the housing sector and to ensure that the Committee can continue to provide UNECE member States with high quality and effective policy advice in the area of energy efficiency, the secretariat is creating an informal UNECE Expert Network for Energy Efficiency in Buildings.

25. This informal UNECE Expert Network brings together professionals of the energy and building sector who are interested in contributing to the work of the UNECE Committee on Housing and Land Management in the field of energy efficiency in buildings, with a focus on the residential sector, through advisory services, training, presentations, peer-reviewing and experience exchange.

26. The rationale for creating such a network of experts is to support Committee on Housing and Land Management in its mission to improve the housing and land management situation throughout the UNECE region in a sustainable manner, in particular by providing practical solutions and guidelines. In times of limited financial resources, new approaches have to be identified to ensure the Committee can continue to provide UNECE member States with high quality and effective policy advice. In this regard, the Committee on Housing and Land Management would like to utilize more the expertise of professionals in this thematic area.

27. The objective of this informal network is to create a pool of experts on which the Committee on Housing and Land Management can draw from in the following capacity:

- Experts to involve in preparing or peer-reviewing UNECE reports and studies related to energy efficiency in the building sector;
- Trainers for UNECE regional and national training workshops;
- Overall guidance and feedback on the Committee's work in the area of energy efficiency and, more specifically, on the preparation of National Action Plans for Energy Efficiency Measures in the Residential Sector in UNECE member States.

28. Expected outcomes are:

- Setting-up of a competent and reliable expert network in the area of energy and buildings for quick and informal access to expertise;
- Quicker identification of suitable experts for UNECE activities (including reports, guidelines, conferences, and training);
- Up-to-date information on research results, trends and interests in the area of energy efficiency in the buildings sector.

29. The informal network will bring together professionals who are working in the area of energy efficiency in public, residential or commercial buildings. This includes also experience in the management of housing stock as well as financial mechanisms for energy efficiency. This network should draw on experts from a range of sectors, including national and local governments, academia and private sector as well as international institutions and civil society organizations.

30. The secretariat to the Committee on Housing and Land Management will approach potential experts and invite them to join the network by filling in the online form at https://www.research.net/s/UNECE_ExpertNetwork.

V. Upcoming activities

31. In the course of 2013, the Casebook on Good Practices for Energy Efficient Housing in the UNECE Region will be finalized. It is planned to present the study at the 74th session of the Committee on Housing and Land Management. This session will be organized back to back with the UNECE Ministerial Meeting on Housing and Land Management on 8 October 2013.

32. Upon completion of the Casebook, it is envisaged to develop an interactive web version of the casebook to make it available online. Funding for developing such an online platform (estimated budget US\$ 30,000) has yet to be identified.

33. Building on the successful conference series of International Sustainable Energy Forums in Central Asia and neighbouring countries, the Committee on Housing and Land Management plans to contribute to the preparations of the Fourth International Forum: Energy for Sustainable Development in close cooperation with the UNECE Committee on Sustainable Energy.

34. At the request of the Government of Georgia, a National Action Plan for energy-efficiency measures in the residential sector will be prepared. Once funding for this activity has been secured for implementing this activity, the document will give country-specific recommendations for actions to be taken by the National Government in order to create enabling conditions for energy efficiency investments in residential housing stock. This National Action Plan is a spin-off the “Action Plan for energy-efficient housing in the UNECE region” prepared by the UNECE in 2010. Proposing comprehensive actions helps the Government of Georgia create the legislative, organizational and financial framework to manage the housing stock and to initiate coordinated investments in improving energy efficiency levels. Experiences from preparing a National Action Plan for the Government of Montenegro will be reflected in this project.

35. The project targets in particular national and local level decision-makers and professionals but also stakeholders from private sector, academia and civil society organizations. Furthermore, it is envisaged that the Georgian National Action Plan will contribute to Government’s preparation of a general National Energy Efficiency Action Plan by providing the basis for the section on energy efficiency in the residential sector.

36. Upon the availability of funds, the Committee will also conduct training courses to improve understanding of national and local Government representatives in Albania, Armenia and Kyrgyzstan in key aspects and challenges of affordable and energy efficient housing, policy issues and possible responses with the aim of stimulating positive actions and initiatives in these areas.
