

Report of the Workshop: Best practices to address the issues of energy efficiency in buildings and their implementation in the UNECE member States

The workshop “Best Practices to Address the Issues of Energy Efficiency in Buildings and their Implementation in the UNECE Member States” was organized by UNECE in cooperation with UNDP and held in Yerevan, Armenia and online on 11 March 2022.

The workshop was attended by 64 participants, of which 28 women. Experts from the following UNECE member States participated: Albania, Armenia, Belarus, Bosnia and Herzegovina, Georgia, Kyrgyzstan, North Macedonia, Republic of Moldova, Ukraine (RPTC-eligible member States), Estonia, Germany, and Russian Federation.

The workshop aimed to enhance national capacities to develop and implement energy efficiency standards in buildings in the UNECE region. This workshop presented findings of the regional and national studies on implementation of energy efficiency standards in the countries, results of the trainings on high-performance energy efficiency standards in buildings, activities to enhance network of experts from public and private sectors on energy efficiency in buildings in the UNECE region. The workshop particularly discussed how the developed best practices and guidelines can be better implemented to address the issues of energy efficiency in buildings in the UNECE member States.

At the opening segment of the workshop Mr. David Grigoryan, Deputy Chairman, Urban Development Committee of Armenia and Mr. Oleg Dzioubinski, Regional Adviser, UNECE made welcoming remarks.

Mr. Oleg Dzioubinski, Regional Adviser, UNECE provided an overview of the UNECE activities in the area of Energy Efficiency in Buildings.

Ms. Nadejda Khamrakulova, Project Officer, UNECE presented main findings and recommendations of the [regional](#) and [national studies](#) on gap analysis between the performance objectives set forth in the [Framework Guidelines for Energy Efficiency Standards in Buildings](#) and current energy efficiency standards and their implementation in the countries of South-Eastern and Eastern Europe, the Caucasus, Central Asia, and in the Russian Federation.

The regional study on gap analysis reviewed existing energy efficiency policies in 17 countries; implementation of energy efficiency standards in new and existing buildings; existence of compliance and enforcement mechanisms; institutional capacity; and effectiveness of existing energy efficiency policies. The study analysed conformity of existing energy efficiency standards with the Framework Guidelines; identified barriers to effective achievement of energy efficiency policies potential; and provided recommendations to help bridging the existing gaps.

The three in-depth national studies with a more detailed gap analysis in [Armenia](#), [Kyrgyzstan](#), and [the Republic of Moldova](#) analysed energy performance of buildings, implementation of current building energy efficiency standards and provided country-specific recommendations on the possibilities to bridge the gap and enhance national capacity to develop and implement energy efficiency standards in buildings in three focus countries.

The workshop was followed by a panel discussion on implementation of recommendations from the regional and national studies moderated by Mr. Vahram Jalalyan, Project Coordinator UNDP-GCF; Co-Chair, Joint Task Force on Energy Efficiency in Buildings. The following officials and experts participated in the panel discussion: Mr. Maksat Amiraev, Head of Department of Development and Monitoring of Housing and Communal Services, State Agency of Architecture, Construction and Housing and Communal Services, Kyrgyzstan; Ms. Ruzan Adamyan, Head of Construction and Normative Department, Urban Development Committee of Armenia; Mr. Nicolae Magdîl, Lead Consultant, Energy Policy Department, Ministry of Infrastructure and Regional Development, Republic of Moldova; Mr. Andre Ohanian, Energy Expert; Mr. Sergiu Robu, UNECE Consultant; Mr. Mikhail Toropov, UNECE Consultant.

The discussion focused on recent developments of energy efficiency policies and their adjustment to the local context; financial incentives introduced to encourage investment in the energy efficiency improvements; and national institutions aimed to ensure effective implementation of building energy efficiency standards in the countries.

Mr. Maksat Amiraev indicated that Kyrgyzstan is one of the first countries in Central Asia, which adopted the law on energy efficiency in buildings in 2011 and enforced it in 2012. The work on improving energy efficiency in Kyrgyzstan is on the way but a comprehensive approach is missing. The progress includes process of energy certification and energy auditing, creation of a fund for renovation of buildings, and drafting a comprehensive programme on energy efficiency jointly with the Ministry of Energy of the Kyrgyz Republic.

Mr. Mikhail Toropov added that similar issues with improving energy efficiency in buildings exist in different countries. These similarities can help resolving the issues jointly. A potential solution for Kyrgyzstan can include building a stable institutional structure, dividing the areas of responsibility for implementation of policies, and exchanging relevant information and best practices with other countries.

Mr. Nicolae Magdîl indicated that the Republic of Moldova began transformation towards more sustainable and efficient future. A lot of improvements have been introduced in the country. The Republic of Moldova harmonized its legal framework in energy and adopted the legal framework on energy efficiency. The laws on energy efficiency and on energy performance of buildings, labelling of products, and eco-design requirements have been adopted. The country introduced energy efficiency obligation scheme, mandatory audits for energy efficiency projects financed by the public budget and energy audits for large companies, established the minimum requirements for new buildings and certification of buildings, and drafted a long-term strategy on mobilizing investments for renovating the existing buildings stock until 2030.

Mr. Sergiu Robu added that the Republic of Moldova undertook substantial steps to achieve the climate targets under the Paris Agreement. The energy strategy of the Republic of Moldova needs to be aligned with the climate objective. The country is currently focusing on development of the National Energy and Climate Plan (NECP) until 2030. Financing of energy efficiency projects will be ensured through the energy efficiency fund, social investment fund, and climate fund. Digitalization and data management is very important for the country to implement at the demand side level because if a final consumer has digital control of data, that allows to effectively use smart grids. The implementation of smart grids will enable to maximize the use of renewable energy.

Ms. Ruzan Adamyan stated that Armenia developed a package of construction norms. At the same time, knowledge of energy efficiency needs to be improved among professionals involved in the building sector. The country supports projects aimed at retrofitting of residential buildings. Cooperation with UNDP and the Asian Development Bank (ADB) is a good example of introducing energy efficiency measures and demonstrated savings from them to the residents, especially in the multi-apartment buildings.

Mr. Andre Ohanian mentioned that Armenia introduced a state intervention programme and included financing mechanisms for energy efficiency projects. The financial incentives for such projects include co-funding mechanisms for residential and public buildings. Several financial institutions provide attractive conditions for mortgage loans for buildings with higher energy performance.

Following this panel discussion, Mr. Matija Vajdic, UNECE Consultant presented the results of national training seminars on high-performance energy efficiency standards in buildings in Armenia, Kyrgyzstan, and the Republic of Moldova. Ms. Nadejda Khamrakulova, Project Officer, UNECE reported on the collaborative environment for experts on energy efficiency in buildings in the UNECE Region. Ms. Nelly Dolidze, Evaluation Expert presented findings of the evaluation of the project on Energy Efficiency Standards in Buildings completed in 2018 and implementation of its recommendations. Ms. Lisa Amend, UNECE presented the work undertaken for draft impact assessment on how to better

implement best practices and guidelines developed by UNECE activities to address the issues of energy efficiency in buildings.

During the second part of the workshop the participants discussed the existing best practices and guidelines to address the issues of energy efficiency in buildings and their implementation in the UNECE member States. The panel discussion was moderated by Mr. Oleg Dzioubinski, Regional Adviser, UNECE. Panel discussants included Mr. Vahram Jalalyan, UNDP-GCF Project Manager; Co-Chair, Joint Task Force on Energy Efficiency in Buildings; Mr. Kostiantyn Gura, Chair, Group of Experts on Renewable Energy; Co-Chair, Group of Experts on Energy Efficiency; Mr. Igor Litvinyuk, Energy Efficiency Programme Officer, UNECE; Mr. Aleksandar Dukovski, Senior Energy Expert; Mr. Alexey Tulikov, Head of the Directorate for the Development of Legislation in the Fuel and Energy Sector, Russian Energy Agency; and Mr. Romanas Savickas, Senior Advisor, UNEP-CCC, Copenhagen Climate Centre.

The discussion focused on ways of implementing the recommendations and guidelines developed by UNECE to address energy efficiency improvements in buildings, best practices in energy efficiency in buildings, and ways on how knowledge and implementation of advanced energy efficiency standards in buildings can be improved in the UNECE region.

Mr. Vahram Jalalyan indicated that most of the countries are on the right path and implement the recommendations. At the same time, the speed of implementation differs among countries. For example, Armenia has considered it being a conflict of interest when the same agency is doing the certification and auditing and thus separated the functions. Energy efficiency certificates and passports in Armenia are given based on measurements including only building envelope, heating and ventilation and do not go beyond this. They are not accounting lighting, hot water, cooling, etc. Thus, there is a need to extend the building code to include more factors in the calculations. He concluded that Armenia is mostly following the recommendations provided in the national gap analysis study.

Mr. Kostiantyn Gura indicated that housing sector is one of the most energy intensive in Ukraine. The law on energy efficiency and the National Energy Efficiency Action Plan (NEEAP) have been adopted. This legal framework introduces requirement for energy certification of buildings in Ukraine. The programme of “warm loans” was introduced and led to a significant increase in average annual savings of gas in the country. For energy certification of buildings there is a special unified system where all energy certificates can be downloaded. NEEAP includes gradual increase of building construction with near zero consumption (A+ or A++). Financial allocations are made for renovation of more than 5,000 apartment buildings in 2022.

Mr. Igor Litvinyuk presented a holistic approach to building design, delivery and operation with a paradigm that envisions buildings as energy producers. Buildings can be seen as complex systems embedded in energy, communication, water, and mobility networks. Improving their performance will accelerate the overall sustainable energy transition. High performance buildings can deliver on climate change by reducing energy consumption ideally to a point that zero carbon emissions are achieved. UNECE develops and maintains, in consultation with a broad range of stakeholders, its principles-based Framework Guidelines for Energy Efficiency Standards in Buildings with their outcomes-based vision of buildings’ performance. This is a universally applicable document which can be tailored to national circumstances worldwide. UNECE also launched a High Performance Buildings Initiative (HPBI). A high-level advisory group under this initiative plans to develop a protocol on the built environment for 2030 Agenda and the Paris Agreement.

Mr. Aleksandar Dukovski emphasized that behavioural aspects and improvement of knowledge on energy efficiency should not be underestimated. Sharing knowledge and best practices is important in the context of not repeating similar mistakes. Implementation of standards on energy efficiency in buildings should also be considered together with infrastructure of a country and its existing market conditions. When a policy is developed and the infrastructure is created based on it, people should be able to understand standards and codes which are required for the construction works. Therefore, sharing knowledge and exchange of practices is important.

Mr. Alexey Tulikov stated that guidelines and recommendations developed by UNECE are useful for the countries. Exchange of experience on energy efficiency improvements among UNECE member States is also important. In the Russian Federation, the most important regulatory documents have been adopted in the last five years. The country is in the process of development of a new state programme of energy efficiency. Distinguishing between the requirements of legislation, technical regulations, and standardization documents is an important aspect. The mechanism for applying energy efficiency standards is needed for practitioners in the building sector. The exchange of experience is important not only on the content of documents but also on application of standards in practice.

Mr. Romanas Savickas indicated a need to promote the integrated energy systems in buildings. Life cycle assessment of buildings is required. To facilitate this process, more players need to be involved in implementation (including public, private, academic sectors) with focus on integrated energy systems. The important aspect is digitalization which can help ensure energy savings. Dissemination of results from pilot projects can also serve as illustration of undertaken measures and achievement of actual results. Introduction of energy performance certificates and checking the gap between theoretical and actual performance of buildings is important in addressing the issues of energy efficiency in buildings.

The panel was followed by an open discussion among participants and speakers. Mr. Oleg Dzioubinski provided closing remarks for the workshop and identified next steps in UNECE activities in the area of energy efficiency in buildings.

The [news item](#) on this and other workshops in the framework of the Conference is available on the UNECE website. Workshop materials are available at the meeting [webpage](#).