



**United Nations Development Programme  
Country: Romania  
PROJECT DOCUMENT<sup>1</sup>**

<b>Project Title:</b>	Improving Energy Efficiency in Low-Income Households and Communities in Romania
<b>UNDAF Outcome(s):</b>	N/A
<b>UNDP Strategic Plan Environment and Sustainable Development <u>Primary</u> Outcome:</b>	<p>The UNDP goal in the area of environment and energy is to strengthen national capacity to manage the environment in a sustainable manner while ensuring adequate protection of the poor:</p> <ul style="list-style-type: none"><li>• Mainstreaming environment and energy</li><li>• Mobilizing environmental financing</li><li>• Expanding access to environmental and energy services for the poor</li></ul>
<b>Expected CP Outcome(s):</b>	Enhanced national capacity for promotion and protection of local, regional and global public goods such as biodiversity, climate stability, culture and practice of tolerance and peace, and development knowledge
<b>Expected CPAP Output (s)</b> <i>Those that will result from the project and extracted from the CPAP)</i>	Romania's energy efficiency and more effective utilities governance promoted through local interventions for climate change mitigation purposes: Energy Efficiency in low income communities
<b>Executing Entity/ Implementing Partner:</b>	Romanian Ministry of Regional Development and Tourism
<b>Implementing Entity/ Responsible Partners:</b>	Ministry of Environment and Forests, Romania Green Building Council, The Association of Energy Auditors for Buildings

<sup>1</sup> For UNDP supported GEF funded projects as this includes GEF-specific requirements

**Brief Description**

This project will work to dismantle the barriers to the implementation of energy efficiency measures among poorer households and in poorer communities in Romania, working to alleviate fuel poverty. The project will act at a national and local level to address energy efficiency needs, develop appropriate policy measures, stimulate an on-going market for locally-produced, energy efficient building materials, build capacity for implementation of energy efficiency measures in poorer regions, and implement real energy efficiency improvements to improve the lives of 110,620 people in Romania and reduce energy-related greenhouse gas emissions by 666,800 tonnes of CO<sub>2eq</sub>.

Programme Period:	2011-2015	Total resources required	\$ 122,176,840
Atlas Award ID:	00061005	Total allocated resources:	\$ 122,176,840
Project ID:	00077064	Cash contributions :	
PIMS #	4289	o GEF	\$ 2,974,840
Start date:	March 2011	o UNDP	\$ 50,000
End Date :	May 2015	Cash / In-kind contributions:	
Management Arrangements	NIM	o Nat'l Government	\$ 119,000,000
PAC Meeting Date	13 July 2010	o NGO	\$ 152,000

Agreed by (Executing Entity/Implementing Partner):



Date/Month/Year

Agreed by (UNDP):

*[Handwritten signature]* Date/Month/Year *June/2011*



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## Table of Contents

Table of Contents	3
List of Acronyms	5
List of Annexes	6
1 Situation analysis	6
1.1 Context and global significance: Environmental, policy and institutional	6
1.2 Threats, root causes	8
1.3 Long-term solution	11
1.4 Barriers to achieving the solution	13
1.4.1 Organisational and Policy barriers	13
1.4.2 Capacity barriers for implementation of EE measures	14
1.4.3 Project-level barriers	15
1.4.4 Barriers for national and local decision-making	16
1.5 Stakeholder and baseline analysis – Institutional and legal framework	18
1.5.1 Legal framework	18
1.5.2 Institutional framework	25
1.5.3 Programmes related to EE in buildings	27
2 Strategy	32
2.1 Project rationale and policy conformity	32
2.1.1 Project rationale	32
2.1.2 Project conformity with the UNDP Romania Country Programme:	35
2.1.3 Project conformity with Romanian priorities	35
2.2 Country ownership: Country eligibility and country drivenness	37
2.3 Design principles and strategic considerations	37
2.4 Project objective, outcomes and outputs/activities	39
2.4.1 Project objective	39
2.4.2 Description of Project Outcomes and Outputs/Activities	39
2.5 Key indicators, risks and assumptions	67
2.6 Financial modality	68
2.7 Cost-effectiveness	68
2.8 Sustainability	68
2.9 Replicability	69
3 Project Results Framework:	70
Total budget and work plan	77
4 Management Arrangements	82
4.1 The roles and responsibilities of the parties involved in managing the project	82
4.2 Results of capacity assessment of implementing partner	87
4.3 UNDP Support Services (if any)	93
4.4 Collaborative arrangements with related projects (if any)	93
4.5 Prior obligations and prerequisites	93
4.5.1 A brief description/summary of the inputs to be provided by all partners	93
4.6 Audit arrangements (required)	98
4.7 Agreement on intellectual property rights and use of logo on the project's deliverables	98
5 Monitoring Framework and Evaluation	98
6 Legal Context	105
7 Annexes	106
7.1 Annex I: Risk Analysis.	106
7.2 Annex II: Agreements	107
7.3 Annex III: Terms of Reference	107
7.3.1 Project Implementation Unit (Employees of the MDRT):	107
7.3.2 Technical Assistance Contracts	110
7.4 Annex IV: Capacity Assessment	119
7.5 Annex V: Special Clauses	120

7.6	Annex VI: Criteria for choosing counties and buildings	120
7.7	Annex VII: Characteristics of the building sector in Romania	126
7.7.1	Basic information on the building stock in Romania	126
7.7.2	Costs of building and refurbishing	128
7.7.3	Energy use in buildings	129
7.8	Annex VIII: Information on building materials in Romania	134
7.9	Annex IX: Description of stakeholders in the buildings sector in Romania	137
7.9.1	Governmental Authorities	137
7.9.2	Private individuals and associations	140
7.9.3	Private sector organizations	141
7.9.4	Non-governmental organizations	142
7.9.5	International organizations	144
7.10	Annex X: Energy Efficiency Standards in the Romanian Building Sector	146
7.11	Annex XI: Detail on the emissions reductions resulting from the project and value-added of GEF involvement in the project	149
7.12	Annex XII: References	160
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## List of Acronyms

AAEC - The Association of Energy Auditors for Buildings

AAU – Assigned Amount Unit

ANRE – Romanian Energy Regulatory Authority

ANRSC - National Authority for Regulating Public Communal Administration Services

BEEN – Baltic Energy Efficiency Network for the Building Stock

CHP – Combined Heat and Power

DH – District Heating

DHW – Domestic Hot Water

DIY – Do-It-Yourself

EE – Energy Efficiency

EJ – Exajoule

EPBD – EU Energy Performance in Buildings Directive

ESCO – Energy Service Company

GCal – Gigacalorie

GD – Government Directive

GHG – Greenhouse gas

GO – Government Ordinance

HFHI – Habitat for Humanity International

kWh – Kilowatt-hour

LPA – Local Public Authorities

MDRT – Romania Ministry of Regional Development and Tourism

Mt – Megatonne

MWh – Megawatt hour

TWh – Terawatt hour

USD – United States Dollar

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## List of Annexes

**Annex I: Risk Analysis**

**Annex II: Agreements**

**Annex III: Terms of Reference**

**Annex IV: Capacity Assessment**

**Annex V: Special Clauses**

**Annex VI: Criteria for choosing counties and buildings**

**Annex VII: Characteristics of the building sector in Romania**

**Annex VIII: Information on building materials in Romania**

**Annex IX: Description of stakeholders in the buildings sector in Romania**

**Annex X: Energy Efficiency Standards in the Romanian Building Sector**

**Annex XI: Detail on the emissions reductions resulting from the project and value-added of GEF involvement in the project**

**Annex XII: References**

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## 1 Situation analysis

### 1.1 Context and global significance: Environmental, policy and institutional

The buildings sector is a major consumer of energy and a major contributor of net greenhouse gas (GHG) emissions world-wide. The Intergovernmental Panel on Climate Change (IPCC) estimates that the buildings sector will be responsible for between 11.1 and 14.3 billion tonnes of CO<sub>2eq</sub> in 2030 – out of a projected total of 40.4 billion tonnes. The IPCC also estimates that 29% of these emissions can be reduced cost-effectively.<sup>1</sup>

Within the transition economies of Europe, significant improvements are needed in the existing building stock to ensure the comfort and well-being of inhabitants and the sustainability of energy systems. Buildings account for 40% of total energy consumption in the EU.<sup>2</sup> There are significant developments within the EU to address energy use in new buildings, but additional work must be done to address existing buildings and the needs of their occupants.

Within this context, this project approach will:

- Improve capacity at the national level to implement energy efficiency measures in existing buildings to address fuel poverty<sup>3</sup>;

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<sup>1</sup> Levine *et al* 2007.

<sup>2</sup> Council of the EU 2010

<sup>3</sup> As a general definition, a household is said to be in fuel poverty if it is unable to afford to maintain an adequate level of warmth (See Househam 2010 for more detail). In contrast, energy poverty occurs when a household lacks physical access to sources of energy. In Romania, the problem is almost

- Improve capacity at the local (municipal and county) level in at least two counties to implement energy efficiency measures in existing buildings to address fuel poverty;<sup>4</sup>

Within this approach, the project will have four Components, which are described in Table 1.

**Table 1: Project Components and Outcomes**

<b>Components</b>	<b>Outcomes</b>
<b>Component 1:</b> Improved policies to support energy efficiency in low-income communities	<b>Outcome 1:</b> Romanian energy policy integrates fuel poverty issues and addresses EE needs in low-income communities
<b>Component 2:</b> Improved capacity at the local level to reduce fuel consumption in low-income communities	<b>Outcome 2:</b> Supply of trained architects, building engineers, builders and auditors with EE experience expanded; municipalities in low-income regions have a better understanding of EE issues and are able to support auditing and weatherization projects – including disseminating information for Do-It-Yourself projects
<b>Component 3:</b> Direct reduction of energy consumption through community-based retrofits and market development	<b>Outcome 3:</b> Energy efficient buildings reconstructed (and potentially new buildings constructed) with reduced fuel costs or using improved sustainable energy technologies in low-income communities
<b>Component 4:</b> Information for improved decision-making	<b>Outcome 4:</b> Data and information available for decision-makers for designing programmes to address fuel poverty

The project directly contributes to the pursuit of achieving Millennium Goal Number 7: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.

The primary key **Country Programme Outcome** is related to “Capacity development for Romania to contribute to the promotion and protection of global and regional public goods”- the project will aid in addressing climate stability – which is included in point 3.11 of the Country Programme.

The project also links directly with:

**Country Programme Outcome 2:** Enhanced national capacity for promotion and protection of local, regional and global public goods such as biodiversity, climate stability, culture and practice of tolerance and peace, and development knowledge.

And

**Country Programme Outcome 3:** Capacity development for social inclusion, economic and political empowerment of vulnerable groups and for deepening democratic practice with special emphasis on initiatives with the potential to be adapted to the needs of Romanian official development assistance priority countries.

The project will aid in reducing GHG emissions, addressing fuel poverty and developing economic activities related to locally-produced sustainable energy efficient building materials.

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entirely related to fuel poverty. Whilst there may be some issues related to access to energy, in Romania the issue is almost entirely related to the housing conditions (i.e. thermal efficiency and appropriate heating systems) and the ability to pay.

<sup>4</sup> A full description of the system of governance related to the counties and cities can be found in Annex IX. In general, counties have a population of between 200,000 – 800,000 people, though the County of Bucharest has over 1.9 million inhabitants.

## 1.2 Threats, root causes

Buildings in Romania are responsible for 36% of final energy consumption<sup>5</sup> and approximately 56.1 million tonnes of national CO<sub>2eq</sub> emissions – out of a total of 152.3 million tCO<sub>2eq</sub> emissions in 2007.<sup>6</sup>

The building sector in Romania is dominated by residential buildings – comprising 95.4% of all buildings. Existing residential buildings are generally old (over half of residential buildings were built before 1970). These buildings have poor thermal properties – with average annual heating requirements of between 137-220 kWh/m<sup>2</sup>.<sup>7</sup> However, pilot projects throughout Romania have shown that it is very possible to reduce these heating needs by at least 40-50% from these levels. This is consistent with results in other countries as well as with large blocks of flats.<sup>8</sup> They are also mostly in need of significant repairs (See Annex VII for more information on the building stock).

For the purposes of addressing energy efficiency, there are three main types of residential buildings that can be dealt with. These types of dwellings make up almost 100% of the dwellings in the country:<sup>9</sup>

1. Blocks of apartments / coupled dwellings / houses that are connected to the district heating grid (comprising approximately 1.6 million dwellings – almost all in urban areas);
2. Blocks of apartments / coupled dwellings / houses that are not connected to the district heating grid (though some have disconnected and could be reconnected) and use their own boilers, stoves or no heating source (comprising approximately 3.2 million dwellings); and
3. Rural houses that have individual heating devices – either boilers or, more often, stoves with wood or coal as the heating source (comprising 3.6 million dwellings).

Under the European Energy Performance in Buildings Directive (EPBD), new construction will have to meet higher efficiency standards. However, this construction, while on-going, is not expected to rapidly replace existing building infrastructure – especially in the residential sector. At current rates of new building construction, it would take 255 years to replace the building stock.<sup>10</sup>

Additionally, new construction in rural areas and especially in poorer households is dominated by the use of energy inefficient materials with “Do-It-Yourself” projects resulting in inefficient, sub-standard dwellings which will not meet standards resulting from the EPBD. These projects often use materials which are not locally produced, are produced by uncertified manufacturers, are cheap, and usually are very energy inefficient.

In Romania, there is a series of inefficient District Heating (DH) networks consisting of 101 DH companies – most of which are publicly owned by the municipalities.<sup>11</sup> These companies provide heating to over 1.6 million dwellings (out of a total of 8.38 million dwellings). Those dwellings served by DH are mostly blocks of flats in urban areas, where for the most part

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<sup>5</sup> Government of Romania, 2007

<sup>6</sup> EC 2010 – estimated by combining direct emissions from the residential sector and the emissions from non-industry production of heat and electricity

<sup>7</sup> The average across the EU is 174.3 kWh/m<sup>2</sup> (Balaras *et al* 2005)

<sup>8</sup> See, for example, BEEN 2007, where heating needs were reduced to 75 kWh/m<sup>2</sup>.

<sup>9</sup> INS, 2002

<sup>10</sup> This is calculated using the number of residential buildings built per year since 1990. This statistic assumes that every new building replaces an old one, which is a conservative and unlikely assumption.

<sup>11</sup> In carrying out project preparation activities, only DH systems in Tulcea, Prahova and Alba Iulia were identified as being owned by a private entity (a UK company called Dalkia).



customers cannot turn down or off their heat. Average efficiency of DH systems in the country is about 43% (i.e., 43% of primary energy utilised at the source is converted into end-user heat) and older systems are even less efficient.

The operations of these DH systems are currently heavily subsidised on the supply-side, leading to artificially low heating prices for all consumers. As a result of EU requirements and a lack of financial resources, at the end of August 2010 the Government announced that supply subsidies for heat would be maintained for the winter season 2010-2011, but for the 2011-2012 season, the subsidies would be granted on the demand-side to low-income households only. “Low-income household” has not yet been clearly defined, nor has the validation procedure for the low-income household requests. This increased demand-side subsidy would augment existing demand-side subsidies geared towards poorer households.

In Bucharest, the subsidised heating price of 119 Lei/GCal (~USD 35 per GCal) has already been raised to 124 lei/GCal (~USD 36.7 GCal). The municipality has stated this is due to an increase in VAT from 19% to 24%. This pattern of price rises is expected to rise throughout the country. This increase comes at the same time as public salaries are being cut by 25% and VAT rates are being increased from 19% to 24% for most goods and services.

The existing energy inefficiencies in the district heating and building sector coupled with a slow pace of building turnover leads to a situation where large amounts of energy are consumed and wasted and large quantities of expensive fuel (especially natural gas and oil) are imported. For example, in 2007, Romania imported USD 2.6 billion worth of natural gas.<sup>12</sup> These inefficiencies lead to a situation wherein many Romanians cannot afford to keep their homes at a reasonable temperature during the winter – resulting in **fuel poverty**.

As a general definition, a household is said to be in **fuel poverty** if it is unable to afford to maintain an adequate level of warmth (See Househam 2010 included in the project submission for more detail). In contrast, **energy poverty** occurs when a household lacks physical access to sources of energy. In Romania, the problem is almost entirely related to **fuel poverty**. Whilst there may be some issues related to access to energy, in Romania the issue is almost entirely related to the housing conditions (i.e. thermal efficiency and appropriate heating systems) and the ability to pay.

Whilst little is officially known about fuel poverty in Romania, analysis of household surveys in 2008 suggests that, on average, 14.6% of families struggle to pay their heating bills. This is broken down by region in Table 2.

**Table 2: Inability to pay heating bills, by region<sup>13</sup>**

Region	Cannot pay for heating
North-East	26.9%
South-East	30.3%
South-Muntenia	18.2%
South-West-Oltenia	24.6%
West	7.3%
North-West	2.0%
Centre	6.7%
Bucharest-Ilfov	6.6%
<b>Total</b>	<b>14.6%</b>

<sup>12</sup> Leca 2008

<sup>13</sup> Source: Study carried out for the purposes of this project - based on household surveys carried out among 3,000 households in 2008 by the Romanian National Institute for Statistics.

Among households with District Heating, over 50% of all households pay more than 10% of their combined monthly income on heating bills during the winter. The households in the bottom 20% income decile pay 16.7% of their income for heat, while the households in the bottom 10% income bracket pay 20.7% (See Table 3).<sup>14</sup>

**Table 3: Heating bill as a fraction of income by income decile (apartment blocks only, winter months)**

Income Decile	Expenditure (Lei)	Expenditure per m <sup>2</sup>	Average Income (Lei)	Expenditure/Income	Number of Observations
1	89.3	3.08	633	20.7%	394
2	104.5	3.60	941	16.7%	352
3	129.9	4.01	1,224	15.9%	297
4	128.8	3.68	1,490	13.0%	251
5	125.4	3.73	1,745	10.8%	244
6	139.2	4.00	1,993	10.5%	221
7	140.9	3.88	2,257	9.4%	198
8	144.2	3.99	2,615	8.3%	192
9	145.2	3.82	3,183	6.8%	183
10	151.4	3.73	5,005	4.8%	154
<b>Country level</b>	<b>129.8</b>	<b>3.75</b>	<b>2,108</b>	<b>11.7%</b>	<b>2486</b>

There is significant potential for this situation to worsen. If the subsidies for district heating are removed, this percentage is likely to increase drastically – See Table 4.

**Table 4: Percentage of families who would spend more than 20% or 25% of their income on heating if subsidies are removed (apartment blocks only, winter months)**

Region	More than 20%	More than 25%
Northeast	30.9%	22.3%
Southeast	21.8%	12.9%
South-Muntenia	28.9%	20.3%
Southwest-Oltenia	23.6%	14.0%
West	21.4%	11.8%
Northwest	32.0%	16.5%
Centre	30.9%	23.7%
Bucuresti-Ilfov	10.0%	4.7%
<b>Country level</b>	<b>21.7%</b>	<b>13.2%</b>

A social study performed between 2002 and 2004 revealed that the households with no heating system or which have cut-off the connection with the DH, as well as the households using wood or coal stoves, have the lowest income.<sup>15</sup> If supply-oriented heating subsidies are removed and no efficiency measures are put into place, a large number of households may cut off their connection to the system – further jeopardizing its long-term sustainability. In other countries, such as Armenia, such a situation has resulted in a drastic increase in deforestation and associated GHG emissions. Furthermore, this would exert further upward pressure on DH prices – forcing even more people into fuel poverty.<sup>16</sup>

In addition to the removal of supply-side subsidies, a combination of the economic crisis and unsustainable budgets have created a situation wherein the national and municipal

<sup>14</sup> Study carried out for the purposes of this project - based on household surveys carried out among 3000 households in 2008 by the Romania National Institute for Statistics.

<sup>15</sup> INS 2005

<sup>16</sup> See USAID 2003

governments, facing budget shortfalls, are being forced to introduce austerity measures which include cutting all budget salaries by 25%, increasing Value Added Taxes from 19% to 24%, extending social contributions (social taxes) to persons performing independent activities, and cutting the number of public employees drastically.

As such, there is a threat that, due to an inefficient building stock, increased energy prices and austerity measures that reduce income, there will be a severe rise in fuel poverty while energy inefficiencies continue.

The situation can be summarised as follows:

- Currently, national energy consumption in the building sector is significant and the sector is very energy inefficient – resulting in significant amounts of wasted energy.
- Moreover, energy is becoming ever more expensive for consumers (due to tax rises, the removal of energy subsidies, global price trends, etc.).
- The EU EPBD does not cover existing buildings adequately and the ETS does not cover the buildings sector.
- There is, therefore, an opportunity for the GEF project to address an important but neglected source of GHG emissions (existing buildings) and, as a co-benefit, reduce household energy bills and therefore the prevalence of fuel poverty.
- Whilst the reduction in energy consumption in households that are not on the District Heating grids may not be as great due to existing suppressed demand, efficiency improvements can likely reduce demand below this existing level.
- In dwellings connected to the District Heating grid, suppressed demand is not a significant issue.

### 1.3 Long-term solution

In the long term, the solution to the issue of energy inefficiency in Romania will require a nationally-led, locally-implemented coordinated effort to:

- Develop a higher quality building stock which does not require as much energy to keep inhabitants comfortable.
- Deploy and operate properly more efficient heating systems – including both local boilers and district heating networks.

These actions must take place within the context of a sustained, nation-wide, coordinated effort to address fuel poverty and implement EE measures in buildings.

**This proposed project will work to address mostly the first aspect of the long-term solution by removing barriers to the implementation of improvements in the energy performance of buildings – especially among households that can be classified as being in “fuel poverty”. It will also work to stimulate the market for sustainable and energy efficient heating systems in buildings not on the DH market.** The project will work primarily within 2 initial lower-income counties dealing with:

- Residential buildings;
- “Social buildings” where people spend significant amounts of time such as schools, health centres, retirement homes, etc.; and
- Individual homes of poorer people.

The project will also work at the national level to develop policies to address EE and fuel poverty, build capacity among stakeholders and building professionals, disseminate information on EE solutions and best practices, and scale up EE solutions with the identification of additional co-financing beyond that which has already been identified for the project.

The project will result in reduced energy costs due to reduced energy consumption and fuel switching to more affordable, more sustainable heating sources, and reduced GHG emissions from the Romanian buildings sector. The introduction of EE measures has shown great success in reducing heating consumption by 40-60% – especially in apartment blocks.<sup>17</sup> EE measures can go a long way towards reducing the number of households who cannot keep their dwellings warm enough during the winter.

Different types of buildings (e.g. houses, public buildings, etc.) have different average specific energy consumptions for heat.<sup>18</sup> The average specific heating consumption for buildings in Romania range from 137-189 kWh/m<sup>2</sup> for apartment blocks, 171-220 kWh/m<sup>2</sup> for individual houses and much higher heating needs/consumption in public, non-residential, social buildings. These values fall well short of the EE standards that are achievable (for example, 117 kWh/m<sup>2</sup> for a 'B' and 70 kWh/m<sup>2</sup> for an 'A' according to Romania's own energy efficiency rating scheme). The vast majority of the almost 50 buildings in various communities examined during the project preparation activities exhibited poor thermal insulating properties. In the activities that involve direct intervention in the building stock, the project activities will lead to a significant reduction (30-70%) in building heating needs and consumption – leading to at least a B rating and, where technically feasible given the building structure, an A rating for existing buildings. For example, in apartment blocks, the reductions in specific heating consumption are expected to be at least to a level of 100 kWh/m<sup>2</sup> (from current values of 137-189 kWh/m<sup>2</sup>, depending on the building).

At the same time as addressing energy use, it is possible to stimulate local economic development by ensuring that, as much as possible, the materials used to improve the thermal properties of buildings (building and insulation materials) be produced from local sources. This will result in positive economic outcomes, sustainable market creation and contribute greatly to reducing levels of fuel poverty and saving government resources which are currently used for energy subsidies.

The project will also be involved in piloting sustainable heating systems such as biomass boilers, solar thermal heating systems and geothermal heating systems in select buildings which have already undergone/will undergo thermal fabric rehabilitation. This activity is designed to stimulate the market and demonstrate the feasibility of these actions in areas where there is no DH system.

The project will not address DH systems due to the large risk involved. While some of these systems are being upgraded, many are still very inefficient. Focusing on the supply-side efficiencies would entail significant risk: if the project focuses on improving EE within a system which then collapses due to macro-economic factors, the project results would be threatened.

Assuming that the Romanian Government does drop supply-side subsidies, the issue of artificially low prices will no longer be a significant barrier to EE in Romania within the DH system. However, if there is major number of disconnections from a given DH system, it may collapse; meaning any work to address DH systems' inefficiencies at this point could be in vain.

From an implementation standpoint, dealing with DH systems would divert important project resources and result in less sustainable and predictable outcomes. However, it should be noted that work done to improve demand-side efficiency will support eventual upgrades in the DH systems by providing a better picture of energy end-use in the buildings sector and

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<sup>17</sup> According to the Ministry of Regional Development and Tourism and Leca 2008

<sup>18</sup> These levels of specific energy consumption are described in more detail in Annex X and XIII.

by reducing final demand for energy, which could affect the installed capacity necessary to meet local needs.

## 1.4 Barriers to achieving the solution

The barriers to developing a higher quality, more energy efficient building stock which does not require as much energy as it is at present to keep inhabitants comfortable are described below and categorised in terms of organisational and policy barriers, capacity barriers, project-level barriers and barriers for national and local-level decision-making.

The barriers described below have been identified through stakeholder consultations. In addressing these barriers, it will be possible for this project to successfully transform the market and dramatically increase the level of energy efficiency in the residential sector while reducing fuel poverty.

### 1.4.1 Organisational and Policy barriers

Whilst the Government of Romania and the various municipalities are implementing a number of different programmes related to energy efficiency in residential buildings, there are still significant organisational and policy barriers to widespread EE implementation:

- *Lack of institutional support and coordination of Government actors:* There is a significant gap in coordination between Government agencies and funds that address energy efficiency and economic development. In addition, institutional support for energy efficiency can vary by region. There are a number of different government actors (as described on page 25) with a number of different programmes. However, there is no central coordination body which helps the different programmes achieve synergy.
- *Lack of clear policy specifically to address fuel poverty:* Currently, there is no official Government definition of fuel poverty, nor any targets or strategies for eradicating fuel poverty in Romania. The lead Government institution mandated with addressing fuel poverty (the Ministry of Labour, Family and Social Protection) is not engaged in energy efficiency issues to address fuel poverty. This lack of an effective policy framework is reflected in the supply-side subsidies to the district heating system and within the programmes for thermal rehabilitation, which do not differentiate between households that can afford improvements and heating of their homes and those that cannot. There are direct subsidies to families to allow them to afford winter heat, but this does not address the long-term problem of inefficient buildings, meaning that the subsidies must continue for the foreseeable future in similar or growing amounts. This leads to a lack of efficient resource allocation – such that subsidies are provided for the consumption of energy, but not for improving EE among poorer households.
- *The municipalities are not oriented towards end-use EE – especially for poor customers:* The major DH utilities are owned by the municipalities. As of now, energy efficiency is not among the direct interests of these utilities, and has not been identified by the municipalities as in their interests, to improve energy efficiency for the end user – not even for poorer consumers who usually are delayed in paying heating bills or do not pay at all. This situation also means that consumers are not satisfied with their DH connections since they are obliged to pay large amounts of money from their limited incomes.
- *Effective and innovative financial mechanisms are not in place:* Though they are envisioned within the First National Energy Efficiency Action Plan, ESCOs have not been put into place in Romania. There is a pending GEF-funded EBRD project which

would address this issue for municipalities, as well as some effort by the Energy Efficiency Fund to correct this – but links to the residential sector using financial mechanisms are just beginning and have numerous problems due to inappropriate payback periods, high risk for repayment, and/or a need for technical documentation which is not always available. Additionally, there are significant opportunities, especially related to carbon credits on the international carbon market, which could fund EE improvements if the mechanisms are put into place.

It is important to note two items which are not significant barriers to the implementation of EE:

- First, there is no significant principal/agent problem related to the ownership and occupancy of apartments. Approximately 95% of Romania's housing stock is owner-occupied, so most households act simultaneously as owners and users.
- Second, among blocks of flats, the owners have been organising themselves into housing associations as legal entities which can borrow money and collect dues – with an estimated amount of 80% of blocks having formed these associations. This has been a requirement for participation in various Government programmes and, in most places, is not a barrier to action. In fact, this is a very positive development for implementing EE measures in apartment blocks. At the same time, stronger national legislation on this issue could be advantageous.

#### **1.4.2 Capacity barriers for implementation of EE measures**

There is a reasonable amount of capacity to implement EE measures within Romania – including a thriving construction sector, a number of locally-trained building engineers and architects, and more than 900 certified energy auditors. However, there are significant gaps in knowledge among building professionals, among local municipalities and among household actors in relation to energy efficiency:

- *Lack of EE knowledge among building professionals:* Whilst a number of energy auditors (more than 900) have been trained for the buildings sector, there is still the fear that the number is insufficient for a reasonable pace of work to be performed. The majority of building architects and engineers are not currently well versed in the possibilities and important aspects of EE. Though there is growing interest in low-energy and passive buildings among architects and engineers in Romania, there is a substantial need for training to enable these professionals to actually design, build EE buildings and retrofit inefficient buildings. In addition, there is no certification program for energy managers in buildings akin to the program that exists for industrial energy managers. Energy managers would have a role in non-residential buildings provided there are ways to control the energy flows (i.e. to ensure that buildings are thermally insulated and the equipment is controllable).
- *Municipalities are not able to effectively tender and check on the quality of programmes:* Within the on-going activities – especially related to blocks of flats – there is a shortfall of knowledge among the municipalities in carrying out the tendering procedure effectively to look at quality and cost combined (instead of just cost) and how to check on the quality of the workmanship. This will be important to improve the long-term sustainability of the EE market and the long-term impact of the implemented measures. Furthermore, whilst government programmes to improve EE in buildings have proven highly successful, there is a need to involve the building owners more in the process of planning and monitoring the works. In urban areas, the rehabilitation of isolated apartments within blocks is commonly noticeable, which is technically not sound for the rest of the building. The local authorities which should prevent such situations actually do not have the expertise to offer advice.

- *In rural areas, most people implement projects in a Do It Yourself manner and their knowledge of implementing EE in houses is not at a very high level (if at all present):* According to expert opinion based upon surveys of various communities during Project Development, it is estimated that up to 90% of the building owners in areas outside of the capital – especially among poorer people – implement building projects themselves (i.e. building their own houses, installing insulation, etc.). They are often unaware of locally-available materials which may be better and cheaper, and what they need to do to make sure they are properly utilised. For example, homeowners commonly try to plaster cob walls with concrete mortar, which inadvertently changes the behaviour of the cob leading to rapid deterioration of the construction as well as of the environment inside the building.
- *Lack of EE practices applied in the construction/refurbishing of buildings in rural areas due to lack of locally-produced, affordable materials:* Most critical for rural areas and for independent dwellings, the materials used for building and improving houses and other buildings (especially public buildings) are expensive relative to incomes.<sup>19</sup> Less expensive, locally-available, more energy efficient options do exist – such as cob bricks or hemp, wool, or recycled textile insulating materials – but awareness of the benefits of these materials is low, and the market for these goods needs to be developed. Measures to address this barrier should include implementing EE measures in social buildings, developing the demand among households, and increasing the capacity of materials producers.

### 1.4.3 Project-level barriers

There are a number of individual project-level barriers which prevent EE improvements in the building sector:

- *The application process for Government programmes is complex, requiring technical analysis that is duplicated:* In order to move forward with thermal rehabilitation, it is necessary to have the architectural designs of a building and an energy audit. This can cost USD 4,100-7,000 per building, which can represent up to 3-5% of the costs of the entire project. However, especially in blocks of flats, this expense could be drastically reduced. Though there are tens of thousands of blocks of flats, there are only around 800 architectural designs – a result of the fact that the buildings were built during the communist era. Of these 800 designs, as few as 50 of these designs are used in 75% of all of the blocks of apartments. As such, a significant amount of technical assistance money is spent on duplicated services.
- *Lack of money among some households within blocks of flats:* While there are Government programmes that provide funds for the thermal rehabilitation of blocks of flats, there are many thousands of blocks that would implement these measures even without Government assistance but have difficulty in doing so because a few households in the block – those that could probably be classified as experiencing fuel poverty – cannot afford their share. As such, a huge amount of potential for energy savings is undermined. What occurs instead is that, in many blocks of flats, some families implement thermal rehabilitation while others do not – leading to a patchwork of thermal insulation on the outer walls of buildings and public, shared areas such as entrance halls, corridors, etc. being unaddressed.

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<sup>19</sup> For example, insulation using imported polystyrene costs between EUR 30-60 per square meter – which translates to EUR 1,200 – 2,400 per family, which is equivalent to over a year's salary for most families.

- *Numerous communities without District Heating service are not aware/have no existing market for appropriate/sustainable building-based heating sources:* Out of the approximately 80,000 apartment blocks in Romania, approximately 50,000 are connected to DH sources. The remainder mostly have individual heaters installed for each apartment – sometimes with gas boilers, but more often using electricity, wood stoves, coal stoves, and burning whatever fuel is available. These often represent a health hazard as well as result in significantly more fuel being used because a building-level boiler/heater is usually more efficient. Sustainable solutions (such as biomass or wood-based boilers, solar panels or geothermal heat-pumps) are likely to be cost-effective and are certainly better for the fuel-poor inhabitants of the buildings who are often using *ad hoc* heating sources with resulting poor indoor air quality.
- *Lack of customer-controlled heating sources and data for utilities and municipalities / Government on fuel usage:* Currently, most energy meters in blocks of flats on the DH system are linked to the entire building's consumption. In this case, individual apartments cannot turn their heating on or off in order to save energy and cannot be billed for their own consumption. Instead, they are billed based upon the floor area of their apartment. Because of this, there is a lack of motivation among the consumers who are unable to identify energy saving efforts in the final energy bill, and therefore a situation where there may be excess heat going to apartments which could be used in other areas of the city – or in reducing the amount of fuel used in energy generation. In some blocks, individual thermostatic valves and cost allocator devices have been mounted onto each radiator and help in correctly dividing the heating costs among apartments. However, such systems are mostly used to assuring a low bill amongst those who close their valves and thus do not pay for the heat – usually poorer families living in clear discomfort.

#### **1.4.4 Barriers for national and local decision-making**

The final type of barrier that has been identified for the implementation of EE in the building sector to address fuel poverty is related to the information available to decision-makers.

- *Lack of information about fuel poverty and among decision-makers:* There is currently no formal definition of fuel poverty in Romania. Subsidies to poorer consumers are not based upon clear criteria – but are, rather, based solely on income and the amount of monetary resources that the local municipalities have available. Municipalities (both those with DH and those without) lack knowledge as to how much in either DH, wood or coal are being used to heat homes in the area and how much would be necessary for a reasonable level of comfort. This can lead to inappropriate subsidies for heating in lieu of assisting with EE improvements which would increase comfort and save on costs.
- *Lack of data for utilities and municipalities/ Government / donors on fuel usage for prioritization of buildings refurbishment:* A number of types of key information are simply not currently available to national and local decision-makers. Decision-makers lack overall data on energy consumption in the buildings sector, except for those buildings connected to DH systems. The other heating sources are difficult to monitor as natural gas meters for local boilers include hot water and cooking, and energy used such as wood/ oil/ coal in stoves is always roughly estimated. What is known is the number of buildings using these fuel types. Overall, there is a lack of knowledge on the average performance of certain types of buildings (and related GHG emissions) and what measures should be taken to improve efficiency with reasonable/affordable costs.



- *Lack of information about the economic benefits of EE:* While there is a general sense among decision-makers that EE is beneficial for Romania, to a large extent this has not been quantified. Therefore, while some resources are going towards EE measures, the true potential is not reached as the economic trade-offs for investment are not fully understood. At present, there is no database functioning which could quantify and analyse the results of programmes being implemented.

Barrier type	Barrier	Priority (Low, Medium, High)	Activity (ies) to address the barrier
Organisational and Policy barriers	Lack of institutional support and coordination of Government actors	<i>Medium</i> – Though there are many actors involved in EE carrying out various programmes, more coordination would lead to better synergistic impacts.	Activity 1.1.1
	Lack of clear policy specifically to address fuel poverty	<i>Medium</i> – There are policies to address fuel poverty, but they do not address long-term alleviation of fuel poverty but, rather, only focus on end-user subsidies for the very poor.	Activity 1.1.2
	The municipalities are not oriented towards end-use EE – especially for poor customers	<i>Medium</i> – There is interest among local authorities and many communities for implementing EE measures, but not sufficient official policy in this direction.	Activity 1.2.1
	Effective and innovative financial mechanisms are not in place	<i>Medium</i> – Though there are government programmes to fund EE improvements, effective financial mechanisms would lead to longer-term sustainability of these programmes.	Activity 1.2.2
Capacity barriers for implementation of EE measures	Lack of EE knowledge among building professionals	<i>High</i> – This is especially critical for the implementation of EE measures, but also for the implementation of the EPBD.	Activity 2.1.1, Activity 2.1.2, Activity 2.1.3
	Municipalities are not able to effectively tender and check on the quality of programmes	<i>High</i> – While in many municipalities there are resources that can be tapped into for EE improvements, quality control is critical.	Activity 2.1.4
	In rural areas, most people implement projects in a Do It Yourself manner and their knowledge of implementing EE in houses is not at a very high level (if at all present)	<i>High</i> – This knowledge is limited and leads to a lack of demand for EE materials and practices.	Activity 2.2.1, Activity 2.2.2, Activity 2.4.1
	Lack of EE practices being utilised in the construction/ refurbishing of buildings in rural areas due to lack of locally-produced, affordable materials	<i>High</i> – The locally produced affordable materials (supply) are not on the market in most areas, making improvements expensive/infeasible.	Activity 2.3.1, Activity 3.2.1, Activity 3.3.1
Project-level barriers	The application process for Government EE programmes is complex, requiring technical analysis that is duplicated	<i>High</i> – The technical analysis is commonly listed as a main reason why investments/improvements are not carried out.	Activity 3.1.1
	Numerous communities without District Heating are not aware/have no existing market for appropriate/sustainable building-based heating sources	<i>Medium</i> – In the main cities, this option is available, but in less developed areas, this is a major barrier.	Activity 3.1.2

Barrier type	Barrier	Priority (Low, Medium, High)	Activity (ies) to address the barrier
	Lack of money among some households within blocks of flats	<i>High</i> – The lack of resources among a few households in a building can limit major investments in whole-building rehabilitation.	Activity 3.1.3
	Lack of customer-controlled heating sources and data for utilities and municipalities / Government on fuel usage	<i>Low</i> – This barrier is being addressed in many apartment buildings though it is unclear whether it will lead to significant energy savings.	Not addressed in the project due to uncertainty of impact on GHG reduction
Barriers for national and local decision-making	Lack of information about fuel poverty and among decision-makers	<i>Medium</i> – Though there are means-tested programmes to address fuel poverty, they are not based on reducing long-term fuel poverty.	Activity 3.2.1
	Lack of data for utilities and municipalities/ Government / donors on fuel usage for prioritization of buildings refurbishment	<i>High</i> – This makes investment decisions more difficult and time-consuming.	Activity 4.2.1, Activity 4.2.2
	Lack of information about the economic benefits of EE	<i>High</i> – This leads to demand and supply-side subsidies of energy consumption rather than EE investments.	Activity 4.1.1, Activity 4.1.2

## 1.5 Stakeholder and baseline analysis – Institutional and legal framework

### 1.5.1 Legal framework

Romania's Constitution includes assurance of decent housing conditions ("The State must ensure the creation of all necessary conditions to increase the quality of life" – art. 134), though they allow for unequal housing quality and satisfaction among consumers. Within this context, and within the context of the European Union's (EU) push for energy efficiency in buildings, Romania has undertaken and continues to develop policies and measures to improve energy efficiency.

Minimum energy performance requirements have been required on new and refurbished buildings since January 1998.

Based on the EU Energy Performance in Buildings Directive (EPBD - 2002/91/EC), Romania transposed the Directive as Law 372/2005. The Law sets a goal of 22% energy savings in the existing building stock. From this Law and subsequent regulations, the following is the baseline legal framework for the building sector:

- There is a prescribed similar methodology for energy performance assessment.
- There are minimum standards for energy performance in new **and old** buildings (see Annex X).
- Energy Performance Certificates are required for private and public building. These have been required for new buildings since January 2007 and were to have been required on all buildings being sold/ rented by January 2010. To issue energy performance certificates or carry out inspections, completion of a specialised university course and the passing of a Ministry commission exam is required.
- So far, there is no differentiation between residential and non-residential buildings in terms of applied methodology and energy scales and marks. Standards are only set for thermal resistances of building envelope elements which are specified according to the building functional role (house, office, schools, cultural buildings etc.).

- The MDRT has decided to postpone the energy certification of existing buildings for transaction purposes as required by EPBD until January 2011 (EGD 114/2009). However, the real entry-into-force date is not yet certain.
- Boiler inspections have been mandatory since January 2007 and air-conditioning inspections were introduced in 2008. These regulations are in place but are not implemented on a regular basis.
- The law **does not** include any penalties for the lack of compliance with its requirements.

The law related to buildings is expected to change with the introduction of the **recast EU EPBD** (Directive 2010/31/EU)<sup>20</sup> which was approved at the European level in May 2010. The EPBD recast has yet to be transposed into Romanian legislation. The following aspects of the EPBD are important to consider:<sup>21</sup>

- As of 31 December 2020, new buildings in the EU will have to consume 'nearly zero' energy and the energy will be 'to a very large extent' from renewable sources.
- Public authorities that own or occupy a new building should set an example by building, buying or renting such 'nearly zero energy building' as of 31 December 2018.
- The definition of very low energy building was agreed to be: "nearly zero energy building means a building that has a very high energy performance, determined in accordance with Annex I (of the Directive). The nearly zero or very low amount of energy required should to a very significant level be covered by energy from renewable source, including renewable energy produced on-site or nearby".
- There is no specific target to be set for the renovation of existing buildings, but Member States shall follow the leading example of the public sector by developing policies and take measures such as targets in order to stimulate the transformation of buildings that are refurbished into very low energy buildings, and inform the Commission thereof in their national plans referred to in paragraph 1 of the EPBD.
- The 1,000 m<sup>2</sup> threshold for major renovation has been deleted and this will take effect when the national regulations have been implemented and applied, probably at the beginning of 2014.
- Minimum requirements for components are introduced for all replacements and renovations, although for major renovations, the holistic calculation methodology is the preferred method with performance calculations based on component requirements.
- A harmonised calculation methodology is set out to push Member States' minimum energy performance requirements towards a cost-optimal level as a definition and an annex, and will also be refined in a comitology<sup>22</sup> process. Member States will have to justify if the gap between current requirements and cost optimal requirements is more than 15%.
- A more detailed and rigorous procedure for issuing energy performance certificates will be required in Member States.
- Control systems will be required by Member States to check the correctness of performance certification.
- Member States will be required to introduce penalties for non-compliance. They shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate

<sup>20</sup> European Parliament 2010

<sup>21</sup> As summarized by ECEEE 2010: [http://www.eceee.org/buildings/EPBD\\_Recast/](http://www.eceee.org/buildings/EPBD_Recast/)

<sup>22</sup> 'Comitology' is the committee system that oversees the delegated acts implemented by the [European Commission](#).

and dissuasive. Member States shall communicate those provisions to the Commission.

***Therefore, the proposed GEF project is additional to the EPBD recast in that it addresses existing buildings which would not otherwise improve their energy performance under the EPBD or any other existing legislative framework.***

A **First National Action Plan for Energy Efficiency** was approved in 2007 (Emergency Government Ordinance 22/2008) based on the EU Energy Services Directive (ESD - 2006/32/CE):

- The goal of the Ordinance is to achieve savings of 4.5% per year in final energy savings (i.e. 10.9 million MWh per year savings) over the next 9 years through energy efficiency measures at the final consumer level and through energy services.
- The Ordinance affects suppliers of energy efficiency services, energy distributors and final consumers that are not eligible for GHG emissions trading (i.e. the building stock, military forces, transport, etc.).
- The Ordinance **does** include penalties for the non-compliance with its requirements. For example, economic entities consuming 200-1,000 toe/year (2,360-11,630 MWh/year) must have an energy audit performed every two years or they are fined about USD 2,700-4,100.
- An important direction for action is related to the existing building stock, including measures such as thermal rehabilitation, more efficient heating and cooling equipment, promotion of Combined Heat and Power (CHP) units, more efficient household appliances, promotion of Energy Service Company (ESCO) services, and the use of renewable energy sources.
- For thermal rehabilitation of apartment buildings, the indicative target is 36,000 MWh/year.

**The Energy Strategy of Romania for 2007-2020** was established in Government Directive 1069/2007. It addresses the national energy security, sustainable development, and competitiveness. Within the sustainable development component, the potential targets refer to energy efficiency, use of Renewable Energy Sources (RES) and CHP, specific research, RUE, and reduction of energy sector impact on the environment. *The building sector is not specifically addressed in this legal act.*

**Government Decision 219/2007**<sup>23</sup> stimulates high-efficiency co-generation (compliant to Article 69 and Article 70 of the joining agreement signed by Romania and the European Community). In order to motivate the co-generators to efficiently produce low-cost thermal energy, the electricity they sell to the network is accepted with high priority and at a price higher than the network average price. The generators are also offered allowances within the framework defined by the Government Decision 1215/2009.<sup>24</sup>

***Therefore, the proposed GEF project is additional to the existing national legal framework in that it addresses significantly more buildings and stimulates the market for EE services and products in the residential buildings sector from both the supply and demand side.***

### **Heating subsidies**

Since 1997, a series of laws have been adopted to address heating prices. These can be categorized into:

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<sup>23</sup> Government of Romania 2007c

<sup>24</sup> Government of Romania 2009

- Supply-side heating subsidies to the DH companies – which are predominantly owned by the municipalities; and
- Demand-side heating subsidies to poorer families for the purchase of heat/heating fuels.

### **Supply-side heating subsidies**

The following legal framework exists for supply-side heating subsidies for the DH producers:

Typically, the thermal energy generator is an economic entity distinct from the supplier of the heat. The supplier is paid by the consumers in the month following the delivery month, while the generator purchases and pays for the fuel during the month that precedes the generating activity. Financial activities are developed by the generator together with the supplier and both create escrow accounts which receive money from consumers in an amount equivalent to the costs of the used energy quantity.<sup>25</sup> The financial resources accumulated in these accounts are used to purchase the necessary fuel.

In order to offer the consumers affordable energy prices, the regulating authorities (ANRE for the heat and energy, and the National Authority for Regulating Public Communal Administration Services – ANRSC – for consumer protection) approve prices for the heat generators and suppliers (local reference prices) that cover all their justified costs. The generators and suppliers are granted a maximum profit of 5%. These prices are periodically revised and adjusted to the global and regional conditions.

Additionally, Government Ordinance 36/2006 allows for compensation from the national budget of no more than 45% for unexpected fuel price fluctuations from the reference price.<sup>26</sup> The same legislation enables local authorities to compensate, out of their own budgets, the energy losses higher than the reference losses due to inefficient systems.

This essentially means that the Government has, up until now, supported a protective system wherein every household, no matter its income, would pay a fixed price for thermal energy. The average price nationally was ~USD 41 per GCal (~USD 35 per MWh), while the supplier is subsidized for the difference in cost which was on average against USD 92 per GCal (USD 80 per MWh).<sup>27</sup>

This system does not encourage the supplier to upgrade its equipment and make it more energy efficient, while ALL households benefit from the financial aid, no matter their income. This system will be abandoned starting in April 2011. Analysis carried out within the PPG activities estimates that the annual cost of supply-side subsidies is approximately 1.37 billion Lei (~USD 446 million).

The thermal energy is delivered to the consumers on a contract basis, signed by the generators/ suppliers and the apartment owners' association (as a legal person) or individual home owners. The bills are issued and paid on a monthly basis.

For the winter of 2010-2011 the supply-side subsidies cannot be eliminated since the local authorities that own the generation facilities do not have the financial resources to purchase the necessary fuel. The supply-side subsidies are scheduled to be phased out in April 2011, replaced with demand-side subsidies for poorer households.<sup>28</sup> For the winter of 2010-2011,

<sup>25</sup> Government of Romania 2001

<sup>26</sup> Government of Romania 2006

<sup>27</sup> According to analysis carried out in project preparation analyzing the weighted average of supply-side subsidies in Romania. An exchange rate of 3.37 Lei/USD is used here.

<sup>28</sup> See [www.hotnews.ro/stiri-esential-7586929](http://www.hotnews.ro/stiri-esential-7586929) and [http://www.avocat.ro/content/articles/id\\_21273](http://www.avocat.ro/content/articles/id_21273)

the local authorities will therefore be granted fuel subsidies up to 45% of the implied expenditure.

The local authorities will therefore have the following options for subsidies for the winter of 2011-2012, after which the supply-side subsidies should be phased out:

- Increase the price of domestic hot water from about USD 41 per GCal to USD 92 per GCal (the non-subsidised price), and of the heating price from USD 41 per GCal to USD 55 per GCal. This means that for a two-room household of 2 or 3 persons, the bill could be USD 48 higher in winter months and USD 28 higher during summer months.
- Direct the heat financial aid only to the households that are really in need of it (see below).

### **Demand-side subsidies for heat:**

In addition to supply-side subsidies for heat which are due to be phased out, the Romanian Government provides demand-side subsidies for poorer households. In the winter of 2008, direct heating subsidies were given to almost 4 million beneficiaries or almost 19% of the total population of Romania. The relevant legislation for these subsidies is described below:

- GD (Government Decision) nr. 55/2004 – This guaranteed aid for heating, streamlined the application procedure, introduced the value certificates for the purchase of heating fuel/ heat and revised the income limits for which the aid was applicable.
- GD nr. 776/2005 and 1666/2005 increased the income limits for qualification for subsidies (due to the 11%-the income average growth at that time) and increased the value of the subsidy (by 20% - corresponding to the increase of DH from 89.6 Lei/GCal (104.2 Lei/MWh) to 107.5 Lei/GCal (125.0 Lei/MWh). The subsidy of natural gas was also increased, from 17% to 34.5%, and that of other fuels to 11.7%.
- Government Ordinance (G) 5/2003 - establishes the general framework and principles for a financial aid for this category during the heating season.<sup>29</sup> The income levels and the aid sums are periodically adjusted according the fuel price fluctuations and are approved by a Government Decision.

When the households apply for the heat financial aid, a special form has to be filled in, stating the value of the household's assets. The local authorities carry out random verification of at least 8% of the applications in cities with less than 100,000 inhabitants and at least 3% for larger cities. Financial aid for heating is granted only to households residing at the address of the head of household, and not for other building(s) owned elsewhere. When affordable, the local authorities can decide to supplement the aid sums in the tables below, within the same income levels, and within a certain level with the same sum for all beneficiaries, out of their own reserves. The compensation does not interfere with other rights or obligations applied for by the same beneficiary.

The low-income singles and households that heat their homes using the DH system benefit from monthly financial aid that compensates a certain percentage of the bill. The financial aid is obtained through a written application stating the number of inhabitants in the household and their incomes. Depending on the average net monthly income per family member, the compensation granted to the household is presented in Table 5.<sup>30</sup> For single inhabitants, the compensation is 10 percentage points higher than the values in the table, and for the case  $V \leq 155$  the compensation is 100%, according to Law 416/2001.<sup>31</sup>

<sup>29</sup> Government of Romania 2003

<sup>30</sup> The average net monthly income per family member is computed considering all documented incomes of all household members in the previous month.

<sup>31</sup> Government of Romania 2009b

**Table 5: Compensation for DH to poorer families**

Average net monthly income per family member, V (Lei)	Percentage of the bill that is compensated (%)
$V \leq 155$	90
$155 < V \leq 210$	80
$210 < V \leq 260$	70
$260 < V \leq 310$	60
$310 < V \leq 355$	50
$355 < V \leq 425$	40

Source: Government of Romania 2009c

For households not on the DH system, financial aid is paid to the beneficiaries once, for the entire heating season, not later than October 31<sup>st</sup>. The date of distribution is decided by the municipality. The heating season is defined as the time between November 1st and March 31st of the next year, but it can be extended by the Ministry of Labour, Family and Social Protection in the case of long winters, with the consent of the National Weather Forecasting Institute.

In the case of low-income households or single inhabitants using **natural gas** to heat their homes, the monthly heat financial aid per household is presented in Table 6. The financial aid is limited by the household monthly consumption multiplied by the national reference price. The maximum consumption subsidised depends on the temperature zones defined by GO 57/2006. The sum of the compensation within the heating season should not be higher than the total cost of the monthly natural gas consumption for the cold season.

**Table 6: Financial aid for heating for poor households using natural gas for heat**

Average net monthly income per family member, V (Lei)	Monthly heat aid (Lei)	Monthly heat aid (USD)
$V \leq 155$	262	78
$155 < V \leq 210$	162	48
$210 < V \leq 260$	137	41
$260 < V \leq 310$	112	33
$310 < V \leq 355$	87	26
$355 < V \leq 425$	62	18

Source: Government of Romania 2009c

The maximum natural gas monthly consumption depends on the temperature zone and the household type (no. of rooms) as described in Table 7:

**Table 7: Maximum natural gas monthly consumption for subsidies according to temperature zones**

Temperature zone/Counties	Household no. of rooms	Maximum monthly consumption (GCal)
<b>Warm zone:</b> HR, SV, CV, BV, BN, BC, BT, CJ, VS, NT, MS, SB, HD, IS, AB	1	0.82
	2	1.22
	3	1.59
	$\geq 4$	2.21
<b>Temperate zone:</b> VN, SM, DB, AG, IL, SJ, DJ, MM, GL, PH, BR, BZ, OT, BH, TR, IF, GJ	1	0.91
	2	1.36
	3	1.76
	$\geq 4$	2.45
<b>Cold zone:</b>	1	1.01

GR, TL, VL, AR, CS, B, CL, TM, MH, CT	2	1.49
	3	1.94
	≥ 4	2.70

Source: Government of Romania 2006b

In the case of the low-income households or single inhabitants using **coal or wood** to heat their homes, the monthly heat financial aid per household is presented in Table 8. For low-income single inhabitants with  $V \leq 155$  lei, the monthly heat financial aid is set at 58 Lei (USD 17.2). The average price for coal is 250 Lei/tonne (USD 74.2), and for wood is 150 Lei/m<sup>3</sup> (USD 44.5).<sup>32</sup>

**Table 8: Financial aid for heating for poor households using wood or coal for heat**

Average net monthly income per family member, V (Lei)	Monthly heat aid (Lei)	Monthly heat aid (USD)
$V \leq 155$	54	16
$155 < V \leq 210$	48	14
$210 < V \leq 260$	44	13
$260 < V \leq 310$	39	12
$310 < V \leq 355$	34	10
$355 < V \leq 425$	30	9

Source: Government of Romania 2009c

With the elimination of supply-side subsidies, the Romanian Government and local authorities will likely be increasing the amount of financial aid for households to pay for heat. It is expected that they will not provide subsidies for those households with an income higher than 600 Lei per month/household (~USD 178).

In Bucharest, the municipality estimates that 46-48% households on the DH system (1,710,000 persons in 570,000 apartments) are formally in need of financial aid for heating and thus would pay about USD 41 per GCal, while the rest would have to pay the nonsubsidised price of USD 92 per GCal.<sup>33</sup>

Due to the economic crisis, aid is probably only feasible for 30% of the households. Thus additional restrictions are foreseen: households owning a car with a capacity higher than 1,600 cm<sup>3</sup> or having another house or bank accounts over a certain amount of money will not be eligible.

For other localities, additional restrictions are expected: a household owing valuable goods or cattle or more than 1,000 m<sup>2</sup> of land, that could be sold to raise heating money will not be eligible for financial aid.<sup>34</sup>

At the national level, it is estimated that 3.2 million families (more than 7 million people)<sup>35</sup> could apply for heat financial aid, but, with the above criteria, it is estimated that only 10% would be eligible, and this would still cost the state about USD 276 million for the winter season 2010-2011. The government is considering raising part of this money through carbon finance mechanisms (potentially through selling AAUs).<sup>36</sup>

<sup>32</sup> Based on research carried out during project preparation

<sup>33</sup> See [http://old.cotidianul.ro/pretul\\_gigacaloriei\\_se\\_va\\_mari\\_cu\\_250\\_in\\_bucuresti-114336.html](http://old.cotidianul.ro/pretul_gigacaloriei_se_va_mari_cu_250_in_bucuresti-114336.html) and [www.hotnews.ro/stiri-esential-7586929](http://www.hotnews.ro/stiri-esential-7586929)

<sup>34</sup> See [http://www.avocat.ro/content/articles/id\\_21273](http://www.avocat.ro/content/articles/id_21273)

<sup>35</sup> Financiarul 2009

<sup>36</sup> See [http://www.avocat.ro/content/articles/id\\_21273](http://www.avocat.ro/content/articles/id_21273)



## 1.5.2 Institutional framework

There are a number of stakeholders involved with the buildings sector in Romania – including many that are involved in EE/RES measures. These are outlined in Table 9 and described in detail in Annex IX along with an evaluation of their capacity carried out within project preparation. The primary institutions involved with enforcement are described below:

- **The Ministry of Regional Development and Tourism (MDRT)** is responsible for the implementation of the legislation on energy efficiency in buildings.
- **Local Public Authorities' (LPA)** are responsible for energy certificate production and authorising construction. They also – for the most part – own the District Heating companies.
- **Romanian Energy Regulatory Authority (ANRE)** is a public independent body of national interest whose mission is to create and implement the appropriate regulatory system to ensure the proper functioning of the electricity, heat and gas markets, in terms of efficiency, competition, transparency and consumer protection.
- **The Regulatory Department for Energy Efficiency** is the former National Agency for Energy Conservation (ARCE) and is a new department within ANRE.
- **National Institute of Research and Development in Building and Construction, and in Urban and Sustainable Regional Development (URBAN-INCERC)** is nominated to be in charge of monitoring the existing building certification process – though it does not seem to be effective. INCERC should also monitor the impact as the data repository. Currently, there is no verification by trials of the certification and audit projects.
- **The Association of Energy Auditors for Buildings (AAEC)** organises regular meetings, training courses for energy auditors and an annual conference. They also perform pilot demonstration projects.
- **The Romanian Green Building Council** is a non-profit, non-political association of businesses and other organizations active throughout the country. They are a leading organization promoting environmental responsibility and energy efficiency in the Design, Construction, Operation, and Deconstruction of Romania's buildings.
- **Habitat for Humanity International (HFHI)** is a non-profit ecumenical Christian housing organization and has been working in Romania since 1996. Working through locally run affiliates, HFHI partners with low income families in need to build and renovate simple, decent, healthy and affordable housing.
- **A Commission** was proposed, but not yet established – consisting of specialists that do not work in the MDRT – to monitor the EPBD implementation.

**Table 9: Description of organisations engaged in the building sector in Romania**

Level	Name of Institution/ Organisation/ Unit	Involvement in housing, building energy efficiency and/or fuel poverty
Central Government	Ministry of Regional Development and Tourism (MDRT)	Responsible for housing construction and thermal rehabilitation
	National Centre for Human Settlement (CNAU)	Responsible for the national habitat strategy
	Ministry of Environment and Forestry (MMP)	Established and manages the Environment Fund
	The Ministry of Administration and Internal Affairs (MAI)	Involved in rehabilitation of district heating and sanitary networks, as well as building installations
	National Housing Agency (ANL)	Stimulate new housing construction, and the rehabilitation and consolidation of existing buildings
	INCD URBAN-INCERC	Building rehabilitation, energy-saving and insulation, and professional training

	Romanian Energy Regulatory Authority (ANRE)	A special department responsible for energy efficiency in industry and public buildings
	The Ministry for Labour and Social Protection (MMPS)	Is in charge of the Heat Assistance Payments, addressed to low-income households
	The National Institute of Statistics (INS)	Collects and analyses data on energy, housing, and income
<b>Local authorities</b>	The National Councils for Regional Development	Decides on regional policy
	The National Agencies for Regional Development	Implements the regional policy
	The National Funds for Regional Development	Finances the regional programs
	Local councils	Monitor local housing stock and market, provide land, and secure special funds for new housing
<b>Private individuals and associations</b>	Property owning households	Energy end-users/beneficiaries and payers
	Owners' Associations in condominiums	Building (construction and utilities) managers
	Contractual relations of households to the private sector.	Define the degree of dependency of energy end-users on the utility companies and the quality of contracted services
<b>Private sector orgs</b>	The Community Financial Institutions (CAR)	Offers members both depository and lending services for, inter alia, individual home improvements
	The National Loan Guarantee Fund for SME's (FNGCIMM)	Targets people seeking new homes and provides loans to home-owner associations for thermal rehabilitation of their blocks of flats
	The National Company for Investment (CNI S.A.)	Coordinates the implementation of MDRT programs for rehabilitation of blocks of flats in poor regions of Romania, and for thermal rehabilitation of some public health buildings
	The Romanian Energy Efficiency Fund (FREE)	Finances energy efficiency projects
	Construction companies (ARACO)	Promotes construction materials and technologies for energy efficiency solutions in buildings
	Utility companies	Supply energy to end-users
	Research institutes (IPCT, ISPE)	Analyse energy efficiency levels and propose improving solutions
<b>NGO's</b>	HABITAT Urban League	Protect and support the household best interests versus energy supplying companies
	The Romanian Association of Energy Auditors for Buildings (AAEC)	Promotes energy efficiency and certification of buildings; trains energy auditors
	The Patronate Association for New Sources of Energy (SUNE)	Promotes the use of renewable energy resources in buildings
	The Romanian Association of Installation Engineers (AIIR)	Active in transposing European requirements into national actions
	The Romanian Association for Facility Management (ROFMA)	Manages buildings for best comfort and least expenses
	Local Energy Management Agencies	Promote rational use of energy and new energy sources
	The Romanian Institute for Energy Development Studies (IRE)	Monitors the energy sector

	The Romanian Patronate of Public Services (PSP)	Ensures the compatibility of national power sector with international standards aiming at maximum efficiency
	The Romanian Association of Real Estate Agencies (ARAI)	Advertise building energy efficiency level for real estate transactions, under the market pressure
	The National Association of Romanian Real Estate Valuers (ANEVAR)	Includes building energy level in the valuation scheme of buildings in relation to the market and financial institutions
	The Romanian Centre for European Policies (CRPE)	Checks on the consistency of the national policy with the EU approach to ensure affordable energy
International organizations	Habitat for Humanity International (HFHI)	Partners with low income families in need to build and renovate healthy and affordable housing
	Express Finance – Institutie Financiară Nebancară S.A.	Provides a range of financial products to support the housing and business needs of low income families
	The United Nations Human Settlements Program (UN-HABITAT)	Promotes socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all
	The European Commission (EC) + ECEEE	Administers Cohesion Funds, the European Social Fund, and the Intelligent Energy Europe (IEE) program through DG-TREN for Member States
	The International Energy Agency (IEA)	Informs and promotes projects on energy efficiency in buildings.

### 1.5.3 Programmes related to EE in buildings

The legal framework and various funding programmes have resulted in a number of national programmes, which are described in Table 11. This project intends to build upon the initial successes of the three most important programmes which are described below in order to reduce fuel poverty and GHG emissions associated with the buildings sector.

#### National Programme for Thermal Rehabilitation of Blocks of Flats:

**Emergency GO nr. 18/2009** for energy performance of the blocks of flats built between 1950 and 1990. This legal act establishes energy efficiency measures allowed within the national program of thermal rehabilitation of blocks of flats, the financing mechanism and the responsibilities of the involved authorities and apartments owners. The improved energy efficiency may be achieved by:

- Thermal insulation on the exterior walls,
- Replacement of old windows and exterior doors with energy efficient ones.
- Thermal and hydro-insulation of roofs and terraces;
- Thermal insulation of slabs over or walls next to unheated spaces.

Repairing or replacements of the heating and DHW systems are allowed only as supplementary works and do not represent a priority within this program. Given the limited funds, these installations are not addressed in most of the projects.

The technical assistance (i.e. energy audits, design) is fully covered from the local authorities budgets; the implementation of measures is paid with 50% from the state budget, 30% from the local authorities budgets or other legal financial sources, and 20% is paid by the owner associations of buildings being rehabilitated. This law also stipulates that the local authorities may pay partially or totally for the owners share, with or without later recovery of this additional aid; *the owners who cannot pay the 20% share of implementation costs receive special attention from the local authorities.*

**Government Directive no. 363 / 14 April 2010** regarding *approval of cost standards for investments from public funds*, completed with GD 717/14 July 2010. The following cost

standards are addressed to the central and local authorities who need to have a reference with regard to public works investments in order to ensure their economic efficiency. *For the thermal rehabilitation of the blocks of flats*, Table 10 describes the reference specific (relative to the element area) costs have been approved. The standard costs do not include expenses for the site preparation, connection to the utilities, design and technical assistance, other unexpected expenses, and expenses for final testing, all of which cannot be more than 18% of the basic investment costs.

**Table 10: Approved costs for thermal rehabilitation of apartment blocks**

Building element	Cost* (without VAT), USD/m <sup>2</sup>
Opaque wall	37
Transparent element (wall, window)	137
Terrace	45
Basement slab	15

\*) 1 USD = 3.37 Lei

### **The national program for improving energy efficiency and use of renewable energy resources in the public sector, for 2009-2010:**

**Government Directive 661/2008** initiates the national program for improving energy efficiency and use of renewable energy resources in the public sector, for 2009-2010. The program objectives are to stimulate the local investments by offering a significant share of non-refundable financing (co-financing):

- To lower thermal energy bills for the population while improving supplying conditions;
- To improve indoor comfort by reducing energy losses in heating, DHW, lighting systems, as well as by thermal insulation of building envelopes;
- To develop the national energy services market;
- To ensure a better use of RES potential throughout the country; and
- To significantly contribute to the environment protection by lower GHG emissions.

Eligible projects include:

- Rehabilitation/ modernization of DH production/ transport/ distribution systems, and change of DH fuel type for more ecological/ affordable fuels (co-financing of 30%);
- Energy rehabilitation and use of RES in public buildings (co-financing of 59%); and
- Modernization of indoor/outdoor public lighting (co-financing of 30%).

Building energy audits are also co-financed with 50%. All projects must have a clear estimation of energy efficiency improvement and reduction of GHG emissions.

### **State guarantee for credits made by population for thermal rehabilitation of their homes:**

**EGO nr. 69/2010** is a recently approved a legal act that establishes a *scheme of state guarantee for credits made by population for thermal rehabilitation of own apartments or individual houses* built before year 2000. The energy saving measures include:

- Retrofitting of the building envelope (insulation, new windows);
- Replacement or acquisition of an efficient heating system; and
- Implementation of equipment based on renewable energy sources to produce heat, electricity for lighting and/or DHW.

Moreover, this law introduces the subsidy of bank interests for such credits, in addition, to other taxes and fees dispensations.

In order to access a guaranteed credit, the owners must contribute at least 10% of the implementation costs. However, the local councils may decide to undertake maximum 30% (including or not the 10% share of owners) of the implementation costs and technical assistance (technical expertise, energy audit, technical project and design). The mandatory payback period for the credit may not exceed 5 years.

The guarantees are given by the National Loan Guarantee Fund for SME's (FNGCIMM) and then paid by the Ministry of Regional Development and Tourism (MDRT).

Norms have been issued for the application of this legal act under GD 736/July 21, 2010. They specify the following steps for the energy rehabilitation process under Emergency GO nr. 69:

- Building technical expertise, energy certificate, energy audit, and technical design for interventions;
- Implementation of recommended measures;
- Building commissioning and final energy certificate at the completion of works.

The financier provides maximum 90% of the implementation costs, but no more than 2300 USD/ room in apartments and 9200 USD/single house.

**Table 11: Programmes in Romania dealing with EE and renewable energy in buildings**

Program	Legal act	Implementing organization	Annual budget*	Time frame	Target group/ region	Aims/strategies of the program
<b>National Program for Thermal Rehabilitation of Blocks of Flats</b> <sup>37</sup>	Law 372/2005 Law no. 18/2009 Law no. 69/2010	MDRT, Local Authorities (LA)	36 million Euros, from MDRT >36 million Euros, from LA	2005-	Blocks of flats – national level	781 blocks (27,385 apartments) rehabilitated up until 31 Dec. 2009 896 blocks (24,548 apartments) up to the end of 2010
<b>The Green Home (the Environment Fund)</b> <sup>38</sup>	Law 105/2006	Ministry of Environment and Forestry – Administration of Environment Fund	26 million Euros	1 July 2010 -	Housing sector (apartments and houses) (also industrial applications, not included in the table)	Program started on 1 <sup>st</sup> July; 8500 projects received for houses up to 1 <sup>st</sup> Sept. 2010, 7500 more expected until the end of the year - Provides state subsidies (6000-8000 RON/equipment) when classical heating installations are partially or totally replaced with renewable energy equipment.
<b>Thermal rehabilitation of public health buildings</b>	GD 964/2003 GD 1868/2005 GD 765/2010	MDRT by CNI S.A.	6.5 million Euros allocated until 2010; 2.2 million Euros for after 2009	2005-2010; 2011-	Public health sector	Thermal rehabilitation of 32 public health buildings until 2010; 3 more buildings starting with 2010. Major financial contribution from the Swiss Government.
<b>Structural and thermal rehabilitation of blocks of flats in poor regions</b>	Law 60/2005 GD 663/2005, ... 940/2010	MDRT by CNI S.A.	2 million Euros	2007-2010	Private and public buildings	Structural and thermal rehabilitation previewed in governmental decisions for: 8 blocks in 2006, 12 blocks in 2007, 13 blocks in 2008, 11 blocks in 2009, 8 blocks in 2010. In actuality, there have only been 5 blocks rehabilitated with 243 apartments during 2007-2009.

<sup>37</sup> This programme forms part of the baseline activities of the proposed project – which will be improved and assisted through the project activities.

<sup>38</sup> This programme forms part of the baseline activities of the proposed project – which will be improved and assisted through the project activities.

Program	Legal act	Implementing organization	Annual budget*	Time frame	Target group/region	Aims/strategies of the program
<b>The First House</b>	Law no. 368/2009 – (EGO no. 60/2009)	Government	53 million Euros (initial)	2009 -	Housing (single buildings or apartments)	Credit guarantee scheme. 1,017,700 Euros for 24,277 guarantees up to July 2010, then frozen.
<b>The Program for the Romanian Village Rebirth – 10 houses for specialists</b>	GD 151/2010; (EGO 28/2010 for financing)	MDRT	800 million Euros allocated for 5 years	2010-2015	State-owned housing, in rural areas	Feasibility studies foreseen for 25,000 houses and 17,000 requests received; no house has been built so far.
<b>The Housing Program for Young People</b>	EGO no. 14/2010 (Law 152/1998, EGO 105/2005)	ANL	44 million Euros for 2010 (initial)	2005-	New blocks of flats at affordable prices	7000 houses in 2010-reduced to 1400 due to budget cut-off in August 2010
<b>District Heating 2006-2015 – Heat and Comfort</b>	GD no. 462/2006, MO no. 471/2008	Ministry of Administration and Internal Affairs	63 million Euro/year proposed; 10.5 mil. Euro in 2009 for about 35 projects	2006-2015	It is not addressed to natural persons, although it might rehabilitate residential buildings as well.	This program has two components: rehabilitation of the district heating system, and the thermal rehabilitation of buildings (indoor installations).
<b>National Action Plan for Energy Efficiency</b>	EGO no. 28/2008 (ESD 2006/32/EC)	ANRE (dept. Regulation in Energy Efficiency Field)	Distributed, not known	2008-2010	Industry, public sector, housing sector, ESCO's.	Contributions to the legal framework, promotion of national EE programs, 1 <sup>st</sup> report for EC due in 2011.
<b>The national program for improving energy efficiency and use of renewable energy resources in the public sector, for 2009-2010.</b>	GD no. 1661/2008; GD no. 835/2010	ANRE (dept. Regulation in Energy Efficiency Field)	5.8 million Euros allocated for co-financing in 2009; 2.8 million Euros allocated for co-financing in 2010.	2009-2010	Public sector (infrastructure, buildings)	6 projects for district heating; 5 projects for public lighting; 12 projects for public buildings (schools, hospitals, local administration).
<b>State guarantee for credits made by population for thermal rehabilitation of their homes.</b>	EGO nr. 69/2010 GD 736/2010	MDRT, FNGCIMM	46.8 million Euros	2010 -	Apartments or individual houses built before year 2000.	The scheme guaranties 90% of the implementation costs for energy efficiency measures, but no more than 1850 Euro/room in apartments and 7400 Euro/single house.

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## 2 Strategy

### 2.1 Project rationale and policy conformity

#### 2.1.1 Project rationale

As noted previously, for the purposes of addressing energy efficiency, there are three main types of residential buildings that can be dealt with, – which together make up almost 100% of the residential building stock:<sup>39</sup>

1. Blocks of apartments/ coupled dwellings/ houses which are connected to the district heating grid (comprising approximately 1.6 million dwellings – almost all in urban areas);
2. Blocks of apartments/ coupled dwellings/ houses which are not connected to the district heating grid (some of which could be) and either use their own boilers, stoves, or no heating source (comprising approximately 3.2 million dwellings) and
3. Rural houses which have individual heating devices – either boilers or, more often stoves with wood or coal as the heating source (comprising 3.6 million dwellings).

Within the three different types of housing described above, fuel poverty manifests itself in different ways and households adapt in different ways. A rise in fuel prices, a rise in income or an increase in efficiency within these different types of households would thus result in different outcomes as described in Table 12. It is important to note the following:

- Among households connected to the DH system, poorer households which cannot afford the system receive subsidies, disconnect and have no heating source or disconnect and install a stove either with wood or coal as the heating source.
- Among households which have disconnected from the DH systems or which could be connected, increased fuel prices would result in a decrease of energy use or, if they can afford it, the same level of energy use. The increase in prices for fuels like natural gas may even lead to them (re)connecting to the DH system. Only the implementation of EE measures would be sure to decrease energy use.
- For rural households or households unable to connect to district heating sources, the options are similar to urban households disconnected from the DH system.

It should also be noted that decreases in energy prices or increases in income may result in more energy being used among households not connected to the DH system. This is due to “suppressed demand” wherein households are not currently getting sufficient energy to meet their basic needs, and so increasing relative incomes allow these households to purchase more fuel. This issue is important when calculating GHG emissions reductions. Fundamentally, EE is needed to ensure minimal levels of energy are supplied to the poorest consumers and to ensure a lower-carbon growth trajectory. However, suppressed demand is unlikely to be greater than 20-30% because of demand-side subsidies for poorer households which cover significant amounts of their heating needs (Table 3 shows that the household expenditures per square meter is no more than 25% lower for poorer households).

Because demand among those households connected to the DH system is currently relatively inelastic – as households can either turn on or off the DH system, they cannot decrease it or increase it – suppressed demand is not an issue in this area.

As incomes rise in households connected to the DH system, the ability to pay will no longer be as much of an issue, which may drive fuel poverty rates down if incomes rise among the lowest deciles of society (including amongst pensioners and households with an unemployed member). However, the energy consumption will not change unless they switch heating sources (i.e. install local boilers).

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<sup>39</sup> INS 2002



If poorer households not connected to the DH system improve their incomes, this increasing ability to pay may result in more energy being used and, thus, more GHG emissions – unless energy efficiency measures are introduced. Thus, the role of EE is to reduce the trajectory of energy demand growth – and potentially to reduce the absolute demand at the same time.

**Table 12: Likely impact on energy use among poor households from three different scenarios**

Type of housing	Impact of increased fuel prices on energy use	Impact of increased income on energy use	Impact of efficiency measures on energy use
Urban – connected to DH	Same or disconnect	Same or disconnect	Decrease
Urban – disconnected from DH but able to be connected	Same or decrease	Same or increase	Decrease
Rural – individual heating sources	Same or decrease	Same or increase	Decrease

Publicly owned buildings also play a significant role in the building sector in that:

- They serve as places where people spend a significant amount of time (for example, schools and offices). As such, their characteristics affect the quality of life of the people who spend time in those buildings.
- They often serve as examples of architecture and building practices for the general public. Particularly in rural areas, the non-residential buildings are often in buildings similar to or identical to the local housing. This is especially true in the public sector buildings. For example, many mayors' offices and schools are within buildings very similar to local dwellings.
- Public buildings have been identified within the EPBD recast as being important to implement EE measures in order to set a good example.<sup>40</sup>
- The public procurement process can also be used for public buildings to encourage the removal of barriers to EE implementation.

## Project Scope

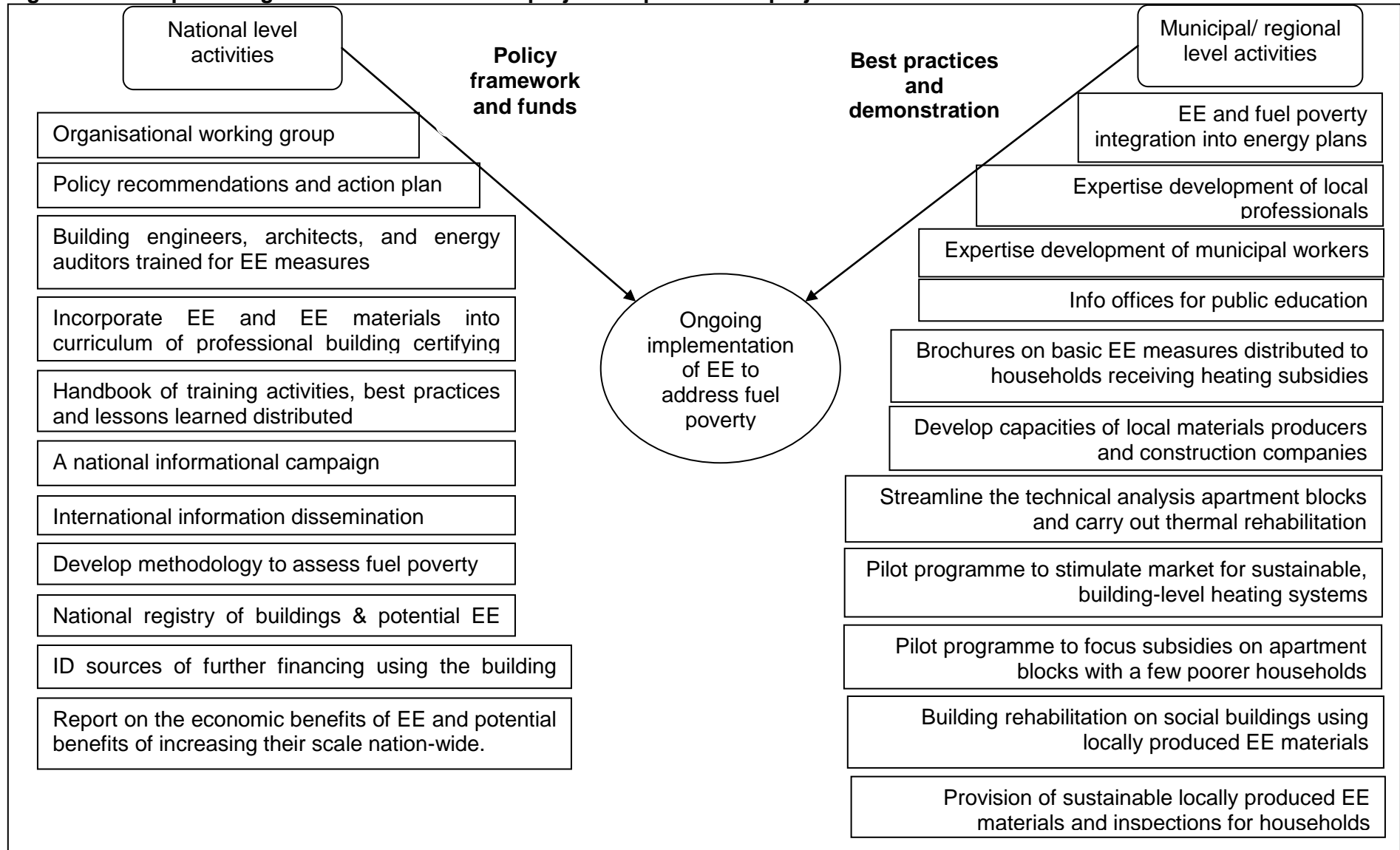
The project is based on action at two levels – the national level and local level within two counties. Based upon evaluations of various counties during the PPG exercise, the counties of Dolj and Hunedoara have been chosen. These counties have agreed and are eager to participate in project implementation, as demonstrated by the letters of commitment in Annex II.

If the Project Board decides that these counties are no longer appropriate for the implementation of the project (due to a lack of demonstrated commitment, difficulties with the commitment co-financing, or other considerations deemed to be sufficiently problematic by the Project Board) a decision can be taken by unanimous consent of the Project Board to change the counties in which the project will focus its resources.

The Outputs and Activities of the project are directly related in order to transform the market for EE building materials in Romania and begin the process of addressing fuel poverty. This interaction is represented in the conceptual diagram in Figure 1.

<sup>40</sup> European Parliament 2010

**Figure 1: Conceptual diagram of the interaction of project Outputs for the project**



## 2.1.2 Project conformity with the UNDP Romania Country Programme:

The Country Programme Document for Romania for 2010-2012, states three main programme outcomes for UNDP involvement:

1. *Capacity Development for Romania to contribute to the promotion and protection of global and regional public goods* – Within this priority, UNDP will support programmes which focus on, among other areas, biodiversity, climate stability (i.e. change adaptation and mitigation mechanisms).
2. *Capacity development for social inclusion, economic and political empowerment of vulnerable groups and for deepening democratic practice* – Within this priority, UNDP will support social inclusion and the economic and political empowerment of vulnerable groups in Romania through aligning its programming in this area to the large scale national programs managed by national authorities with European Structural Funds and national resources.
3. *Capacity Development for Romania's International Cooperation and Aid Effectiveness* – Within this priority, UNDP will assist its national partners to share Romania's development experience with developing countries through building capacities for national development-knowledge management.

This project – which focuses on climate change mitigation, addressing fuel poverty, developing the market for locally produced EE building materials, and sharing the best outcomes with other developing countries – is closely aligned with the priorities outlined in the Country Programme Document for UNDP in Romania – especially priority one.

Furthermore, the UN Development Assistance Framework (UNDAF) mid-term review exercise conducted in 2008 pointed to the continued relevance of UNDP support to national capacity development for environmental management and social and economic development at national and local levels, highlighting the strengths of UNDP's partnerships at local levels as critical success factors.

The project builds on these strengths with a two-tiered approach to project implementation – at the national and county levels.

## 2.1.3 Project conformity with Romanian priorities

The proposed project is very closely aligned with current national priorities:

It is highly consistent with Romania's National Development Plan, the tool that sets public development investment priorities, as it directly addresses three of the six national development priorities:

- Protecting and improving the quality of the environment;
- Developing human resources, promoting employment, social inclusion and strengthening administrative capacity; and
- Diminishing development disparities between country regions).

The project is consistent with the National Energy Strategy 2007-2020, which was adopted in 2007 and includes the objective of improving energy efficiency.

The project is consistent with Action 6.3 of the National Action Plan on Climate Change in its efforts to “promote energy efficiency among energy end users”.<sup>41</sup>

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<sup>41</sup> Romanian Ministry of Environmental and Water Management 2005

The project also intends to assist in identifying areas for investment for the “Greening Investment Scheme” which is described in the 5<sup>th</sup> National Communication to the UNFCCC.<sup>42</sup>

The project is closely aligned with the country’s efforts to reduce energy consumption and to improve energy performance in buildings, both of which are mandated under national legislation and which will be enhanced with the implementation of the EPBD recast. However, the project represents a large step beyond what is currently envisioned in the national legislation.

Specifically, the current legislative framework and its targets fall short of the potential for energy savings in a number of ways:

**First**, there is still significant opportunity to improve energy efficiency in the buildings sector beyond what is envisioned in the current framework.

- The National Action Plan for EE estimates a maximum potential of 41.5% savings from just the residential sector, which is equivalent to a saving of about **42 TWh/year – almost 4 times more than is envisioned for implementation under the entire National Action Plan for Energy Efficiency**. In terms of GHG emissions, this energy saving would mean annual GHG reductions of about **20.37 Mt CO<sub>2eq</sub>**.<sup>43</sup>
- The First National Action Plan for Energy Efficiency foresees plans to implement thermal rehabilitation in 250 apartment blocks<sup>44</sup> – out of a total stock of almost 84,000 apartment blocks. As such, this will not make a significant impact on the national market.

**Second**, buildings – in private and public ownership – smaller than 1,000 m<sup>2</sup> are not currently subject to any energy efficiency requirements under the EPBD. This will change with regards to new buildings under the EPBD recast. However, **there is no standard set within the EPBD recast for existing buildings**.

**Third**, the current national energy efficiency target does not address the issue of fuel poverty, the distribution of benefits from energy efficiency programs, or the potential for job creation through energy efficiency initiatives.

This project is also directly in line with the Romanian priorities of increasing energy efficiency in the buildings sector by addressing demand-side needs. There are a variety of programmes that are meant to address demand-side EE, as described in Section 1.5.3. This project will build upon these programmes and help to create synergies among them. The project will aim to focus EE measures on:

1. Integrating fuel poverty issues and address EE needs in low-income communities;
2. Stimulating the market for sustainable, locally available EE materials and expertise in the buildings sector;
3. Investing in the building stock to reduce fuel costs for households and for the Government – and, in so doing, reducing GHG emissions.
4. Improve the monitoring of energy savings and economic impacts for Government programmes – such that future investments are based upon sound knowledge of the energy situation in buildings.

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<sup>42</sup> Romania Ministry of Environment and Forests 2010: 82.

<sup>43</sup> Taking the average emissions factor for the electricity grid as an indicative benchmark – 0.485 tonnes of CO<sub>2e</sub> per MWh (established in UNDP/GEF, 2006), the reduction from saving 42 TWh would be approximately 20.37 Mt of CO<sub>2e</sub>.

<sup>44</sup> Government of Romania 2007

As noted in discussions of the legal framework, there are significant policy changes underway which will affect energy pricing and the levels of fuel poverty in Romania. Subsidies for heating will be shifting away from supply-side subsidies and towards demand-side subsidies.

It is estimated that these supply-side subsidies total approximately USD 446 million per year.<sup>45</sup> Furthermore, existing demand-side subsidies have been USD 301 million in 2008.<sup>46</sup>

## **2.2 Country ownership: Country eligibility and country drivenness**

Romania is an eligible recipient of GEF funds and the Project Identification Form (PIF) has already been approved.

The project will use National Implementation Modality arrangements. Therefore, country drivenness is a critical factor for project success. The Ministry of Regional Development and Tourism (the Executing Entity for the project) will be the most important stakeholder. The motivation within the Ministry is very high and is expected to increase due to the increasing focus on the buildings sector within the EU. Already, Romania has moved forward with numerous efforts to address EE in buildings and this continues to grow.

In addition to the well-being of the country, a primary motivating factor for the implementation of EE in existing buildings is to improve the fiscal position of the Government. This project will encourage the implementation of cost-effective measures which add value to homes, decrease energy costs among poorer households – and thus subsidies required from the State to pay for those subsidies, and also further reduce GHG emissions which can then be sold on the global carbon market.

It is clear that there is strong country ownership over the project. In addition to the MDRT, the project partners will include the county and municipal Governments within the primary chosen counties, the Romanian Association of Energy Auditors for Buildings (AAEC), and the Romania Green Building Council (RoGBC).

The project is directly aligned with the mandate and interests of these actors and there is strong support and drive for implementing the project.

This project is directly aligned with the GEF-4 Climate Change Strategic Program 1 on Energy Efficiency in Buildings. The project is also a part of the Global Program on Low Greenhouse Gas Buildings, as it addresses improving knowledge and understanding related to energy-efficient buildings and in promoting energy-efficient municipal and other public buildings.

GEF resources will be used to provide technical assistance, stimulate the market, and remove barriers related to coordination, information, awareness and institutional support that hinder investments in energy efficiency in low-income households and communities in Romania. By building upon existing government initiatives to reduce energy consumption in buildings, the training and expertise provided will be used long after the conclusion of the project, ensuring its sustainability.

## **2.3 Design principles and strategic considerations**

The project will initially target two urban areas as well as the peri-urban villages in the immediate geographical vicinity of these municipalities which are within the same county for

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<sup>45</sup> Calculations carried out in the course of project preparation.

<sup>46</sup> Developed from the database of Ministry of Labour, Family and Social Protection

support in implementing energy efficiency measures to address fuel poverty. These two urban areas will be within two different geographical/climate zones of Romania. This decision was made for two reasons: (1) Because Romania is a relatively large, geographically diverse country, the replication impact of interventions in one climate zone/geographic area would be limited; and (2) since the development of new, locally-produced materials is an important supply-side intervention in the project, different local materials will be available in different areas.

The interventions will take place within:

1. Apartment blocks – especially in the main municipalities;
2. Social buildings – within the main municipality and within the villages surrounding that municipality – selected schools, kindergartens, and municipal offices; and
3. Individual houses for households with low levels of income.

There are a number of national programs either in progress or being planned which will be assisted by this project. These are listed in Section 1.5.3 of the Project Document. The project will specifically provide input for the baseline activities of the National Program for Thermal Rehabilitation of Blocks of Flats programme (being carried out by the Ministry for Regional Development and Tourism) and the Green Home programme (being carried out by the Ministry of Environment and Forestry).

The project will provide technical assistance within the framework of this project that will be helpful for the implementation of related projects to the following national-level institutions. The national level partners, which will be coordinated by semi-annual meetings along with on-going continuous bilateral contact, will include:

- The Ministry for Regional Development and Tourism – the lead organisation for the EPBD and direct implementer for this project;
- ANRE/ARCE – the lead government agency for energy efficiency and implementer of the national program for improving energy efficiency and use of renewable energy resources in the public sector;
- Ministry of Environment and Forestry – the lead organisation for negotiation of AAUs and implementer of the “Casa Verde” (The Green Home) programme;
- The Ministry for Labour and Social Protection – the Ministry in charge of Heat Assistance Payments;
- The Ministry of Economy, Trade and Business Environment – assisting with the public sector EE program;
- The Ministry of Administration and Internal Affairs – implementing the District Heating 2006-2015 – Heat and Comfort programme; and
- The National Institute of Statistics (responsible for collecting data on energy, income and housing).

Other relevant organizations that will be a part of coordination meetings will include:

- The World Bank – which implements EE projects through its Energy Efficiency Fund (FREE);
- The EBRD, which is active in energy efficiency through the EU/EBRD EEFF, a fund to finance energy efficiency improvements in industry and through its proposed credit line for EE in public buildings and affiliated proposal for GEF funding.
- The European Commission – which administers the Cohesion Funds, the European Social Fund, and the Intelligent Energy Europe programme through DG-TREN for its member states; and
- Habitat for Humanity International – which implements construction projects for poorer households.

This UNDP-GEF project will work to create synergies amongst the different efforts by increasing coordination and seeking ways in which funds can be best utilised to address fuel poverty and increase energy efficiency in the building stock. It is anticipated that the proposed UNDP-GEF project will complement the efforts of the EBRD initiative, as the UNDP-GEF project will focus on low-income households and municipalities, while the EBRD initiative will work only with higher-income municipalities with strong credit using relatively sophisticated financing mechanisms related to publicly-owned objects and systems and will not address the residential sector.

Funds from the GEF will only be used to fund incremental building/design costs associated with increased energy efficiency, and not baseline design or construction costs.

## **2.4 Project objective, outcomes and outputs/activities**

### **2.4.1 Project objective**

This project has for its objective the removal of barriers to the implementation of energy efficiency measures among poorer households and in poorer communities in Romania – working to alleviate fuel poverty. The project will act at a national and local level to address energy efficiency needs, develop appropriate policy measures, stimulate an on-going market for locally produced, energy efficient building materials, build capacity for implementation of energy efficiency measures in poorer regions, and implement real energy efficiency improvements to improve the lives of 110,616 people in Romania and reducing emissions associated with energy use by 666,800 tonnes of CO<sub>2eq</sub>.

### **2.4.2 Description of Project Outcomes and Outputs/Activities**

#### **Component 1: Improved policies to support energy efficiency in low-income communities**

**Outcome 1:** *Romanian energy policy integrates fuel poverty issues and addresses EE needs in low-income communities*

**Output 1.1:** Established national-level, functional multi-organisational working group that formulate and facilitate the approval and adoption of policy recommendations and action plans for EE which integrate poverty alleviation into the working group members' programmes

**Activity 1.1.1:** Establishment of a multi-organisational working group that meets semi-annually to evaluate current activities related to EE and fuel poverty.

The project staff will work with the various stakeholders to establish an inter-organizational working group which will serve as a coordination mechanism for the various national activities related to energy consumption in buildings – especially related to fuel poverty. It will also provide input into local-level activities.

The working group will meet at least twice a year formally, along with various bilateral consultations carried out by the Project Executing Entity (MDRT).

This working group is particularly needed in Romania because there is currently no such coordinating body for dealing with energy issues in the buildings sector. The working group would make it possible for different actors to:

- Provide feedback and input to the national-level decision-makers regarding the needs for addressing EE and fuel poverty.

- Better coordinate the activities and funding schemes geared towards EE and RE in Romania (including those affecting people in fuel poverty).
- Stimulate synergistic activity among the different stakeholders.

The stakeholders involved with this multi-organisational working group would include:

- Various Ministries;
- Government agencies;
- Representatives of municipalities;
- Utility companies;
- International organisations;
- Construction companies;
- Building professional associations; and
- NGOs.

The GEF will support Technical Assistance and workshop costs for this activity.

**Activity 1.1.2:** Development and adoption of policy recommendations and an action plan for integrating EE issues and fuel poverty issues into the practice of public administration at the national level

At a national level, the working group, led by the project Executing Entity (MDRT) will formulate/ develop policy recommendations for policies related to energy efficiency in buildings and heating systems. The working group will also develop an action plan for the inclusion of fuel poverty issues into programmes that are planned to be implemented by the various stakeholders. This will include working with key Romanian stakeholders to ensure that alleviating fuel poverty is addressed within existing programmes related to energy use in buildings. These recommendations and the action plan will address a number of issues, including:

- Improving the access of low-income regions and communities to targeted EE funds;
- Developing and distributing guidance on integrating EE issues into the practice of public administration in a way that is feasible for low-income regions and municipalities;
- Recommendations for relevant legislation where fuel poverty and EE should be integrated;
- The development of implementing rules and regulations for the approved / adopted policy(ies); and
- An plan for the shift from subsidies for fuel consumption to subsidies for energy efficiency measures.

Project staff will also advocate / lobby for the approval of whatever policy(ies) are recommended and for implementation of the action plan to alleviate fuel poverty.

GEF resources will go towards expert assistance in developing policy recommendations, in developing implementing rules and regulations for the approved/adopted policies, and in developing recommendations for nationally-funded programmes to address fuel poverty.

### **Links from/to other Project Outputs**

**From:**

- Outputs 3.1, 3.2, and 3.3 – Information gained from the implementation of demonstrated EE measures will feed into the national decision-making process for the approval / adoption of policy recommendations, the implementation of rules and regulations, and for the implementation of nationally-funded programmes to address EE and/or fuel poverty.



- Output 4.3 – Practical information provided to central authorities regarding economic benefits associated with EE will feed into the decision-making process for the approval / adoption of policy recommendations, the implementation of rules and regulations, and for the implementation of nationally-funded programmes to address EE and/or fuel poverty.
- Output 4.1 – The methodology and information developed under Activity 4.1.1 will lead directly into the decision-making of the Working Group

**To:**

- Output 3.1, 3.2, and 3.3 – Decisions made at the national level for shifting from consumption subsidies to EE subsidies will result in increased EE implementation.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Establishment of a multi-organisational working group that meets semi-annually to evaluate current activities related to EE and fuel poverty</li> <li>➤ Development and adoption of policy recommendations and an action plan for integrating EE issues and fuel poverty issues into the practice of public administration at the national level</li> </ul>
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**Output 1.2:** Identified fuel poverty-related EE improvement activities that are integrated into, and implemented within, development plans and energy plans of selected municipalities/counties; including leveraging funding sources for EE improvements

**Activity 1.2.1:** Integration of EE policy making and addressing of fuel poverty into the existing development plans or into a new energy plan of selected counties as pilots - including the implementation and monitoring of the plan

Within the two counties identified – Dolj and Hunedoara – the project will provide technical advice to municipal authorities for integrating fuel poverty into their municipal energy plans. This will include support to local authorities for integrating energy considerations in general, and energy efficiency considerations in particular, into local development strategies which currently lack any reference to energy efficiency or fuel poverty.

The local energy strategies will include the following:

- Raising general awareness on fuel poverty;
- Promoting cross-institutional partnership to maximize resources and opportunities to address fuel poverty;
- Promoting community involvement and co-ownership of the strategy;
- Facilitating the spread of information on sources of funding for energy efficiency measures;
- Setting out measurable targets and timetables for action;
- Developing training and employment opportunities.

The project will also work to establish effective monitoring and evaluation programmes of the implementation of the energy plans to ensure that they are successful in alleviating fuel poverty.

This county-level work will be carried out as pilot projects. The process of development of these energy strategies which integrate EE and fuel poverty alleviation measures will be showcased country-wide, in addition to the monitoring and reporting on the impacts of the integration.

**Activity 1.2.2:** Identification of sources of financing of sufficient resources for improvement of EE in buildings

It will be a crucial part of increasing energy efficiency to identify financial resources for the sustainable growth of the EE market – especially geared towards those households in fuel poverty. The project will set a target of leveraging sufficient co-financing for the improvement of the building sector within at least 2 municipalities. If the cost-effectiveness is shown to be greater, this leveraged financing could be oriented towards improving the energy efficiency/GHG emission reduction performance of the District Heating systems.

This Activity may also include working with the DH systems and municipalities to develop sustainable funding mechanisms to retain customers while increasing EE within the grid/within the DH end user buildings – such as longer-term commitments by apartment blocks to stay on the DH grid in return for EE improvements subsidised by the DH companies/municipal owners.

This sustainable funding can come from a number of potential sources, including:

### **The “Greening of Assigned Amount Units (AAUs)”**

AAUs are carbon allowances that can be sold by the Romanian Government to carbon buyers and, ultimately, to other Annex 1 Parties to the Kyoto Protocol. Romania’s GHG emissions are currently below those which are allowed under the Kyoto Protocol, allowing the country to sell surplus AAUs (approximately 200 million AAUs – representing between USD 1.65 and 2.8 billion in revenue).<sup>47</sup> It is already stated in the Government Order 432/2010, art.10, cat. D, that a portion of the revenues will finance EE in buildings projects. However, projects and programmes must be prepared in order to ensure this occurs. Additionally, there is a commitment stated in the co-financing letters from the Ministry of Environment and Forestry that some portion of the AAUs will go towards EE measures in buildings.

The MEF has developed the standard contract template that will be used between the Romanian Government and potential carbon buyers. In the Government Ordinance, it is stated that a part of the funds received from AAUs will be used to fund EE in building projects.

During the course of the proposed project, project staff will work in close consultation with the MEF to address any potential gaps in the legal framework. To date, according to the preliminary discussions held with MEF, there is an expressed need to support the development of the applicant manual for the EE buildings calls for proposals.

### **Developing innovative funding sources, such as a white certificate programme, for district heating systems**

White certificates are documents certifying that a certain reduction of energy consumption has been attained. These can be tradable and combined with an obligation to achieve a certain target of energy savings. Under such a system, the Government would require producers, suppliers or distributors of electricity, gas, oil and heat to undertake EE measures for the final user. If energy producers do not meet the mandated target for energy consumption they are required to pay a penalty.<sup>48</sup> This sort of system would re-align the incentives for the DH companies to encourage EE among their customers while generating revenue which could be used for EE schemes.

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<sup>47</sup> ICIS Heren 2010

<sup>48</sup> For more, see JRC 2006

There is a risk within a White Certificate programme of the utility simply passing on the cost of the penalties/system to customers. This will be avoided by making it a condition of a municipality being part of the project that they commit to not raising DH prices due to a white certificate scheme for 5 years.

The development of innovative financial mechanisms should be done in conjunction with the EBRD, which is already planning a project to develop ESCOs within Romania.

Additionally, the project staff will investigate other carbon market mechanisms and EU Regional development funds.

Specific sub-activities within this activity will include:

- Supporting the development of the applicant manual for calls for proposals for EE in buildings;
- Initial scoping of building projects and heating system investments which would result in increased energy efficiency;
- Detailed analysis of the potential for savings and investment costs for these projects;
- Investigation of potential sources of financing for these projects;
- Assistance to local authorities in preparing applications for financing, lobbying authorities for the allocation of budgets (including AAUs), etc.; and
- Assistance to local authorities in prioritising projects that can be funded from local resources.

**Links from/to other Project Outputs**

**From:**

- Outputs 3.1, 3.2, and 3.3 – Information gained from the implementation of measures will feed into the local decision-making process for EE plans.
- Output 4.3 – Practical information provided to local authorities regarding economic benefits associated with EE feeds into the decision-making process for the approval/ adoption of policy recommendations, the implementation of rules and regulations, and for the implementation of nationally-funded programmes to address EE and/or fuel poverty.

**To:**

- Output 3.1, 3.2, and 3.3 – Decisions made at the local level for focusing energy plans on addressing EE and fuel poverty will result in increased EE implementation. Additionally, leveraged funds will enable the up-scaling and sustainability of the project impacts.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Integration of EE policy making and addressing of fuel poverty into the existing development plans or into a new energy plan of selected counties as pilots - including the implementation and monitoring of the plan</li> <li>➤ Identification of sources of financing of sufficient resources for improvement of EE in buildings</li> </ul>
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**Component 2: Improved capacity at the local level to reduce fuel consumption in low-income communities**

***Outcome 2:** Supply of trained architects, building engineers, builders and auditors with EE experience expanded; municipalities in low-income regions have a better understanding of EE issues and are able to support auditing and weatherization projects – including disseminating information for Do-It-Yourself projects*

**Output 2.1:** Increased numbers of building professionals, local government authorities and technical personnel capable of providing technical advice and services on the application of EE measures and techniques in the design, construction and operation of buildings

**Activity 2.1.1:** Training of building professionals on EE measures and the use of sustainable, locally available/ produced building materials

Using GEF resources, a training program will be developed and implemented by the Association of Energy Efficiency Auditors (AAEC) and the Romanian Green Building Council (RoGBC) to train building professionals (architects, building engineers, energy auditors, and building managers) to utilise EE methods. These trainings will be differentiated according to the beneficiaries. The training program will include a certification test.

For building professionals<sup>49</sup> such as architects, building engineers, energy auditors and energy managers, the project will support their training and continuing education on topics listed below. Initial work will be undertaken with green building associations in Romania, from which a core group of between 70-100 building professionals will be trained and enabled to undertake subsequent 'training of trainers' capacity building. This will take place at a national level in Bucharest.

From there, trainings will be run within the framework of existing continuing education and certification programmes such as those run by the AAEC, the RoGBC, and the Romanian Association of Installation Engineers (AIIR) which will build capacity for 100 building engineers, 100 architects and 100 energy auditors. Continuing education programmes do exist, but GEF resources will allow them to be scaled up to provide training to many more professionals in geographic areas where capacity is not well-developed and to address more topics related to EE and renewable energy. There will be a particular focus within the two counties (Dolj and Hunedoara). These trainings for business professionals will include information on:

- The existing legislative framework and its consequences for building construction/ refurbishment;
- Technical solutions for EE for different types of buildings;
- Local materials/ equipment/ installations available for EE solutions;
- Roles/ obligations of owners, local authorities, and energy suppliers.
- Technical aspects of renewable energy (RE) equipment;
- Costs and benefits of implementing EE and RE solutions;
- Sources of finance available for implementing EE and RE solutions;
- Marketing EE and RE products and services to the general public and to institutions;
- Case studies – success and failure stories.

Certified companies and professionals will be compiled onto a list which will be made available for individuals or organisations seeking assistance in implementing EE measures. The activities of the professionals who receive training will be tracked with a follow-up questionnaire 1 year and 2 years after the trainings in order to evaluate the impact of the trainings on EE in the buildings sector.

Within the counties of Dolj and Hunedoara, and any other location the project will only engage building professionals for the supervision of implementation of the EE measures in Component 3.

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<sup>49</sup> Of which there are well over 40,000 with 600 graduates per year in architecture and a total of a little over 900 energy auditors

**Activity 2.1.2:** Development and incorporation of training materials on the application of sustainable, locally available/ locally produced standard and EE building materials into the training curricula of professional building certifying associations

In addition to trainings, the project will incorporate the information and develop training materials on sustainable, locally available/ locally produced building materials into training curricula of the AAEC, the Romanian Association for Facility Management (ROFMA), and the Order of Architects.

These training materials will be developed based on information from Activity 2.1.3.

**Activity 2.1.3:** Development, publication and distribution of a Handbook of training activities, best practices and lessons learnt on retrofitting buildings to improve energy performance

Following from the workshops and information incorporated into the training curriculum of professional building certifying organisations, a handbook will be developed, published and distributed outlining the training activities, best practices, and lessons learnt in carrying out building retrofitting. This compilation of useful information will be distributed to building professionals via trade magazines, web-based communication media (e.g. web-sites, LinkedIn, webinars, etc.), and at trade conferences.

It is important to note that there is already interest among building professionals for implementing EE measures in building design and refurbishment. This is expected to grow dramatically in the coming years due to requirements within the EPBD that include:

- While there will be no performance requirements for existing buildings, there will be requirements that for every major renovation “cost-optimal” EE measures must be put into place. It remains to be seen exactly how this “cost-effectiveness” will be measured. What constitutes a “major renovation” will be decided by the Member States.
- Most new buildings will have to be close to zero-emission buildings by 2020.
- All buildings which are rented or sold or publicly owned with significant amounts of visitors will be required to have an Energy Performance Certificate. While there will be no performance requirements for old buildings, a high energy ranking will likely be an important value added for that building and its architect. The incremental cost for quality will be paid back from energy savings during the building’s lifetime.

The number of materials that are distributed will be tracked by the number of printed publications distributed, and the number of web-downloads from unique IP addresses.

The number of recipients who have used the handbooks and the number of EE projects designed based on the information from the handbook will be monitored based upon an electronic survey 6 months and 12 months after the distribution of the materials. Web-downloads and printed distribution will require a registration which will include email addresses to facilitate follow-up surveys.

**Activity 2.1.4:** Training of municipal employees on identifying critical issues and major energy losses in buildings.

The Association of Energy Efficiency Auditors (AAEC) and the Romanian Green Building Council (RoGBC) will work with the municipalities in the two counties to train municipal employees – specifically technical personnel – to perform various levels of EE assessments and measures in low-income communities (for houses and public buildings).

In other activities, information will be disseminated to households by the trained municipal employees on how to monitor EE implementation measures effectively and how to be involved in implementing EE practices in their homes.

The trainings will be focused on the following topics:

- The existing legislative framework and its consequences for building construction/ refurbishment;
- Technical solutions for EE for different types of buildings;
- Local materials/ equipment/ installations available for EE solutions;
- Technical aspects of renewable energy (RE) equipment;
- Costs and benefits of implementing EE and RE solutions;
- Sources of finance available for implementing EE and RE solutions;
- Contacts for companies/professionals that can provide services (building equipment, audits, designs etc.)

**Links from/to other Project Outputs**

To:

- Output 2.2. Information from the trainings will also be used for info-offices and information distribution to households.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Training of building professionals on EE measures and the use of sustainable, locally available/produced building materials</li> <li>➤ Development and incorporation of training materials on the application of sustainable, locally available/ locally produced standard and EE building materials into the training curricula of professional building certifying associations</li> <li>➤ Development, publication and distribution of a handbook on training activities, best practices and lessons learnt on retrofitting buildings for improving energy performance.</li> <li>➤ Training of municipal employees on identifying critical issues and major energy losses in the buildings</li> </ul>
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**Output 2.2:** Information points in selected public municipalities within two counties for promoting public education on EE measures using commonly used and locally-available technologies.

**Activity 2.2.1:** Establishment and operation of Information Points in selected municipalities and villages distributing information and materials on how to implement EE measures into houses, sources of funding and on locally-available materials

As part of the activities to improve capacity at the local level to reduce fuel consumption and fuel poverty, the project will develop info-offices (Information Points) and materials to be distributed within the municipalities and counties. Each Information Point will have a trained municipal officer – who will likely be an existing employee – responsible for making sure that relevant information on EE techniques/ measures/ practices in residential buildings are available to households.

These officers will be trained under Activity 2.1.4 and during workshops which precede the stakeholder meetings that will be carried out in Activity 2.4.1.

The Information Points for targeted municipalities will be stocked with information materials on EE measures, legislation, sources of funding and other resources that can be made available for the local communities. These will each be staffed by a trained municipality

employee either as a part of their existing duties or new staff people will be hired by the municipality/county.

**Activity 2.2.2:** Development and publication of informational materials (brochures) on the basics of EE measures and EE practices for distribution to households that received heating subsidies

For all households receiving a heating subsidy, the Information Points will provide information about EE measures (including DIY measures) and opportunities to gain assistance in implementing these measures. This will be done in two counties (Dolj and Hunedoara), but the information materials will be made available for other counties.

Additionally, these brochures will be mailed to all members of the Association of Building Administrators (Liga Habitat) – which are the administrators for the owner associations of apartment blocks.

The brochures will be marketing oriented rather than oriented towards specialists. The information included will be practical and simple to follow. The following approach is recommended for the development and distribution of the handbooks/ brochures:

- Contract a marketing agency to work with the project representatives from the Romania Green Buildings Council and the AAEC to design a practical handbook/ brochure;
- Market test the booklet with a few dozen households in focus groups to make sure that it is easy to follow and would result in actions being taken.
- Revise the text and design according to feedback on the handbooks/brochures.
- Print and distribute the handbooks/brochures at a wider scale within the county.
- For monitoring purposes, include an application for subsidies for materials within the handbook/brochure such that the local municipality can gauge its effectiveness.

The local building materials manufacturers will also be provided with these brochures and other informational materials which they can also distribute to their distributors or direct clients/customers in order to increase demand for EE building materials.

**Links from/to other Project Outputs**

**From:**

- Output 2.1 – The Information Points will be staffed by recipients of training.

**To:**

- Output 1.2 – Staff that will man the Information Point will also provide input into policy development at the local level.
- Output 3.1 – Information Point coordinating staff will specifically work to identify buildings for rehabilitation within each of the pilot programmes.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Establishment and operation of Information Points in selected municipalities and villages distributing information and materials on how to implement EE measures into houses, sources of funding and on locally-available materials.</li> <li>➤ Development and publication of informational materials (brochures) on the basics of EE measures and EE practices for distribution to households that received heating subsidies.</li> </ul>
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**Output 2.3:** Local building material producers and building construction companies highly qualified and capable of producing and applying, respectively, EE building materials

The use of different affordable, sustainable, locally-produced energy efficient building materials would stimulate local economic activity, make building and renovation more of a possibility for poorer households, and reduce energy use and GHG emissions.

For most materials, it is a question of stimulating their market and increasing the technical capacity amongst local producers to produce them.

In the last few decades building materials with transportation means readily available, non-locally produced or non-sustainable building materials have become adopted in most urban and rural areas. Traditional building materials – which varied according to region – have been used less and less, being replaced by other materials. The use of traditional materials such as cob or wood together with tiles or reed for the roof started to decrease. Also, the “old” building materials such as cob started to be regarded as having a low durability and thus limited their use in building housing annexes. The newer materials include:

**For walls:**

- Reinforced concrete is used for most large structures (apartment blocks, multi-storied houses, etc.).
- Aerated concrete bricks (also known as Ytong) are also increasingly popular. Unlike the concrete bricks, these have much better insulating properties but its spread is somewhat limited by the fact that it cannot be produced locally in the absence of special equipment. Nonetheless, its relatively reduced specific mass reduces the transportation costs and allows it to be transported in less accessible areas such as remote villages.
- Another newly adopted building material, the concrete brick, has begun to be used at larger scale, mainly due to its affordability and possibility to be manufactured locally. The availability of its main constituents, gravel, and sand together with the reduced use of cement, result in the widespread use of cement bricks in low income households. The spread of this building material does not appear to be limited to any specific region.
- Traditional bricks continue to be used.

**For roofs:** One of the cheapest resources became the bitumen impregnated cardboard sheets, (which also proved to have poor durability), galvanized steel sheet and cement asbestos for roofs covers.<sup>50</sup>

There are a number of problems associated with some of the materials which have replaced the traditional building methods.

- First, there is a problem that a number of the materials have poor thermal insulating properties – especially cement bricks and the material used for roofs. For roofs, the heat losses associated with the more modern materials being used are much higher than when reed or straw roofs are used.
- Many times, the exterior of the houses is not finished, leading to water penetrating the walls and further reducing the thermal insulating properties of the materials used, and creating an unhealthy living environment.
- Most of the buildings erected by families in poverty do not hold a building permit – the design is not supervised by any authorized body, and furthermore, the structural design is made by the visual “copy-paste” method, without any verification of its durability.
- With few exceptions the materials used have no certifications – most of them being artisanal produced. Even if the standard brick building blocks or concrete bricks are

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<sup>50</sup> Cement asbestos sheets, due to their affordability and mass production strategy during the 1960's, became a widespread material, and, as later understood, a widespread source of contamination.



certified building materials, many of such materials used in low income households lack sufficient quality and durability, due to the fact that they are produced locally and without following a certified recipe.

- Most of the buildings erected in the first part of 20<sup>th</sup> century have had poor or no maintenance at all – leading to leaking roofs, damp and cracked walls with plaster peeling off in most cases. The comfort of living in such houses is severely affected, as the humidity penetrating the walls dramatically reduces their insulating properties.
- Furthermore, most of these houses are only partially heated during cold season, with the outer walls often reaching a temperature below freezing point, which accelerates the process of deterioration in where water has infiltrated. On occasions the entire structural strength of the buildings is affected (since in such houses the walls have load bearing role), the cost of capital repair of such building becomes prohibitive.<sup>51</sup>

A table synthesizing the use of traditional and new building materials for homes in rural and small town areas can be found in Table 23 in Annex VIII.

Some building materials – such as cob bricks or locally-produced insulating materials (see tables in Annex VIII) – which could be effective EE solutions for buildings (especially in poorer areas) are not currently produced within the communities where they could be effective solutions.

**Activity 2.3.1:** Supporting the development of EE local materials (products) among producers and construction companies in selected counties

In the two counties chosen for project implementation, there are active local construction companies which produce their own building materials and have some technical capacity. The project consultants – including those from the RoGBC – will work with these companies to develop processes for producing EE building materials as described above – including providing a 20-50% subsidy for the purchase of machinery.<sup>52</sup> This is the estimated incremental cost which the GEF funds will fund for the equipment under this activity. Depending on the machinery purchased, the total cost is between USD 20,000 and 40,000. The percentage of subsidy (the incremental cost) was estimated after conducting stakeholder consultations during the PPG process. Furthermore, the amount of the subsidy is intentionally flexible, such that it will depend upon the applications and the potential market impact on energy use and GHG emissions. It is expected that the optimal subsidy level will depend on circumstances during project implementation.

Additionally, workshops and training will be carried out for at least 10 construction and 10 building material companies in each county (for a total of 20 companies). The training will be on the:

- Production of EE building materials according to the technical specifications of both the manufacturing process and EE buildings material;
- Utilisation of EE materials for most buildings; and
- Marketing of the EE materials to local consumers.

The building material producers and construction companies will then be specifically invited to bid for production of materials and/or carrying out construction in Component 3 (below).

Upon the achievement of certain milestones for the development of the local markets in the two initial counties (Dolj and Hunedoara) for the production/ consumption of locally-produced,

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<sup>51</sup> In cases of structural damage, capital repairs are made only for buildings considered to be part of the national heritage, in which case the cost of the process is not a determining factor.

<sup>52</sup> This level of subsidy is based on experience of local consultants involved in stimulating investments in production of environmentally-friendly products.

efficient, affordable building materials, this activity will be scaled-up the support to local producers of EE materials in up to an additional 10 counties. These counties will be chosen during the third year of the project based on similar criteria which resulted in the choice of Dolj and Hunedoara counties. This will predominantly consist of capacity building with the local producers similar to those described in Activity 2.3.1.

The milestones for the development of the local markets will include:<sup>53</sup>

- The existence of at least 2 producers and 3 suppliers of locally produced EE building materials.
- An average monthly turnover of at least 50% for these locally produced EE materials not resulting from direct subsidies from the project funds – though additional subsidies from local authorities or national programmes would count in this total.
- The producers indicate that they will continue production without a subsidy from the project.

It is expected that the capacity building under the rest of Component 2 and the market stimulation activities in Component 3 will lead to increased demand for locally produced, sustainable energy efficient building materials.

**Links from/to other Project Outputs**

**From:**

- Output 3.2 and Output 3.3 – Support for business development will be provided through contracts and demand-side support.

**To:**

- Outputs 3.1, 3.2, and 3.3 – The materials which are developed within this support scheme will be used in these outputs.

<b>Activities</b>	➤ Supporting the development of EE local materials (products) among producers and construction companies in selected counties
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**Output 2.4:** Information campaign results and EE success stories disseminated within Romania, UNDP and in the international community

**Activity 2.4.1:** Organization and implementation of an informational campaign throughout Romania geared towards encouraging EE measures in the residential sector

While the project will work primarily within two counties (Dolj and Hunedoara), it is foreseen that the project will work at the national level to address policy and knowledge barriers. In this regard, this activity will involve the organization and conduct of a national-level information campaign geared towards households to encourage them to implement EE measures and take advantage of government programmes or invest without government assistance. The specific tactics within this information campaign will include:

- Media stories within newspapers, television, radio, web-sites, blogs, etc. With an indicative goal of 40 media hits (10 per year).
- Information distribution campaigns to highlight the successes of the programmes and the opportunities for people to improve energy efficiency and improve their homes.

As a key feature of the awareness raising efforts, an annual award ceremony will be instigated for the village/ town which has carried out the most EE improvement measures in

<sup>53</sup> Note that these criteria are subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

the country. This award ceremony will operate for 4 years under the project (end of year 1, 2 and 3, and 4) but will be organized as an on-going renewable energy and energy efficiency award event with external sponsors, and high-level patronage by the members of the Working Group for EE (from Output 1.1). Indicative sub-activities can include:

- Strategic partnerships and alliances: As an initial review of the awards strategy, strategic partnerships and alliances will be identified nationally and internationally, and co-operation agreed where appropriate. Alliances may help to broaden the award ceremony to address energy efficiency and other renewable energy resources.
- Award strategy developed: a detailed plan for the national awards will be developed. This strategy will address costs, timing, and categories of award, selection criteria for awards, judging, sponsorship, prizes, and format. Categories of award may include:
  - “Most efficient community” award for the town or village which has done the most to implement EE measures.
  - Leading community ‘champions’ award for local authorities or NGOs.
  - Best children’s school projects
  - Best media coverage

If practicable a local media company / competent film enthusiast will be hired to make short 5-minute films of each shortlisted entry, to be used during the ceremony, and to be uploaded to YouTube and other relevant social media.

Prizes should be sponsored where appropriate, and may include:

- Computers
- Projectors
- Consulting services
- Equipment

Winning entries may also be supported to enter to compete in regional and/or international awards.

- Delivery of annual awards.

GEF resources will be used to pay for staff to organise these events and for some of the expenses for the prizes / events. It is not expected that these events would be large public affairs, but rather small press conferences / award ceremonies. If the Government (either MDRT or other) decides to increase the scale of the events, this may be possible.

Monitoring of impacts of the public awareness campaign will be carried out using event evaluation surveys and media logs tracking reporting in local and national media. Improvement will be made based on feedback to each annual award.

Furthermore, a public survey at the beginning of the project and at the end of the project will be carried out to measure the current awareness and implementation of EE measures among the public.

#### **Activity 2.4.2:** Promotional campaign for the project at the EU and global levels

As part of the UNDP Country Programme, Romania intends to provide leadership for other countries in their development programmes. As such, the project has a tremendous opportunity to be a pioneering effort in dealing with fuel poverty in a former communist country. The way that the Romanian government defines fuel poverty and addresses it can provide lessons for other GEF projects, UNDP projects, EU projects and other similar international efforts.

Therefore, the project will work to disseminate information internally (through UNDP Energy & Environment and poverty alleviation networks) and externally (through EU and other national and multilateral channels). This will include writing articles and press releases,

disseminating them through various channels, and following up with reporters at the international level about the results of the project.

The project will actively seek to involve – through UNDP Country Offices in former communist countries – local authorities and representatives of central governments in the project activities such as: information sharing workshops and field visits, in order to demonstrate the value added of the proposed project’s activities. This will include sharing *information* at the central and local government level on:

- Policy recommendations for removing EE barriers and acknowledging/ addressing fuel poverty
- Training programmes for public employees and for building professionals on EE in buildings and awareness; and
- Demonstration pilots to boost local markets for the EE measures and locally produced building materials.

GEF resources will support technical assistance in carrying out this activity.

**Links from/to other Project Outputs**

**From:**

- Output 2.2 – Information from the Information Points will be used in local outreach/awareness raising efforts.
- In general, all accomplishments from other outputs of the project which are noteworthy for dissemination will be used to deliver Output 2.4.

**To:**

- Output 2.4 will help reinforce the success of the project, including aiding in generating leveraged co-financing and developing the market for locally produced EE building materials.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Organization and implementation of an informational campaign throughout Romania geared towards encouraging EE measures in the residential sector</li> <li>➤ Promotional campaign for the project at the EU and global levels</li> </ul>
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**Component 3: Direct reduction of energy consumption through community-based retrofits and market development**

**Outcome 3:** *Retrofitted buildings (and potentially new EE buildings constructed) with reduced fuel consumption or using improved sustainable energy technologies in low-income communities*

**Output 3.1:** Standard EE building design analysis for key types of existing apartment blocks and retrofitted thermal systems of selected apartment blocks

There are approximately 84,000 apartment blocks in Romania with over 50,000 of these on the DH system (1.6 million apartments). Currently, the average specific heating consumption of these apartment blocks in Romania is 137.6 kWh/m<sup>2</sup> per year. The heating energy demand target envisaged to be achieved from the interventions that will be carried out under Component 3 of the project is 100 kWh/m<sup>2</sup> per year. This translates to an expected thermal energy saving of about 27%. This would result in moving a great number of **existing**

apartments from a “C” rating or worse for heating efficiency to a “B” rating for heating efficiency according to the Romanian rating system (see Annex X).<sup>54</sup>

The retrofits that will be carried out under Component 3 of the project will also provide an opportunity to develop the capacity of the EE professionals trained, certified, and registered under Output 2.1.

A government programme which will be a part of the co-financing of the project – the Thermal Rehabilitation Programme – an on-going programme expected to last at least until the end of the project subsidises a number of activities to directly reduce the energy consumption in apartment blocks in Romania. The EE measures within this programme include:

- Window replacement/sealing;
- Wall and roof insulation;
- Terrace insulation; and
- Basement insulation.

It is expected that, over the course of the 4 years of the project, 800 apartment blocks can be refurbished through the programme by the Ministry of Regional Development and Tourism and Ministry of Environment and Forestry – Administration of Environment Fund programmes. The project and GEF funds will add value to these programmes by:

- Streamlining the technical analysis – and therefore the application and planning process – for buildings which are of standard building types (see Activity 3.1.1).
- Within one municipal area which does not have a DH system, stimulating the market for building-level heating systems based on biomass through demonstration projects (see Activity 3.1.2).
- Focusing subsidies on those apartment blocks which would implement EE programmes without public subsidies but which have households which cannot afford the improvements and thus do not implement changes on a building wide scale – within two counties (see Activity 3.1.3).

Where technically possible, locally produced, sustainable EE building materials will be used within this output.

**Activity 3.1.1:** Conduct of technical analysis of typical apartment block designs – including possibilities for energy efficiency improvements – and streamlining of the planning and application for government funding of building thermal rehabilitation projects

Almost all of the 84,000 apartment blocks in Romania share one of 800 architectural designs, but the original designs are not available for many. This is a hindrance to the wide-scale uptake of EE measures as building owner associations must pay for this design work up front, which can cost 3-5% of the project itself. This represents an initial hurdle because apartment blocks do not want to pay USD 6000 for a technical study and instead would like to implement activities without examining their impacts first. This can lead to improvements being made without official approval and also limit the improvements of EE.

This activity will involve the conduct of technical analysis of 50 types of buildings which represent a significant portion of the building stock of apartment blocks in Romania – though it is not known what number of building blocks has which designs. Experts involved in the project preparation estimate that this would cover 75% of all apartment blocks in Romania.

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<sup>54</sup> This is a conservative estimate for savings possibilities, as it is likely that 70-80 kWh/m<sup>2</sup> will be obtainable in most interventions. See Annex X for more on the energy efficiency standards in Romania.

The technical analysis can be done using “off-the-shelf” plans and analysis methods for EE measures within apartment blocks which can be adjusted to specific buildings of the same type cheaply (approximately USD 275-400). After carrying out the technical analyses, the application and planning procedures for government funding for thermal rehabilitation of apartment blocks will be carried out.

The analysis for the top 50 types of apartment buildings will include:

- Architectural designs of the buildings.
- A basic calculation for energy demand of the building – with an independent variable of climate conditions.
- Information on the original systems of heat/hot water distribution.
- Technical options for increasing EE within the building which would be applicable to other buildings of its type.
- A financial assessment of the EE options – including prioritising EE investments according to amount of energy saved, likely costs per square meter, likely costs per household, and payback periods according to energy demand.
- Technical designs of the EE measures which would be appropriate for most buildings of this type.

The results of the technical analyses shall be posted online in a usable format on the Ministry of Regional Development and Tourism’s website.

The MDRT will post the technical analyses as a part of the public domain on its website. The website will also include ways to make it easy for households to recognize their type of apartment (including pictures from the outside of the apartment block, basic diagrams of the typical apartment within the block, etc.)

The Ministry of Regional Development and Tourism will also publicize these analyses to local municipalities throughout Romania – and in particular to the two primary urban areas of Craiova and Petritla. This information will be distributed via the Information Points and other public relations efforts within the project.

In discussing with local authorities in Craiova and Petritla, it is evident that many apartment blocks are interested in carrying out thermal rehabilitation activities without subsidies from the government because of the increased value to the apartments and the improvement in living circumstances. Furthermore, they can often add another floor to the blocks, recouping the value of the renovations. However, there is a need for the technical analysis in order to apply for building and renovation permits. Therefore, with this activity, it is expected that over 100 additional apartment blocks nation-wide will implement thermal rehabilitation improvements without government subsidies. This will be tracked within the project by tracking the number of applications made and projects implemented using the template designs and technical analysis.

**Activity 3.1.2:** Implementation of a pilot programme on the application of sustainable heating systems in selected apartment blocks that are not on the DH system

There are many municipalities (and almost 30,000 apartment blocks) in Romania which are not connected to a DH system. This is either because the tenants have chosen to disconnect or because the DH system in the municipality collapsed. In most of these buildings, apartment dwellers either use natural gas burners, coal-fired or wood stoves within the apartment, or burn whatever is available (including items which may be toxic).

In particular in Hunedoara County, there are localities without access to a DH system, though there will likely be thermal rehabilitation of a number of apartment blocks.

The introduction of efficient boilers based on solid fuels (mostly biomass at a high efficiency rate) or renewable sources such as solar energy or geothermal heat-pumps – instead of either natural gas or coal or inefficient wood stoves – would lead to significant GHG savings, increase the well-being of the households, and likely have a dramatic multiplier effect on other communities which are either not currently on a DH system or which will decide to disconnect when the prices are raised.

GEF funds will pay for a subsidy to be provided (of up to 9,500 USD) for apartment blocks to install central boilers based on biomass (either wood or biomass pellets), or other renewable sources. The criteria for the selection of the blocks will be:<sup>55</sup>

- There must not be DH systems available in the city/neighbourhood;
- The apartment block owners must have formed an association;
- The apartment block must either have already undergone or is in the process of undergoing thermal rehabilitation (potentially through this project); and
- The residents must be willing to commit at least 70% of the costs for the boiler.

This subsidy represents the estimated incremental cost which the GEF funds will pay under this activity. Depending on the boiler purchased and installation costs, the total cost is between USD 25,000 and 50,000. The percentage of subsidy (the incremental cost) was estimated after conducting stakeholder consultations during the PPG process. It is also based on analysing a previous UNDP-GEF project<sup>56</sup>, which had subsidies equivalent to approximately 20%, but often for much larger investments. Furthermore, the amount of the subsidy is flexible, such that it will depend upon the applications, energy savings potential, GHG emission levels and needs. Throughout project implementation, it is expected that the optimal subsidy level will change as the market changes. Therefore, during project preparation it was decided to keep the level of subsidy flexible.

Initially, 10 apartment blocks will be chosen from Hunedoara County. Afterwards, at least 10 more blocks will be chosen from a different geographical area – based upon a decision by the Project Board.

In the course of project preparation, it has been found that such boilers and the technical know-how do exist for certified installation of efficient boilers for apartment blocks. Such boilers have been introduced in some buildings in Bucharest. However, a national up-scaling would require demonstration projects and – ideally – a government funded programme to assist households in poverty that are currently using wood/coal stoves in each apartment. This activity will help demonstrate the possibilities for implementation in towns without DH systems.

This activity is directly linked with and will support the “Green Home” (Casa Verde) Programme being carried out by the Ministry of Environment and Forests. This programme focuses mainly on alternative heating sources within houses, so the programme within this project will be of great benefit in addressing sustainable heating sources in apartment blocks. In addition to providing subsidies for these apartment blocks (not otherwise covered in the “Green Home” programme, the GEF funds will also provide assistance in analysing the economic and environmental impacts of the programme and value added for addressing fuel poverty forms part of this activity.

The budget allocated for the Green Home is programme for 2010 is of 110 million Lei (USD 29.7 million), to be distributed to each county, proportionately to the number of inhabitants in

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<sup>55</sup> Note that these criteria are subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

<sup>56</sup> See UNDP/GEF/ARCE 2006

each county. The total committed co-financing is USD 82 million over the course of the project.

The purpose of this programme is to improve the air, water and soil quality by reducing the pollution caused by wood and fossil fuel combustion, used for the production of thermal power for heating and the production of hot water.

Within the Green Home programme, a grant will be provided from the Fund for Environment to subsidise the installation of renewable energy heating systems, including the replacement or complementation of classic heating systems is designed to encourage the usage of heating systems which use clean, renewable energy sources of energy.

The types and amounts of the heating system grants are as follows:

- Up to 6,000 Lei (USD 1780) for the installation of solar panels for heating;-
- Up to 8,000 Lei (USD 2370) for the installation of heating pumps;
- Up to 6,000 Lei (USD 1780) for the installation for heat generation using pellets, briquette, wood chipping, as well as any other type of vegetal, agricultural and forest rest or waste.

These grants are a part of project baseline co-financing – but almost entirely geared towards individual houses rather than apartment blocks. Of the USD 82 million, it is estimated that approximately 20% will go towards apartment buildings as a part of the baseline cofinancing – resulting in a baseline of ~310 apartment buildings implementing RE heating solutions due to the Green Home Programme without project implementation – spread throughout the country. Thus, the GEF contribution to piloting a programme for apartment blocks can have a significant incremental impact in removing barriers to the implementation of low-carbon/zero-carbon heating systems in targeted communities.

**Activity 3.1.3:** Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households

The third activity that will contribute to the delivery of Output 3.1 will be to focus subsidies on those apartment blocks which would implement EE programmes without public subsidies but which have households that cannot afford the improvements and thus do not implement changes on a building-wide scale. This will take place within Dolj and Hunedoara counties.

The purpose of this activity is to pilot a more financially sustainable subsidy system for thermal rehabilitation geared towards households in fuel poverty – which does not require a 50-70% subsidy which is currently being used within the government programme.

This activity will focus direct subsidies for poorer households within urban areas in the two counties. The baseline conditions for choosing the apartment blocks to receive subsidies (which will be paid directly to the contracting company for the works) will be:<sup>57</sup>

- The apartment block will have to have formed a owners association;
- The apartment block will have to have voted with over 60% approval by the members of the owners association to implement thermal rehabilitation activities without government subsidies otherwise covered by different programmes;
- The apartment block will have to apply for building permits with the municipality – involving carrying out the technical evaluation (energy audit, design work, etc.);
- Any household which qualifies for the subsidy and subsequently sells their apartment within a 5 year period will be required to pay back the MDRT for the initial amount of the subsidy with interest at the rate of inflation for that period.

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<sup>57</sup> Note that these criteria are subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.



In addition to these conditions, the criteria for choosing buildings for involvement in the project – as listed in Section 2.3.<sup>58</sup>

The GEF funds will pay for:

- Reimbursement of the technical analysis costs for up to 5% of the total project costs **to be reimbursed after** the EE measures recommended for the building envelope are implemented.
- A non-reimbursable subsidy of up to 50% of the costs of rehabilitation per household which qualifies for heating subsidies from the Government.
- A non-reimbursable subsidy of up to 25% of the costs of rehabilitation per household which can demonstrate that they pay over 10% of their annual income for heating and have an income below the median for the county.
- The project budget will subsidise a maximum of 20% of the total costs of the EE measures but no more than USD 10,000 per building, which can include:
  - Changes to the building as described under **EGO nr. 69/2010 (see Section 1.5.3)**.
- Where possible, locally produced, sustainable EE building materials will be used for the thermal rehabilitation.

The subsidy will be provided to 40 apartment blocks implementing EE improvements.

The levels of the subsidies were developed through stakeholder consultations in various cities and towns in Romania. Through these consultations, it was found that much lower levels of subsidies (incremental funds) than currently practiced are likely to be necessary to trigger investment for many apartment blocks – especially if they are geared towards poorer households.

This activity has the potential to demonstrate that targeted subsidies to address EE for households in fuel poverty can be effective at triggering investments. This would also save the Government money in direct consumer-side subsidies for heat energy over a medium-to long term. For this reason, the project funds will cover a higher amount of the improvement costs for poorer households – demonstrating the possibilities for lower overall cost for triggering of EE investments in the apartment blocks.

This is also consistent with the findings of the previous UNDP-GEF project in Romania – which suggested a differentiated subsidy level for various incomes. It appears that the market has shifted to allow for a smaller subsidy for poorer and medium-income households than was suggested in that project.<sup>59</sup>

### **Links from/to other Project Outputs**

#### **From:**

- Outputs 2.1, 2.2, 2.3 – The capacity built amongst building professionals and local authorities will be instrumental in the implementation of the activities that will help deliver Output 3.1.

#### **To:**

- Output 1.2 – Within the two primary counties, the activities will be part of implementing EE plans for addressing fuel poverty.

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<sup>58</sup> Note that these criteria should be revisited regularly and subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

<sup>59</sup> The report (UNDP/GEF/ARCE 2006b) suggests up to 42% subsidies for wealthier households, 67% for middle-income households, and 93.8% for lower-income households.

- Output 2.4 – Success stories will go towards information dissemination and the awards ceremony
- Output 4.2 – The buildings involved in the activities that will be carried out to deliver this output will be a part of the building registry.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Conduct of technical analysis of typical apartment block designs – including possibilities for energy efficiency improvements – and streamlining of the planning and application for government funding of building thermal rehabilitation projects</li> <li>➤ Implementation of a pilot programme on the application of sustainable heating systems in selected apartment blocks that are not on the DH system</li> <li>➤ Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households.</li> </ul>
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**Output 3.2:** Thermally retrofitted social buildings (schools, kindergartens, municipal offices and social houses/residences owned by the local government) in selected counties

The second output within this component/outcome will contribute to the development of the market for locally – produced, affordable, EE building materials and practices and the implementation of EE measures in social buildings which are not part of the DH system.

The project will support a public procurement process for social buildings in at least two communities to stimulate the market for the materials produced by local producers (See Output 2.3). The EE measures envisioned to reduce energy consumption will include:

- Application of building materials that are locally produced, sustainable, affordable, and energy efficient – such as wooden window frames, energy efficient bricks (cob, clay, etc.);
- Improvement of wall and loft insulation; and
- Use of improved heating systems and – secondarily – energy-efficient lighting.

The target will be a reduction of at least 40% of heating energy usage per retrofitted building. On average, this would translate to a reduction of energy demand from 284 KWh/m<sup>2</sup> to 170 KWh/m<sup>2</sup>.

**Activity 3.2.1:** Implementation of building rehabilitation/ refurbishment/ construction in social buildings using locally produced, EE building materials

The project will partner with local communities within Dolj and Hunedoara counties beginning in the second year of the project. The criteria for choosing these communities and the specific buildings are laid out in Section 2.3.

After choosing the specific buildings, through work with professionals (including those being trained and certified under Activity 2.1.1) and with the assistance of local municipal authorities being trained under Output 2.1, detailed technical analysis for the buildings (including an energy audit) will be carried out to provide information as to what improvements in the thermal system should be carried out.

Priority will be given to cases where the municipality has identified the labour resources needed to carry out building improvements – including volunteer efforts – but not the monetary resources to pay for materials or the supervision expertise. The project will use GEF funds to purchase the materials for the municipality and pay for technical supervision of the project.

In the case where the labour resources have not been identified, the next step will be a tender competition for works to upgrade the buildings controlled by the municipality with the following requirements for the tender bidders:<sup>60</sup>

- Bidders must demonstrate that they will use materials produced within Romania to implement the works.
- Bidders must use materials which have been certified for use within Romania and which – to the largest extent possible – are sustainable.<sup>61</sup>
- Bidders must be able to demonstrate their ability to carry out the works as described in the bidding documents.

Any other aspects of public procurement which are required by Romanian law will be included in the tender documents.

Upon submission of the bids for building improvements, the bids will be judged according to criteria to be set before the bidding process.

Work carried out will be checked for quality assurance by the municipal energy officers, the local coordinators (UNDP staff) and/or the project management team.

The project funds from UNDP/GEF will provide up to USD 75 per square metre but no more than USD 20,000 per building. It will be required that the local municipality co-financing (either in-kind or cash) of at least 30% of the project costs (including at least 10% cash contributions from local municipalities).

This subsidy represents the estimated incremental cost that the GEF funds will pay under this activity. The total cost of a project will depend greatly upon the work to be carried out. The percentage of subsidy (the incremental cost) was estimated after conducting stakeholder consultations during the PPG process. Furthermore, the amount of the subsidy is flexible, such that it will depend upon the applications – wherein the municipality which applies for the lower percentage and lower amount of subsidy will be more likely to receive it. Throughout project implementation, it is expected that the optimal subsidy level will change as the market changes. Therefore, during project preparation it was decided to keep the level of subsidy flexible. The information gained on the optimal level of incremental cost subsidy will be important for Central Government decision-makers deciding on their contributions to poorer communities.

If the Central Government provides additional resources, this would count towards leveraged co-financing.

### **Links from/to other Project Outputs**

#### **From:**

- Output 2.1 – The capacity built amongst building professionals and local authorities will be instrumental in the implementation of the activities that will deliver Output 3.2.

#### **To:**

- Output 1.2 – Within the two primary counties, the activities will be a part of implementing EE plans for addressing fuel poverty.
- Output 2.4 – Success stories from these activities will go towards information dissemination and the awards ceremony

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<sup>60</sup> Note that these criteria should be revisited regularly and subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

<sup>61</sup> Sustainable materials for the purpose of this project will be defined as those sourced within 100 km of the construction site, using raw materials which are renewable and have a low carbon footprint.

- Output 4.2 – The buildings involved with these activities will be a part of the building registry.

<b>Activities</b>	➤ Implementation of a building rehabilitation/ refurbishment/ construction in social buildings using locally produced, EE building materials.
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**Output 3.3:** Houses built/refurbished using energy efficient, locally-produced materials

The third output of this component focuses on the residential sector within both rural and urban areas and in small towns – especially among houses/single family dwellings. Initially the project will focus on Dolj and Hunedoara counties.

**Activity 3.3.1:** Conduct of energy performance inspections in selected households and implementation of thermal system rehabilitation and construction in these households using sustainable locally-produced EE materials

In order to stimulate the market for sustainable locally-produced EE materials which can be used for thermal rehabilitation and construction of buildings, the project will provide a subsidy for the purchase of EE building materials as well as for the technical inspection for the thermal rehabilitation of poorer households.

The subsidy will cover up to 30% of the materials and labour costs for households which are within the bottom half of the income bracket for their respective county. The application process and delivery of goods will be carried out in the following manner:

- Information on the EE measures which can be implemented as well as EE building materials will be distributed by local EE offices and volunteers within the scope of Output 2.3 and Output 2.4.
- Households will be able to fill in an application for a subsidy for the cost of locally produced EE materials as specified in Output 1.3.
- Households will be given a subsidy of up to 30% of the cost for the materials and labour (paid directly to the EE building material producer) for a total of up to USD 1000. Note that this method of subsidisation may have to be adapted to ensure that the method is legal under national and EU regulations/laws.
- Households will qualify for the subsidy if:<sup>62</sup>
  - A walk-through audit of the households carried out by a certified local building professional confirms that technical energy savings of over 40% are feasible; AND
  - They currently receive subsidies for heating consumption from the Government; OR
  - They can demonstrate that they spend more than 10% of their income on heating and their income is below the median level for the county.

This subsidy represents the estimated incremental cost which the GEF funds will pay under this activity. The percentage of subsidy (the incremental cost) was estimated after conducting stakeholder consultations during the PPG process. Throughout project implementation, it is expected that the optimal subsidy level will change as the market changes. Therefore, during project preparation it was decided to keep the level of subsidy flexible. The information gained on the optimal level of incremental cost subsidy will be important for Government decision-makers deciding on their contributions for poorer households to undertake EE improvements.

<sup>62</sup> Note that these criteria should be revisited regularly and subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

Materials and measures supported by this subsidy will include:

- Improvements to/installation of insulating materials of the opaque wall which are locally sourced;
- Improvements to the transparent element of the building (i.e. windows) using materials which are locally sourced;
- Improvements to the roof of the building; and
- Improvements to the basement slab of the building;
- Improvements to the ventilation system; and
- Changes to the heating system towards more sustainable systems.

Additional to the materials subsidy, for DIY projects, the project funds will cover a 1-day (or ½ day) training carried out by a certified building local building professional on how to properly utilise the locally produced materials for home improvements and EE measures.

Following the implementation of the EE measures, an inspection of each thermal rehabilitation work will be carried out to ensure that all health and safety issues are addressed and to estimate the energy reductions which will result from the EE measures implemented.

This activity will be focused initially on two counties (Dolj and Hunedoara). However, using the GEF funds allocated within the project, the subsidy will be made available to households in other counties if there is interest from the municipalities that are involved in the awareness raising activities of this project. This may potentially also involve partnering with other locally-active NGOs, such as Habitat for Humanity. The local NGOs may already be building/refurbishing houses and the subsidy could represent an incremental cost to improve the energy performance of the dwellings. This process would involve the approval (for quality by local building inspectors) of the locally produced building materials as well as the identification of local building professionals to carry out the training/inspection. The criteria for the subsidy would be the same in the other counties as well.

This activity's results will be directly input into the national energy awards described in Output 2.4.

### **Links from/to other Project Outputs**

#### **From:**

- Outputs 2.1, 2.2, 2.3 – The capacity built amongst building professionals and local authorities will be instrumental in the implementation of the activities that will deliver Output 3.3.

#### **To:**

- Output 1.2 – Within the two primary counties, the activities will be a part of implementing EE plans for addressing fuel poverty.
- Output 2.4 – Success stories will go towards information dissemination and the awards ceremony
- Output 4.2 – The buildings involved with the activities that will deliver this output will be a part of the building registry.

<b>Activities</b>	➤ Conduct of energy performance inspections in selected households and implementation of thermal system rehabilitation and construction in these households using sustainable locally-produced EE materials
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### **Component 4: Information for improved decision-making**

**Outcome 4:** Data and information available for decision-makers for designing programmes to address fuel poverty

**Output 4.1:** Regionally-adaptable methodology for fuel poverty assessment proposed and a guide for municipal decision-makers on fuel poverty issues

**Activity 4.1.1:** Development and approval for use at the national level of a methodology for fuel poverty assessment

In order to decide upon actions and policies to address fuel poverty, such issue will need to be formally defined. The project will work with the national Governmental partners in officially defining fuel poverty for each of the previously described four factors through a regulatory process.

As noted above, a household is said to be in fuel poverty if it is unable to afford to maintain an adequate level of warmth. A more rigorous definition is needed if levels of fuel poverty are to be quantified, for example for the purpose of evaluating the impacts of policies. As yet, there is no universally accepted definition of fuel poverty, but two approaches to defining it that have received the greatest acceptance are the:

- 'Expenditure' approach – defined wherein a household must spend a certain percentage of income to keep warm. An example of this would be the definition in the UK which states that if a household must spend over 10% of its income in order to maintain adequate indoor air temperatures, then it is fuel poor; and
- 'Consensual' approach - based on the concept of 'socially perceived necessities', namely elements connected with energy use and building fabric that are generally regarded as being necessary. Households that lack one or more of these necessities are regarded as being fuel-poor. Necessities might include, for example, an adequate heating system, walls and floors free from damp, an intact roof, window and door frames free from rot, utility bills not in arrears.

Note that both of these approaches relate only to dwellings – no definition of fuel poverty formulated to date takes into account other buildings where vulnerable groups may spend significant amounts of time – e.g. schools, hospitals, other public buildings.

The purpose of defining fuel poverty as a condition that is distinct from general poverty is that, by doing so, policies and measures can be developed that are different from those in place for addressing general poverty – i.e. policies and measures can be developed that are specifically energy-related. By defining fuel poverty as a distinct condition, a particular subset of the population is identified for whom vulnerability to poverty (as well as ill-health) is specifically linked to energy-related issues.

The expenditure-based definition does not make this distinction sufficiently clear. For example, well over 40% of the fuel-poor households in England fall under that definition *solely* because of their low-income – their classification as fuel-poor has no connection with their energy-related circumstances. In Romania, this percentage is undoubtedly much higher. No matter how low its income, there is little point in defining a household as fuel-poor if it lives in a thermally sound dwelling with a modern, fully-functioning heating system, and with access to reasonably priced energy.

A further discussion of fuel poverty, various policies and programmes to address it, and background on the characteristics of fuel poverty can be found in Househam (2010) which is included as a separate document. The following definition of fuel poverty is proposed to suit Romania's circumstances. Beginning with the following factors that contribute to fuel poverty:

1. Below the median income of the region - at present, in the case of Romania nationwide, this would equate to a monthly household income of under 1,912 Lei;<sup>63</sup>
2. Reliance on energy carriers with a high unit cost (above 10% of median household income for the region for an average amount of heat energy);
3. Dwelling with a poor thermal performance (above 117 kWh/m<sup>2</sup> annually for heating);

A household would be considered fuel-poor if it suffers from (1) and one or more of either (2) or (3).

Households suffering (1) but neither (2) nor (3) are simply poor, and there is nothing to be gained by defining them as fuel-poor, as the cost of their energy consumption does not contribute significantly to their poverty. Households suffering either (2) or (3) but not from (1) can presumably afford to remedy their situation. Such households should not be considered to be fuel-poor, although they may benefit from advice and awareness-raising programmes to assist them in reducing their energy bills.

This proposed definition of fuel poverty will need to be officially defined for each of the three factors described above by a regulatory process. In any case, thresholds relating to household income and the unit cost of energy should be expressed in relative terms, in order to make them independent of the effects of inflation. The other two thresholds can be expressed in absolute terms, because the definition of whether a building envelope is adequate should not depend on external economic factors.

This activity will involve working with the County and National Government to develop a methodology for fuel poverty assessment in the following way:

- The local county governments involved in the project along with the MDRT and other project partners will develop recommendations for measurement modalities within their county, including:
  - The important characteristics which define a household within fuel poverty;
  - The metrics (levels) of these characteristics which would define a household in fuel poverty within the county – including differences between urban areas.
- The county governments will work with the Multi-Organisational Working Group and project implementers (Described in Output 1.1.) to define a measurement methodology which is:
  - Adaptable to the different counties/ municipalities;
  - Measurable given the information gathered by existing local authorities;
  - Directly linkable to programmes which will result in a reduction of fuel poverty through EE measures.
- The MDRT will take input from this process in order to propose a Government Ordinance for the measurement of fuel poverty within Romania.

The results from the project activities dealing with fuel poverty issues will be monitored using the developed methodology – or a later refined adapted regionally-appropriate definition and methodology for measuring fuel poverty that can then serve as national best practice.

**Activity 4.1.2:** Development, publication and distribution to building sector actors of a report on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials

In order to assure widespread and long-term impact of the project, it will be necessary to demonstrate the economic advantages of implementing EE measures. Towards the end of the project, as part of the information dissemination program for decision-makers, and in

<sup>63</sup> See <http://www.seenews.com/news/latestnews/romaniannationalinstituteofstatistics-householdincomeandexpenditure-q1-142602/>

order to stimulate the long term commitment to EE and addressing fuel poverty, the project will develop a report on economic costs and benefits due to EE measures. This report will document successful measures to improve the guidance provided to policy-makers at all levels.

This report will address the following:

- The definition of fuel poverty as defined in Activity 4.1.1;
- How to address fuel poverty through direct subsidies to consumers (which is already underway in most areas);
- How to address fuel poverty through EE measures – including typical costs and benefits of actions, the building materials necessary, best practice examples, etc.; and
- Information on how to effectively monitor fuel poverty – using current informational infrastructure.
- The economic and employment impacts of this and other EE efforts – including analysis of the impacts of EE measures in terms of:
  - The benefits accrued among households with improved residences – including increased comfort, less heating (and cooling) costs, and increases in property values.
  - The monetary benefits to the national Government and local authorities – including less money needed for heating subsidies, increased tax revenue from economic activity, etc.
  - The number of jobs created directly due to EE programmes (and cost per EE job).
  - Amount of emissions avoided – including the monetary value of those emissions.
- Possibilities for additional funding mechanisms: including projections of the impact of using carbon financing, energy performance contracting or other financial measures to dramatically scale-up EE measures in Romania.

The findings of the report will be used – along with the building registry created in Output 4.2 – to make the case for a shift in a significant portion of Government resources away from demand-side subsidies for fuel consumption and towards demand-side subsidies for EE improvements. This mobilisation of resources will take place and be tracked as a part of Project Component 3.

This activity will also involve the development and distribution of a shorter, separate guide for decision-makers on fuel poverty issues (including municipal decision-makers, district heating companies and national Government representatives). This guide will include:

- The definition of fuel poverty;
- How to address fuel poverty through direct subsidies to consumers (which is already underway in most areas);
- How to address fuel poverty through EE measures – including typical costs and benefits of actions, the building materials necessary, best practice examples, etc.; and
- Information on how to effectively monitor fuel poverty.

It is expected that this guide will reach 1000 number of stakeholders throughout the country.

The report will also be presented to high-level stakeholders within the Government in either individual meetings or through presentations.



As part of this activity, informational meetings will be held by representatives of the Project implementation team with 30-40 organisations/important actors in the building sector to discuss the results of the report and lobby for programmes to address fuel poverty.

Additionally, this activity will also include the organisation of a series of 8 stakeholder meetings (one in each Region) to be attended by local stakeholders, local authorities, building professionals, etc. during the first 6 months of the second year in order to launch the competition (described in Activity 2.4.1) and answer questions about the project.

A second series of 8 stakeholder meetings will be carried out under this activity during the second half of the third year of the project in order to gain feedback on policies and programmes to address fuel poverty. The feedbacks will be directly considered in the work of the MDRT and the Working Group.

### Links from/to other Project Outputs

#### From:

- Outputs 3.1, 3.2, and 3.3 – Lessons learnt and success stories from the implementation of building improvements will be utilised in activities that will deliver Output 4.1.
- Output 1.1 and 1.2 – Decisions by the national multi-organisational working group will feed in to the Report that will be prepared in Activity 4.1.2.

#### To:

- Output 1.1 – The stakeholder meetings will provide input into the process of policy development.
- Output 1.2 – The report that will be prepared in Activity 4.1.2 will help in the process of identifying co-financing and up-scaling for other EE measures.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Development and approval for use at the national level of a methodology for fuel poverty assessment</li> <li>➤ Development, publication and distribution to building sector actors of a report on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials</li> </ul>
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### Output 4.2: Local and regional registries/databases of building stock

**Activity 4.2.1:** Creation, operation and maintenance of a registry/ database of social buildings, apartment blocks, and publicly owned housing

Information that are necessary for decision-makers in the buildings sector include the size and composition of the building stock, how to prioritise building retrofitting or rehabilitation for energy performance improvement, and the fuel consumption/ costs in various types of buildings. While most cities/towns/villages are well aware of their building stock, they are not very aware of the costs of fuel to heat these buildings and what measures should/could be taken to improve the building performance – and based on what criteria.

This activity will involve working with participating city / town / village municipal governments to compile building registries to identify high-priority areas for investments. The kinds of information that can be included in the registry are:

- Technical information about the building (useful area, completion date, number of floors, number and size of rooms, etc.)
- Information on the ownership structure;
- Type of building users;

- Number of building users;
- Heating/cooling source;
- Theoretical energy demand (according to any audits carried out);
- Actual energy use (according to previous records);
- Pictures of the building (including areas that need improvement)
- Potential EE measures, including estimated investment costs, energy to be saved, and GHG emissions reduction at the primary energy source;
- For those buildings that have undergone EE improvements, these will be listed along with the impact of the improvements (in terms of theoretical energy demand, actual energy use and GHG reduction).

The initial criteria for identifying high-priority areas for investment are described in Section 2.3 of this Project Document.

Initially, a regional registry within the communities that were involved in the various activities in Component 3 will be developed. If resources allow, more communities will be included.

Information about how to create a building registry will be included in information distributed nationwide to local authorities along with the message that this registry will facilitate national investment by the government, donors, and the private sector (e.g. through ESCOs).

Already in the course of carrying out the PPG, 88 municipalities have responded to a questionnaire about their building stock – indicating a strong interest.

**Activity 4.2.2:** Publication and dissemination of the building registry to potential donors and investors to generate investments

It is expected that the registry will serve as the basis upon which buildings are chosen in the activities that are designed to deliver Output 3.2. It will further serve to facilitate investment decisions within other Government funded programmes (such as those listed in Section 1.5.3 of the Project Document) and within programmes funded by external donors.

This activity will involve the publication and dissemination of the building registry. The registry will facilitate direct scaling up of EE investments throughout the country and the building of synergies within donor-funded programmes for building sector improvement.

### **Links from/to other Project Outputs**

#### **From:**

- Output 1.1 – Information sharing from the working group will aid in the expansion of the registry.
- Outputs 3.1, 3.2 and 3.3 – Information from buildings which were a part of the project will be part of the registry.
- Any other information on specific buildings generated from the various project activities will be included in the registry.

#### **To:**

- Output 1.2 – The registry will be useful in identifying co-financing and up-scaling for other EE measures.
- Output 3.2 – The registry entries and selection criteria will serve as inputs into which buildings are selected for Output 3.2.

<b>Activities</b>	<ul style="list-style-type: none"> <li>➤ Creation, operation and maintenance of a registry of social buildings, apartment blocks, and publicly owned housing with criteria for implementation of retrofitting for communities</li> <li>➤ Publication and dissemination of the building registry to potential donors and investors to generate investments</li> </ul>
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## 2.5 Key indicators, risks and assumptions

Indicator	Baseline	Targets End of Project
Tonnes CO <sub>2</sub> eq per year reduced (direct reductions) by end-of-project (EOP)	849	22,227
Tonnes CO <sub>2</sub> eq reduced over the lifetime of the EE measures introduced (direct reductions)	25,456	666,800
MWh in heat energy per year saved as a direct result of this project by EOP <sup>64</sup>	2,197	43,374
Volume of investments in EE buildings leveraged (cumulative USD by end-of-project)	0	10,741,000
Number of people living in EE buildings by EOP	4,500	110,616

### A note on reducing fuel poverty as an indicator:

It should be noted that there is no indicator listed for alleviating fuel poverty. This is because monitoring the project's impact on the number of households lifted out of fuel poverty would be extremely difficult given current available information. As of now, there is no official definition of fuel poverty in Romania. The definition used in England (10% of income going to heat) is insufficient because the majority of people who fall into this definition of fuel-poor do so because of factors that are not connected with energy. Thus, even if these people lived in modern well-insulated homes, they may still be classed as fuel-poor simply because their incomes are so low that even a modest expenditure on fuel constitutes more than 10% of their income.

If the project team were to adopt the "10%" definition for the purposes of this project, it might be the case that the types of interventions undertaken would result in only a very few households being lifted out of fuel poverty compared with simply providing a direct subsidy or increase in incomes – neither of which would increase energy efficiency or reduce GHG emissions (see Househam (2010) for more). Therefore, the project team deliberately left out this indicator but, rather, provided a different indicator, which is the number of people now living in EE dwellings.

To provide an idea of the estimated number of households that could be lifted out of fuel poverty, the household survey indicated that over 60% of Romanians are in fuel poverty according to the definition that they spend 10% of their income on heat (in apartments on the district heating grid). Thus the project could, in theory, claim that it will lift 60% of the total number of people affected out of fuel poverty (around 66,000 people), but that would be difficult / impossible to verify with existing information. Essentially, the steps to identify households in fuel poverty would entail the following:

1. Establish a firm, legal definition of fuel poverty which could include energy costs relative to income (the 10% figure is common, but not necessarily what should be used – it is proposed in the Project Document that the income-level be defined as below the median for the county), cost of energy per unit in the location, the condition

<sup>64</sup> Based upon reductions in specific heat energy consumption (in kWh/m<sup>2</sup> per year) according to the different types of buildings – See Annex XI for more.

of the housing (linked closely to thermal properties), and, potentially, the adequacy of the heating source (i.e. it is not dangerous to health or safety). Activity 4.1.1 describes this clearly.

2. In data gathering activities already carried out by the government (either through household survey samples, the census, or some other activity), the actual level of fuel poverty disaggregated over space should be established.
3. When households apply to subsidy programs, the "improvement" in terms of fuel poverty indicators should be tracked.
4. For households not applying to subsidy programs, the improvement in terms of fuel poverty indicators could be captured through surveys.

The Project Document currently says that steps 1, 2 and 3 will be implemented within the control of the project, but step 4 would require additional data to be gathered. It is not possible at this stage to commit to doing so. Since there are no baseline measurements, it is impossible to monitor the indicator.

## **2.6 Financial modality**

The project will use National Implementation arrangements. The project funds will flow from UNDP to the Government of Romania in a special account opened by the MDRT. The MDRT will request UNDP funds based on unaudited financial reports (IUFRRs) and withdrawal applications. The Financial Management assurance on the project will be sought on the basis of Audit Reports, IUFRRs and Alternate Assurance arrangements.

## **2.7 Cost-effectiveness**

The project is expected to address national and local issues related to energy efficiency in the residential sector and in social buildings.

- The estimated overall direct CO<sub>2eq</sub> emission reductions are 666,800 tonnes over the lifetime of the EE improvement investments.
- An estimated net reduction of 641,344 tonnes of CO<sub>2eq</sub> over the Business as Usual case.
- Indirect CO<sub>2eq</sub> emission reductions of 1.924 million tonnes are expected based on a bottom-up methodology.
- Indirect CO<sub>2eq</sub> emission reductions of 1,603 million tonnes would be expected based on a top-down methodology.

As such, the cost per tonne of direct CO<sub>2eq</sub> reduced over the lifetime of investments for the GEF is expected to be approximately USD 4.64.

A full description of the estimation of the GHG emission reductions is in Annex XI.

## **2.8 Sustainability**

The sustainability of the project's activities is at the core of all planning of the project. Among the project outcomes are:

- Improved policies to support energy efficiency in low-income communities – this will have a lasting impact on Romania's building sector due to the implications for the Government's/local authorities' financial programming.
- Improved capacity at the local level to reduce fuel consumption in low-income communities – this will also have a lasting impact on Romania's building sector. The increased capacity amongst building professionals, local officials, volunteers and materials producers will stimulate the capacity necessary for sustainable market development of EE in the Romanian buildings sector. Furthermore, within this

component, there will be a widespread information campaign designed to stimulate the demand for EE improvements and sustainable building materials.

- Reduction of the energy consumption through community-based retrofits – this will also help to build long term capacity for EE improvements, demonstrate the effective results which are possible in order to stimulate more investment, and stimulate the market for energy efficient materials and services.
- Improved information for improved decision-making – this will facilitate future investments in EE and strategy development to address fuel poverty. It will also involve awareness-raising amongst decision-makers about the impacts of the project and lessons learned for future programming.

## 2.9 Replicability

The project is directly replicable in the context of many countries and within Romania. The steps that will be carried out – including policy development, capacity development, EE improvements and information improvement – will provide lessons learned and demonstration impacts for other countries within Romania, within the UNDP system and beyond.

By using locally-available materials and straightforward EE measures that are also affordable and proven to be cost-effective, the project is expected to be replicated because of *market pull*. There are both demand-side and supply-side components of the strategy.

On the supply side:

- Training and developing information for practicing and upcoming building professionals, who design and implement construction and renovations on both public and private buildings, on the application of EE measures which are feasible at the local level
- Capacity building among local building materials producers will also mean that product lines will be enhanced to include more EE materials.

On the demand side:

- Developing policies regarding fuel poverty and increasing the coordination of – especially government – stakeholders will make it more feasible to plan and execute future programmes to address fuel poverty by addressing fuel poverty.
- Close cooperation with Ministry of Urban Development, the implementing agency, as well as with other Government institutions involved in EE/RE measures, will increase the uptake of the techniques that are piloted in the demonstration building in other state-funded construction;
- An awareness-raising campaign – through the public information campaign, through a nation-wide contest for the community doing the most for EE, and through developing reports / lobbying at the national level will increase the demand for EE building products and EE measures implementation.

### 3 Project Results Framework:

<b>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:</b> Enhanced national capacity for promotion and protection of local, regional and global public goods such as biodiversity, climate stability, culture and practice of tolerance and peace, and development knowledge
<b>Country Programme Outcome Indicators:</b> Country Programme Outcome Indicators: Romania's strategic leadership of cross-border and regional cooperation
<b>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page circle one):</b> <i>4. Expanding access to environmental and energy services for the poor.</i>
<b>Applicable GEF Strategic Objective and Program:</b> Climate Change Strategic Program 1: Promoting building energy efficiency
<b>Applicable GEF Expected Outcomes:</b> Favourable Conditions for Market Development in Terms of: Policy , Finance, Business Models, Information and Technology
<b>Applicable GEF Outcome Indicators:</b> Number of targeted market interventions (1), Number of buildings programmes supported (2)

Strategy	Objectively verifiable indicators				Risks and Assumptions
	Indicator	Baseline	Targets End of Project	Source of verification	
Project Goal: Reduction of GHG emissions in the buildings sector in Romania	Tonnes CO <sub>2</sub> eq per year reduced (direct reductions) by end-of-project (EOP)	849	22,227	Project reports, PIRs, mid-term evaluation and final evaluation	No radical shift in national political priorities
	Tonnes CO <sub>2</sub> eq reduced over the lifetime of the EE measures introduced (direct reductions)	25,456	666,800		
Project Objective: Reduction of energy consumption in buildings in low-income households and regions of Romania	MWh in heat energy per year saved as a direct result of this project by EOP	2,197	43,374	Utility reports Project activity reports PIRs Project M&E reports	
	Volume of investments in EE buildings leveraged (cumulative USD by end-of-project)	0	10,741,000		
	No. of people living in EE buildings by EOP	4,500	110,616		
Outcome 1: Romanian energy policy integrates fuel poverty issues and addresses EE needs in low-income communities	No. of national-level Government institutions integrating the reduction of fuel poverty through EE/RE into their programmes and policies by EOP	0	3	Project reports, mid-term and final evaluation, policy documents by	

Strategy	Objectively verifiable indicators				Risks and Assumptions
	Indicator	Baseline	Targets End of Project	Source of verification	
	No. of municipal or county-level Government institutions integrating the reduction of fuel poverty through EE into their programmes and policies by EOP	0	2	national, municipal, and county-level government institutions	
Outcome 2: Supply of trained architects, building engineers, builders and auditors with EE experience expanded; municipalities in low-income regions have a better understanding of EE issues and are able to support auditing and weatherization projects – including disseminating information for Do-It-Yourself projects	Cumulative no. of building engineers, architects and energy auditors qualified, certified and using the information in their work for the application of EE measures (and applicable Renewable Energy Technologies-RETs) and in the use of sustainable, locally available/produced building materials by EOP	0	200	Training reports, project reports, follow up questionnaires	Building professionals interested in participating in capacity building exercises and implementing new service lines
	Percentage of households that plan to/have already implemented EE measures due to the public information points and other public education activities of the project in the two main counties of the project at EOP	0	10%	Survey carried out at project inception and at the end of the project in the two main counties.	Households are interested in improving their homes
	No. of building materials and construction companies within the two pilot counties which are producing and selling locally produced, sustainable EE materials at EOP	0	6	Project reports and responses from the companies involved in the project	Building materials producers/ construction companies continue to be interested in developing these products
	No. of additional counties (beyond the 2 pilot counties) which have expressed interest in replicating project activities due to the information campaign activities at EOP	0	3	Project reports and correspondence	Other counties within Romania are interested in addressing fuel poverty and improving EE

Strategy	Objectively verifiable indicators			Risks and Assumptions	
	Indicator	Baseline	Targets End of Project		Source of verification
	No. of additional countries (beyond Romania) which have expressed interest in replicating project activities due to the information campaign activities EOP	0	2	Project reports and correspondence	Other countries (EU members and developing countries) interested in addressing fuel poverty and improving EE
Outcome 3: Energy efficient buildings reconstructed (and potentially new buildings constructed) with reduced fuel costs or using improved sustainable energy technologies in low-income communities	Cumulative no. of apartment blocks implementing EE/RE measures in Romania by EOP	360	1,494	Project reports, mid-term and final evaluation, applications using Technical analysis carried out by the project	Sufficient interest in EE will continue to grow throughout the country
	Cumulative no. of social buildings in the poorer counties implementing EE measures using project resources or TA from the project by EOP	0	40		
	Cumulative no. of houses implementing EE measures using locally produced, sustainable materials by EOP	0	150		
Outcome 4: Data and information available for decision-makers for designing programmes to address fuel poverty	No. of county/ municipal Governments using an adapted methodology for evaluating fuel poverty by EOP	0	2	Project reports, mid-term and final evaluation, policy documents	No major shift in municipal political priorities
	No. of buildings documented within the building registry by EOP	0	1,500	Project reports, the registry files	At least all buildings with interventions in the project will be put into the registry
Output 1.1: Established national-level, functional multi-organisational working group that formulate and facilitate the approval and adoption of policy recommendations and action plans for EE which integrate poverty alleviation into their working group members' programmes	Cumulative no. of working group meetings by EOP	0	8	Meeting minutes	Institutions will be interested in discussing their programmes with each other
	No. of actions taken to change programmes/policies in order to address fuel poverty by the institutions involved in the working group by EOP	0	3	Project reports	Institutions will incorporate lessons learned



Strategy	Objectively verifiable indicators				Risks and Assumptions
	Indicator	Baseline	Targets End of Project	Source of verification	
Output 1.2: Identified fuel poverty-related EE improvement activities that are integrated into, and implemented within, development plans and energy plans of selected municipalities/ counties; including leveraging funding sources for EE improvements	Cumulative no. of counties with action plans implemented to address fuel poverty by EOP	0	2	Policy documents and project reports	Continued interest within the 2 pilot counties
	Cumulative no. of new sources of funding identified along with concrete project plans developed for their financing by Year 3.5	0	2	Project reports, financing applications	Interest within the 2 pilot counties to seek financing for EE measures
Output 2.1: Increased numbers of building professionals, local government authorities and technical personnel capable of providing technical advice and services on the application of EE measures and techniques in the design, construction and operation of buildings	Cumulative no. of building professionals trained and certified in the target counties by end of Year 2	0	300	Project reports, training reports	Interest among building professionals is strong
	No. of professional training courses for building professionals incorporating materials on EE measures due by end of Year 2	0	4	Copies of curricula, project reports	Interest among the training organisations is strong
	No. of handbooks of training activities, best practices and lessons learned in carrying out retrofitting distributed by end of Year 2	0	1,000	Web registrations, project reports with lists of recipients	Interest among building professionals is strong
	No. of municipal employees trained on identifying critical issues and major energy losses in their buildings by end of Year 2	0	60	Training reports	Interest among municipalities remains strong
Output 2.2: Information points in selected public municipalities within two counties for promoting public education on EE measures using commonly used and locally-available technologies	No. of information points within municipalities distributing information and materials on how to implement EE measures into houses, sources of funding and on locally-available materials by EOP	0	50	Project reports	Interest among municipalities remains strong
	No. of households receiving informational materials on the basics of EE measures - including information on how to implement EE practices in their homes by EOP	0	50,000	Project reports, reports from Municipalities	Interest among the public is strong and municipalities distribute literature to subsidy recipients

Strategy	Objectively verifiable indicators			Risks and Assumptions	
	Indicator	Baseline	Targets End of Project		Source of verification
Output 2.3: Local building material producers and building construction companies highly qualified and capable of producing and applying, respectively, EE building materials	No. of local building material producers and building construction companies trained in producing and applying EE building materials by end of Year 2	0	20	Project reports, training reports	Interest among building materials producers and construction companies is strong
	No. of counties with active producers of locally produced, sustainable EE materials by EOP	0	2	Project reports, assessments of local markets	Interest among building materials producers and construction companies is strong, and demand for EE materials grows
Output 2.4: Information campaign results and EE success stories disseminated within Romania, UNDP and in the international community	No. of stories in the media in Romania related to government EE/RE programmes influenced by the project/related to fuel poverty by EOP	0	20	Media clips, project reports	Interest among media outlets exists
	No. of awards ceremonies carried out for EE/RE measures by EOP	0	3	Project reports	Interest among municipalities and companies is strong
	No. of stories in the media/on list servers at EU or international level on EE activities in Romania by EOP	0	15	Media clips, project reports	Interest among international media outlets exists
Output 3.1: Standard EE building design analysis for key types of existing apartment blocks and retrofitted thermal systems of	No. of apartment building types with technical properties analysed for EE/RE possibilities and available for public use by EOP	0	50	Web-site with the technical designs, consultancy reports	Technical analysis is feasible and adaptable for the most common types of buildings

Strategy	Objectively verifiable indicators			Risks and Assumptions	
	Indicator	Baseline	Targets End of Project		Source of verification
selected apartment blocks	No. of apartment buildings undergoing thermal rehabilitation through using technical analysis and/or through the MDRT programme for thermal rehabilitation by EOP	50 <sup>65</sup>	900	Project reports, reports from Municipalities	No major shifts in political priorities or in public demand for thermal rehabilitation
	No. of sustainable heating systems installed in apartment blocks not on the DH grid by EOP <sup>66</sup>	310	504	Project reports, spending reports	Subsidies are sufficient to trigger investments
	No. of apartment buildings undergoing thermal rehabilitation using alternative, needs-based, subsidy scheme by EOP	0	40	Project reports, spending reports	Subsidies are sufficient to trigger investments
Output 3.2: Thermally retrofitted social buildings (schools, kindergartens, municipal offices and social houses/residences owned by the local government) in selected counties	No. of social buildings which have undergone EE measures by EOP in selected counties	0	40	Project reports, spending reports	No major shifts in local political priorities

<sup>65</sup> The baseline for this indicator is listed as 50 due to the following reasoning: The UNDP/GEF project involves the provision of subsidies and TA for apartment block retrofits and renovations (envelope and thermal systems) as demonstrations of the application of suitable EE building techniques/technologies. The UNDP/GEF project will be integrally linked with government funded program – the baseline co-financing. Thus, during monitoring, it would be impossible to track the impact of the government funded program without the GEF project (i.e. as a baseline value). It is, however, expected that – without the project – 50 apartment blocks would implement EE measures based upon motivation of the tenants associations.

<sup>66</sup> The reasoning for the baseline and target for this indicator is the following: The MEF programme “Green Home” will spend some portion (estimated 20%) of its budget as baseline co-financing for subsidising sustainable heating systems in apartment blocks – resulting in ~310 apartment blocks implementing sustainable heating systems. The GEF project will also provide assistance and input into the “Green Home Programme”. For the purposes of evaluating the project’s impact, it is expected that at least an additional 154 apartment buildings will have been enrolled in the Green Home Programme due to public outreach and capacity building efforts taking place within the project (as tracked over the course of the project). Additionally, the project resources will go towards providing incremental cost subsidies for 20 apartment buildings, resulting in a total incremental impact of 174 apartment buildings.

Strategy	Objectively verifiable indicators				Risks and Assumptions
	Indicator	Baseline	Targets End of Project	Source of verification	
Output 3.3: Houses built/ refurbished using energy efficient, locally-produced materials	No. of houses built/ refurbished using EE, locally produced materials by EOP	0	150	Project reports, spending reports	Subsidies and public information campaigns are sufficient to trigger investments, local materials producers are involved
Output 4.1: Regionally-adaptable methodology for fuel poverty assessment proposed and a guide for municipal decision-makers on fuel poverty issues	No. of methodologies adopted at the national level for measuring fuel poverty by EOP	0	1	Policy documents and project reports	It is possible to build consensus on a methodology for measurement
	No. of local municipalities/counties which have adopted a methodology and begun measuring fuel poverty by EOP	0	2	Policy documents, project reports, and statistical reports	It is possible to build consensus on a methodology for measurement
	No. of reports developed on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials by End of Year 3	0	1	Copies of the reports	Reporting from other project activities is consistent
	No. of guides developed for policy-makers on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials by EOP	0	1	Copies of the guides	Reporting from other project activities is consistent
	No. of guides and reports distributed to building sector actors by EOP	0	1,000	Lists of recipients, registrations from web-site	Sufficient interest exists nation-wide for these issues
Output 4.2: Local and regional registries/databases of building stock	No. of existing central registries of buildings which include information on the buildings by end of Year 1	0	1	Registry web-site	Reporting from other project activities is consistent
	No. of donors/ investors with access to the building registry by EOP	0	10	Web-site registrations	Sufficient interest exists among donors and investors

## Total budget and work plan

<b>Award ID:</b>	00061005	<b>Project ID(s):</b>	00077064
<b>Award Title:</b>	PIMS 3289 CC FSP Romania Energy Efficiency in Buildings		
<b>Business Unit:</b>	ROU 10		
<b>Project Title:</b>	Romania - Improving Energy Efficiency in Low-Income Households and Communities in Romania		
<b>PIMS no.</b>	4289		
<b>Implementing Partner (Executing Agency)</b>	Ministry of Regional Development and Tourism - Romania		

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
Outcome 1: Romanian energy policy integrates fuel poverty issues and addresses EE needs in low-income communities	MDRT	62000	GEF	71200	International Consultants	0	3,750	7,500	3,750	15,000	1
				71600	Travel	550	3,680	5,910	6,580	16,720	2
				71300	Local Consultants	3,125	22,075	35,425	46,875	107,500	3
				74500	Miscellaneous expenses	300	300	300	4,300	5,200	4
					<b>Sub-total GEF</b>	<b>3,975</b>	<b>29,805</b>	<b>49,135</b>	<b>61,505</b>	<b>144,420</b>	
	<b>Total Outcome 1</b>	<b>3,975</b>	<b>29,805</b>	<b>49,135</b>	<b>61,505</b>	<b>144,420</b>					
Outcome 2: Supply of trained architects, building engineers, builders and auditors with EE experience expanded; municipalities in low-income regions have a better	MDRT	62000	GEF	71300	Local Consultants	63,655	114,245	40,890	24,560	243,350	5
				71600	Travel	28,320	34,710	3,990	2,080	69,100	6
				72200	Equipment and furniture	18,000	42,000	0	0	60,000	7
				74200	Audio-visual and printing prod. costs	8,757	21,055	10,998	600	41,410	8

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:		
understanding of EE issues and are able to support auditing and weatherization projects – including disseminating information for Do-It-Yourself projects				74500	Miscellaneous expenses	10,190	11,910	1,800	1,200	25,100	9		
					<b>Sub-total GEF</b>	<b>128,922</b>	<b>223,920</b>	<b>57,678</b>	<b>28,440</b>	<b>438,960</b>			
				<b>04220</b>	<b>UNDP</b>	71300	Local Consultants	3,500	3,500	3,000	3,000	13,000	10
					<b>Sub-total UNDP</b>	<b>3,500</b>	<b>3,500</b>	<b>3,000</b>	<b>3,000</b>	<b>13,000</b>			
					<b>Total Outcome 2</b>	<b>132,422</b>	<b>227,420</b>	<b>60,678</b>	<b>31,440</b>	<b>451,960</b>			
Outcome 3: Energy efficient buildings reconstructed (and potentially new buildings constructed) with reduced fuel costs or using improved sustainable energy technologies in low-income communities	<b>MDRT</b>	<b>62000</b>	<b>GEF</b>	71300	Local Consultants	147,500	177,100	59,200	29,600	413,400	11		
				71600	Travel	2,150	6,000	7,700	3,850	19,700	12		
				72300	Materials and goods	0	37,500	75,000	37,500	150,000	13		
				72200	Equipment and furniture	0	95,000	190,000	95,000	380,000	14		
				72100	Contractual services	0	266,000	532,000	266,000	1,064,000	15		
					<b>Sub-total GEF</b>	<b>149,650</b>	<b>581,600</b>	<b>863,900</b>	<b>431,950</b>	<b>2,027,100</b>			
	<b>Total Outcome 3</b>	<b>149,650</b>	<b>581,600</b>	<b>863,900</b>	<b>431,950</b>	<b>2,027,100</b>							
Outcome 4: Data and information available for decision-makers for designing programmes to address fuel poverty	<b>MDRT</b>	<b>62000</b>	<b>GEF</b>	71200	International Consultants	0	0	7,500	7,500	15,000	16		
				71300	Local Consultants	59,250	22,500	28,375	25,625	135,750	17		
				71600	Travel	4,050	1,900	5,210	4,660	15,820	18		
				74200	Communications Audio-visual and printing prod. costs	0	0	2,000	2,000	4,000	19		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:	
					<b>Sub-total GEF</b>	<b>63,300</b>	<b>24,400</b>	<b>43,085</b>	<b>39,785</b>	<b>170,570</b>		
					<b>Total Outcome 4</b>	<b>63,300</b>	<b>24,400</b>	<b>43,085</b>	<b>39,785</b>	<b>170,570</b>		
Outcome 5: Monitoring, Learning, Adaptive Feedback & Evaluation	UNDP	62000	GEF	71200	International Consultants	0	15,000	0	15,000	30,000	20	
				71300	Local Consultants	0	9,600	0	9,600	19,200	21	
				71600	Travel	0	3,020	0	3,020	6,040	22	
				74500	Miscellaneous expenses	4,760	0	0	0	4,760	23	
						<b>Sub-total GEF</b>	<b>4,760</b>	<b>27,620</b>	<b>0</b>	<b>27,620</b>	<b>60,000</b>	
		04220	UNDP	71200	International Consultants	5,000	5,000	5,000	5,000	20,000	24	
				71300	Local Consultants	4,000	4,500	4,000	4,500	17,000	25	
					<b>Sub-total UNDP</b>	<b>9,000</b>	<b>9,500</b>	<b>9,000</b>	<b>9,500</b>	<b>37,000</b>		
	<b>Total Outcome 5</b>			<b>13,760</b>	<b>37,120</b>	<b>9,000</b>	<b>37,120</b>	<b>97,000</b>				
Project management unit	MDRT	62000	GEF	71300	Local Consultants	14,888	18,488	14,888	18,488	66,750	26	
				71600	Travel	640	1,210	640	1,210	3,700	27	
				72400	Communications and audio-visual equipment	12,000	12,000	12,000	12,000	48,000	28	
				73100	Rental and Maintenance premises	3,000	3,000	3,000	3,000	12,000	29	
				74500	Miscellaneous expenses	835	835	835	835	3,340	30	
					<b>Sub-total GEF</b>	<b>31,363</b>	<b>35,533</b>	<b>31,363</b>	<b>35,533</b>	<b>133,790</b>		

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
					<b>Total Management</b>	31,363	35,533	31,363	35,533	133,790	
<b>PROJECT TOTAL</b>						<b>394,470</b>	<b>935,878</b>	<b>1,057,161</b>	<b>637,333</b>	<b>3,024,840</b>	

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Total	Notes
<b>GEF</b>	381,970	922,878	1,045,161	624,833	2,974,840	Cash
<b>UNDP</b>	12,500	13,000	12,000	12,500	50,000	Cash
<b>MDRT</b>	5,550,000	11,100,000	11,100,000	9,250,000	37,000,000	Cash and in-kind, but not through UNDP's account
<b>Ministry of Environment &amp; Forests</b>	20,500,000	20,500,000	20,500,000	20,500,000	82,000,000	
<b>AAEC</b>	20,250	20,250	20,250	20,250	81,000	
<b>RoGBC</b>	17,750	17,750	17,750	17,750	71,000	
<b>TOTAL</b>	26,482,470	32,573,878	32,695,161	30,425,333	122,176,840	

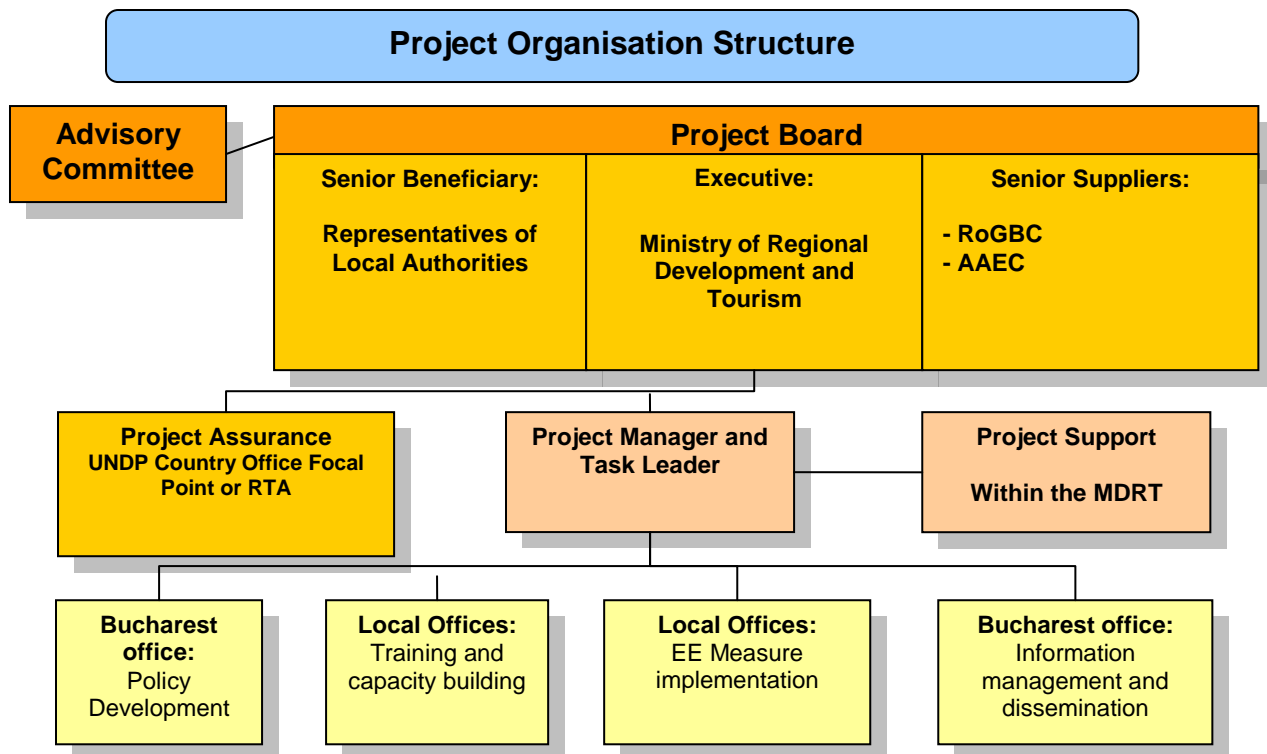
1. Four weeks of an international consultant to assist in identifying funding mechanisms.
2. Travel and DSAs for international consultant and local consultants
3. Top level local expert (8 weeks), Medium level local expert (40 weeks), Task leader (28 weeks), Local coordinators (56 weeks), Communications officer (3 weeks)
4. Working Group meetings (12) and Awareness Raising Meetings (8)
5. Top level local expert (4 weeks), Medium level local expert (78 weeks), Task leader (31 weeks), Local coordinators (152 weeks), National expert trainers (44 days), Communications officer (113 weeks), Database/web designer (5 weeks)
6. Travel and DSAs for local consultants, travel for trainees for 12 events
7. Equipment subsidy for 6 local building materials producers
8. 500 Reports on EE measures/training modules and 22,800 Brochures for households, 2000 brochures for municipalities.
9. Trainings for building professionals (12), Awareness raising meetings (12), Trainings for municipal employees (8)
10. Additional support from local consultants for various activities funded by UNDP



11. Top level local expert (8 weeks), Medium level local expert (57 weeks), Task leader (29 weeks), Local coordinators (92 weeks), Local consultant for inspections of households (200 days), Consultants to carry out analysis of the top 50 types of apartment blocks (100 weeks)
12. Travel and DSAs for local consultants
13. Subsidy for EE materials for 150 houses (\$1000 each)
14. Subsidy for building-level sustainable heat/hot water devices (40 at \$9500 each)
15. Contracts for refurbishing 40 social buildings (\$16,600 each), implementing thermal rehabilitation on 40 blocks of apartments (\$10,000 each)
16. International Consultant to assist in developing fuel poverty methodology (4 weeks)
17. Top level local expert (10 weeks), Medium level local expert (30 weeks), Task leader (20 weeks), Local coordinators (71 weeks), Communications officer (4 weeks), Database/website designer (40 weeks)
18. Travel and DSAs for international consultant and local consultants
19. Printing of the report on the project's outcomes and costs/benefits of EE (400 copies)
20. International consultants to carry out mid-term and final evaluation (8 weeks)
21. Local consultants to assist in mid-term and final evaluation - Medium level local expert (14 weeks), Task leader (9.6 weeks), Local coordinators (12 weeks)
22. Travel and DSAs for international consultant and local consultants
23. Meetings and other miscellaneous activities for Monitoring and Evaluation
24. Additional International consultant support for benchmarking and M&E
25. Additional Local consultant support for benchmarking and M&E
26. Task Leader, Local coordinators, and Project Assistants for the 2 county offices (400 weeks) carrying out Project Management tasks
27. Travel and DSAs for Task Leader, Local coordinators, and Project Assistants
28. Mobile phones, internet connections for the Project Implementation Unit, Task leader, Local coordinators, and Project Assistants (\$1000 per month for 48 months)
29. Rent for two offices in the 2 counties (\$250 per office per month for 48 months)
30. Miscellaneous expenses - stationary, printing toner, contingency fees.

## 4 Management Arrangements

### 4.1 The roles and responsibilities of the parties involved in managing the project



**The Project Board** is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the Project Manager.

Potential members of the Project Board are reviewed and recommended for approval during the PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

- 1) **An Executive:** individual representing the project ownership to chair the group – this person will be identified by the Ministry of Regional Development and Tourism.
- 2) **Senior Supplier:** individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project. This role will be

carried out by representatives from the AAEC and the Romania Green Building Council.

- 3) **Senior Beneficiary:** individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries. This role will be carried out by representatives from the two counties involved in local implementation of the project.

The project will use National Implementation Modality arrangements. The Ministry for Regional Development and Tourism (MDRT) will be the Executing Entity for this project. The MDRT will coordinate the activities of the project through a project implementation unit (PIU) to be set up within the Ministry. This will include ensuring coordination and achieving synergies between the activities of the MDRT and other Ministries/national programmes.

Specific roles within the project implementation will include:

### **Project Implementation Unit (PIU)**

- 1) **Project Manager:** The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. This role will be carried out by an employee of the MDRT.
- 2) **Project Assistant(s):** The Project Assistant(s) will work with the Project Manager within the Project Implementation Unit of the MDRT to assist in carrying out the project, communicating with stakeholders, etc. This role will be carried out by an employee (employees) of the MDRT.
- 3) **Procurement Officer:** A Procurement Officer within the PIU will assist in assuring that any works and contracts carried out within the project are consistent with Government and UNDP requirements.
- 4) **Project Support:** Additional Project Support will include support for project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager. This role will be carried out by support staff within the Ministry for Regional Development and Tourism (MDRT).

### **Local Authorities**

- 1) **Information officer(s)** – Within the municipalities and/or county governments, there will be 1 or more employees trained to distribute information about the project and to assist in identifying potential building interventions.

### **Project Assurance**

- 1) The **Project Assurance** role will support the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. UNDP will provide Project Assurance support, international coordination services and expertise regarding international standards and monitoring and evaluation requirements for the GEF.

### **Project Technical Assistance**

- 1) **Project Task Leader** – The Project Task Leader will provide technical assistance and support to the Project Manager and Project Implementation Unit. This consultant will be engaged through a Service Contract through UNDP.
- 2) **Local Coordinator(s)** – Local Coordinators will work at the local level within the two primary counties chosen to cooperate with local authorities in carrying out project

activities. These consultants will be engaged through a Service Contract through UNDP.

- 3) **Local Project Assistant(s)** – Local Project Assistants will work at the local level with the Local Coordinators and the local authorities in carrying out project activities. These consultants will be engaged through a Service Contract through UNDP.
- 4) **Communication Officer** – The Communications Officer will provide technical assistance in carrying out awareness raising activities and helping to plan events. This consultant will be engaged through a Service Contract through UNDP.
- 5) **Trainers** – Trainers will be engaged for building capacities of building professionals, local authorities, and building material producers/construction companies. These trainers will be engaged via the AAEC and RoGBC via short term contracts.
- 6) **Technical building analysts** – Technical building analysts will be engaged for carrying out technical analysis of the main types of apartment blocks as well as additional buildings involved in the project. These analysts will be engaged via the AAEC.
- 7) **Companies carrying out works** – Various companies will be engaged via public procurement processes for implementing improvement works and EE measures on the buildings.
- 8) **Additional local and international consultants** – Additional local and international consultants will be engaged for various activities within the project, including developing an EE handbook, developing processes for materials production, designing the building database, carrying out walk-through energy audits/inspecting houses, and assisting in policy development. Local consultants will be engaged where appropriate via the AAEC and RoGBC. Otherwise, UNDP will provide contract procurement services.

### **Monitoring and Evaluation**

- 1) **International consultant(s) for project evaluation** – International consultants will be engaged to carry out mid-term and final evaluations.

UNDP will provide international coordination services and expertise regarding international standards and monitoring and evaluation requirements for the GEF.

The MDRT will coordinate the activities of the project as it relates to assisting and providing a focal point for information-sharing with the work of various other Ministries and Agencies at the national level.

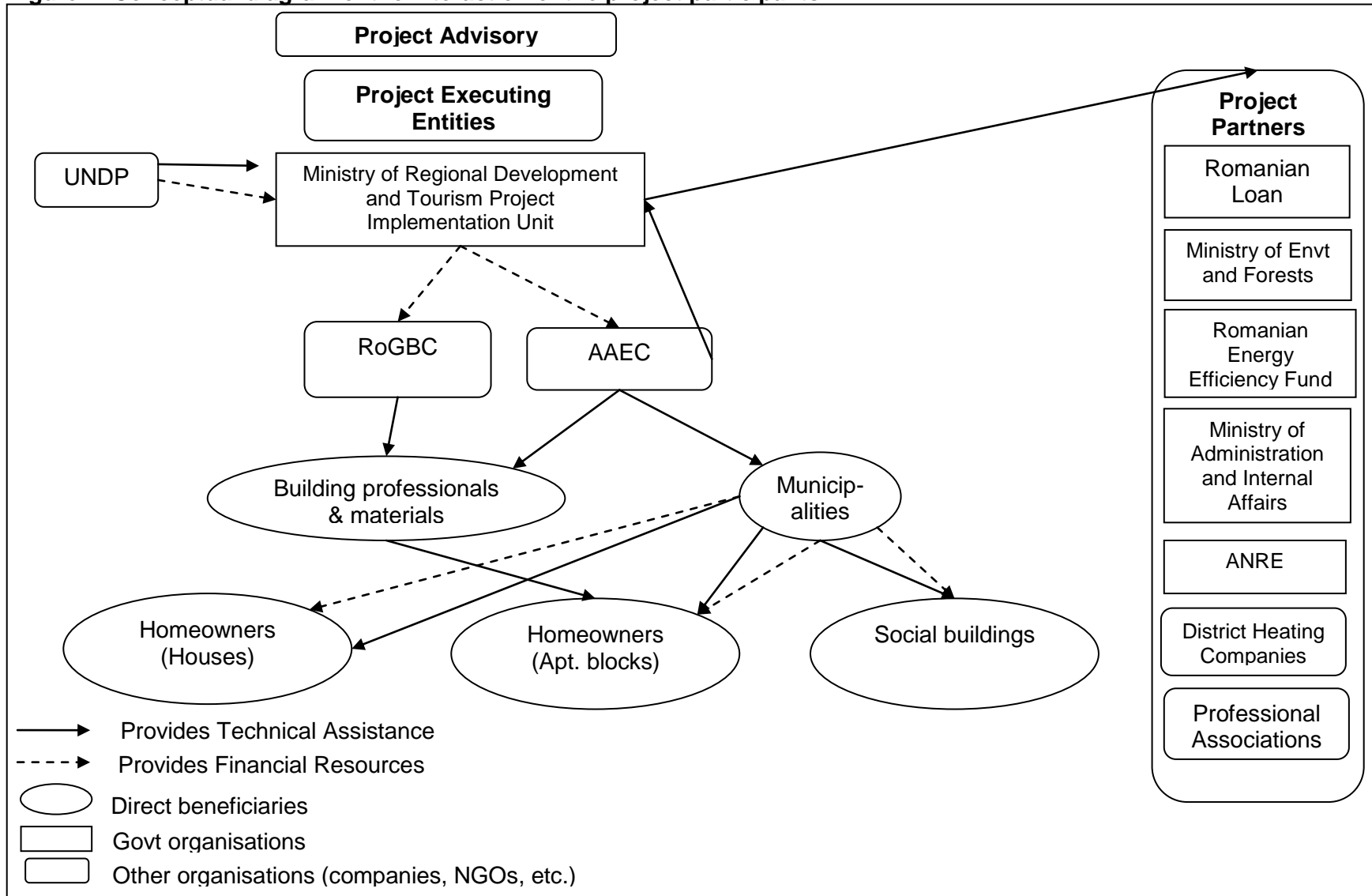
In terms of organization structure, a number of levels can be discerned. These are visualised in Figure 2 below:

- The project advisory committee, consisting of the organisations outlined above. This committee will meet every six months throughout the duration of the project;
- The UNDP project manager in Bucharest;
- The Programme Implementation Unit in the MDRT, which will oversee the GEF project and provide support in terms of knowledge management, energy efficiency expertise, personnel, contracts, finance and reporting. The project will be primarily implemented by the MDRT, along with the Romania Green Building Council, the AAEC, and the local authorities for the counties/ municipalities involved (expected to include Dolj, Hunedoara, and potentially others).
- In addition to the project direct implementation, related activities being carried out by project partners will be supported through technical assistance from the project. This technical assistance will focus on leveraging the activities of the project partners to ensure better coordination and a transformation of the entire market for EE in the Romania buildings sector.

To guide the MDRT during project implementation, a Project Operations Manual will be prepared by UNDP and agreed upon by MDRT prior to project implementation. The manual will include operational principles giving details of all guidelines and procedures agreed with UNDP and MDRT for the implementation, supervision and monitoring/evaluation of the project, including procedures for the identification and selection of beneficiaries of financial incentives, and details of the governance and accountability plan. It will include a procurement plan, a financial management plan and agreements on the institutional framework required for implementation.

Section 5 of this document provides detailed information on project-related monitoring and evaluation.

**Figure 2: Conceptual diagram of the interaction of the project participants**



## **4.2 Results of capacity assessment of implementing partner**

### **The Ministry of Regional Development and Tourism**

The Ministry of Regional Development and Tourism (MDRT) was set up in 2007, through the fusion of the former Ministry for European Integration with the constructions and public works component of the Ministry of Transportation, Constructions and Tourism. In December 2009, this ministry added the tourism component, which had been previously handled by various administrative structures.

The MDRT is one of the most important economic ministries of the Government, developing national level investment projects whose beneficiaries are wide segments of the Romanian population.

The MDRT is organized and functions as a specialized body of the central public administration system, with legal personality, subordinated to the Romanian Government.

The MDRT carries out programmes financed through European and domestic funds: The Regional Operational Programme 2007-2013 (REGIO), programmes for European territorial cooperation, PHARE programmes – Economic and Social Cohesion, PHARE programmes – Cross-border Cooperation, programmes for territorial development, building houses, thermal rehabilitation of blocks of flats, the consolidation of building with seismic threat, rural infrastructure development, building sport halls and cultural settlements. Additionally, in the field of transportation, the MDRT is also managing a wide range of programmes aiming at the development of the touristic infrastructure and the promotion of Romania as a touristic destination.

The MDRT develops activities in the following areas: strategic planning, regional development, territorial cohesion and development, cross-border, trans-national and inter-regional cooperation, territorial planning, urban planning and architecture, housing, real estate and municipal management and development, public works, constructions and tourism.

With the purpose of reaching all its agreed objectives, the MDRT uses the expertise and the activity of the following institutions:

- Its sub-authority, the National Agency for Housing and the National Company for Investments;
- Coordinates with: the National Research and Development Institute on Constructions, Urban Planning and Sustainable Territorial Development URBAN – INCERC and the National Research and Development Institute on Tourism – INCDT;
- In subordinate: the National Research and Development Centre for the Protection of Buildings against Seismic Activity and Landslide CNRRS.

The MDRT also collaborates with the eight agencies for regional development and with the five regional offices for cross-border cooperation, towards the implementation of the programmes funded through European grants which the ministry is managing.

## **The Ministry of Environment and Forests**

The Ministry of Environment and Forests creates national level policies in the field of the environment and water management, generates the strategy and specific development and harmonization regulations on these activities within the general policy of the Government, secures and coordinates the application of the governmental strategy in its competency areas, assuming the role of state authority, with synthesis, coordination, inspection and control roles in the following fields:

- Strategic planning
- Sustainable development;
- Environment and water management infrastructure;
- Meteorology;
- Hydrology and hydrogeology;
- Climate change;
- Protected natural resorts;
- Waste management;
- The management of dangerous substances and compounds, biodiversity and bio-security conservation;
- Air quality and ambient noise management;
- The administration of forest management.

The attributions of the Ministry of Environment and Forests are exercised directly, through specialized technical authorities, public institutions or authorities under its management, coordination or authority, through other authorities or authorized commercial firms.

*Units subordinated to the Ministry of Environment and Forests:*

Public institutions with legal personality fully financed through public funding:

- The National Agency for Environment Protection;
- The Administration of the Danube Delta Biosphere Reserve
- The National Guard for the Environment
- Territorial inspectorates for forests and hunting;

Units with external and public funding:

- Project management units (PMU);
- Project implementation units (PIU);

Units functioning under the authority of the Ministry of Environment and Forests:

- The National Meteorological Administration
- National Forest Administration ROMSILVA

Units functioning in coordination with the Ministry of Environment and Forests:

- The Administration of the Fund for Environment;
- The National Administration "Romanian Waters"

Units funded through own resources and public funding

- The National Research and Development Institute for Environment Protection;

## **Romanian Association of Energy Auditors for Buildings (AAEC)**

### **Basic description of the Organization**



The AAEC is a professional association that was founded in September 2004 by 8 specialists involved in pioneer works on energy efficiency in buildings as recent regulations, pilot projects, European projects and training of first energy auditors (as defined by EPBD 91/2002/EC) in Romania.

The main objectives of AAEC are stated in its Statutes. The association is active in the field of energy efficiency and effects on the environment related to the civil (non-industrial) building sector of Romania. Its major role is to define, promote, and support energy and environment policies and programmes within the concept of sustainable economic development, by:

- At national and international levels, providing the necessary framework for access to professional information and improved knowledge to decision makers and professionals who are active in these fields;
- Providing a professional framework for debate on how to best implement national and international requirements for energy certification of buildings, increased energy efficiency of constructions and installations, as well as for promotion of renewable sources of energy supplied to buildings;
- Promoting energy auditing activities on the market;
- Promoting and supporting modern technical and scientific achievements in the field of energy auditing techniques and rational use of energy in buildings;
- Facilitating professional development and national and international cooperation for the members of AAEC;
- Promoting the new profession of “energy auditor”, as key experts of modern society responsible for sustainable energy improvements in buildings;
- Developing an independent and democratic forum, based on best practice experience exchange and dissemination;
- Developing the business and partnership environment within the building sector of Romania.

**Number of active employees of the organization – in terms of the part applicable to the project:**

The AAEC has 118 individual members and 18 associate members.

For the optimization of the association activities, there are groups of auditors organized in almost every county of Romania.

**Specific activities and expertise:**

- Conferences, round tables, workshops, visits, and meetings on topics related to energy efficiency in buildings and environment protection, as well as to their inclusion in the national strategies and policies.
- AAEC has organized four national conferences with international participation, as follows:<sup>67</sup>
  - 2007: “Present and future for building energy efficiency in Romania”
  - 2008: “Building energy certification, a must for Romania”
  - 2009: “Romania’s capacity to comply with the EU’s legislation on building energy efficiency”
  - 2010: “New European requirements for energy performance of buildings”
- On-going search for national and international contacts in the interest of the AAEC members. Public notaries, banks representatives, energy companies, utility

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<sup>67</sup> All four conferences had published proceedings that were distributed to all interested parties. The AAEC conferences were also registered to the Sustainable Energy Europe program of the EC.

companies etc. In the spring of 2010, a round-table was organized with all the players involved in the use of energy certificates of buildings, aiming to underline the synergy of multi-professionals.

- Informal Forum to facilitate meetings and opinion sharing for the energy experts, academia, representatives of banks, public notaries etc. who are active in the field of energy and environmental pollution in association with the building sector.
- Promotion of energy auditors' certification by providing continuous professional consultancy among members.
- Qualified monitoring of the energy auditor professional level, according to the AAEC Ethical Code. Recommendations for certification renewal are based on the analysis of the member activity and quality of issued reports and certifications.
- Debates on specific topics for complex and/or unusual projects, to ensure a competent approach. On the AAEC web site, there is a Forum opened for members.
- Development of a database with building characteristics and typical energy efficiency measures, including current costs on the market.
- Technical assistance to those in charge with legal and regulatory acts. Numerous meetings take place with Ministry representatives in order to provide consultancy on emerging laws and norms. Points of view are always formulated with respect to existing or under preparation acts.
- Publishing technical works of major interest, institutional and/or legal critical analysis, newest technologies and materials for building energy retrofitting on the AAEC web site. Promotion of advanced and ecological technologies emerging on the Romanian market.
- Collaboration with similar organizations/associations abroad. Exchange of experience and common actions. AAEC is founding member of the Active House Alliance in Europe, and also member of the task force in developing this new concept and associated needed activities.
- Initiation of pilot projects aiming wider dissemination, increased motivation, and local market development. AAEC is a partner with the Ministry of Regional Development and Tourism in two pilot projects: One dormitory in the campus of the Technical University of Bucharest, where future civil engineers are educated – completed; the Gymnastic School of Deva, where the famous Romanian team of gymnasts are trained for international competitions – under works, final stage.
- Trainings for new energy auditors for buildings and periodic trainings of existing energy auditors for buildings on new legislation and specific topics.
- AAEC and the University POLITEHNICA of Bucharest organized the first training program for energy auditors for buildings in Romania, in 2002. Since then, master programmes were run continuously, with duration of 1-2 years, but also short intense programmes, with duration of 180 hours over 15 weeks. Members of AAEC are also lecturers in other training programmes of architects, civil engineers, energy engineers, and local authorities.
- Members of AAEC contributed to the publishing of the first manual on energy auditing techniques for buildings in Romania. New manuals are under preparation as a product of international cooperation.
- AAEC also collaborates with organizations in charge with trainings of real estate assessors, being responsible with modules on how to use data from the building energy certificates in the valuation schemes.
- Dissemination is a priority activity and is achieved by TV appearances, radio-broadcasting, journal interviews, blogs on internet, news on internet, a book for pre-school children (and their parents), speeches with various occasions etc.

**Annual turnover for last year:** At the end of 2009, AAEC's revenue was about 120,000 Lei (~USD 40,000).

## **Romania Green Building Council**

### **Basic description of the Organisation**

The Romania Green Building Council (RoGBC) endeavours to deliver the market, educational and legislative conditions necessary to promote high performance construction that is both sustainable and profitable. It works to create exemplary development model for the region by ensuring the built environment will not imperil future generations but rather be a source of safety, comfort, innovation, and economic opportunity.

The Romania Green Building Council is a non-profit, non-political association encouraging the market, educational and legislative conditions necessary to promote high performance construction that is both sustainable and profitable. The RoGBC is accredited as an "Established Member" with the World Green Building Council. The organization is modelled after the successful Green Building Councils that achieved significant results in facilitating the implementation of green construction in other countries such as the U.S. ([www.usgbc.org](http://www.usgbc.org)), Canada ([www.cagbc.org](http://www.cagbc.org)), Germany ([www.dgnb.de](http://www.dgnb.de)), and the U.K. ([www.ukgbc.org](http://www.ukgbc.org)).

Activities to promote sustainable building practices include:

- Facilitating the availability of the most up to date and highest quality training to create the necessary pool of national green building experts.
- Supporting the development of appropriate regulatory conditions that promote sustainable constructions while ensuring attractive returns on investment
- Developing and implementing a national green building standards and certification system.
- Supporting the development of best in class in-country green construction and position Romania as a sustainable construction leader in the region.
- Building an inclusive organization by facilitating the collaboration between all relevant players in order to eliminate systemic barriers and promote a truly sustainable built environment.
- Promoting domestic, regional and international collaboration to share knowledge and encourage innovation.
- Researching, compiling and disseminating best practices for the region and encouraging their adoption and implementation.

### **Number of active employees of the organization – in terms of the part applicable to the project:**

The RoGBC is managed by a specific board of directors elected for one year period. All member companies hold the veto right and may be represented in the elected board. The council elects a CEO which supervises the 5 employees each specialized on relevant green building issues. RoGBC has also some of its activities externalized, such as: IT and accounting.

### **Geographical Outreach**

The RoGBC has a nation-wide network of members and a central office in Bucharest. At the moment, RoGBC has 98 member companies:

#### **Platinum Members:**

Ana Hotels | Arhitectura|bauMax | West Group Architecture|

#### **Gold Members:**

Corporate Office Solutions |DICO & TIGANAS|Holcim Romania|Interface Flor| Oxford Sustainable Group|Prologis|Schneider Electric |WSP Group|

**Silver Members:**

Archibus Solutions Center|Athenee Palace Hilton|Badea Clifford Chance | CEMS Tehnologii|Cundall|Hunter Douglas|JW Marriott|Lafarge|Lina&Guia |Immorent|

**General Members:**

Adest Architecture | Adela Catargiu - Building Valuator | Adina Cutov Law Office | Alukoenigstahl | Aluplan | Anghel, Lizac and Associates | Aquarius Grup | Arup | b lighting | B23T International Architectural Services | BARAN ROMANIA | Bauder | Baumit Romania | BCR Real Estate Management | BNP Paribas Real Estate |Bluehouse Capital | Building Support Services| Carpatcement | Chapman Taylor | CLASS Bambus | CONCELEX | Consulting Donath | Dima C. Razvan - Individual Architecture Office | Drees & Sommer | ecovision | Electro Exim | Epstein | Elevation Construct | Equram Licht Grup | Ermetik -WiSS Technik | Folex | F&R Worldwide | Fivestar Hospitality | Funky Business | Gardiner & Theobald | Habitat for Humanity | Heberger Constructii | IIC Imobiliar Investment & Consulting | Instal Data Proiect | Jetrun | Jones Lang Lasalle | Katja Perrey Landscapes | Kier International | KONE Ascensorul SA | Landscape Technology| Liebrecht & Wood Romania | Luiza Manolea Law Office | Lux Perrenial | Modatim Investment | MT&T Property Management | Multinvest | Naturalpaint | Nemetschek | Portland Trust | Philips | Procter & Gamble | Quintet Asset Management | Raiffeisen Bank | Red Management Capital | Schoenherr and Associates SCA | Simacek |Smart & Pepper Consulting | SOAP Architecture GbR | Somfy | SOPOLEC | S.P.A. Inovations | Star Dome Sustainable Structures| Strucon Proiect | Transylvania Verde Real Estate | URSA | Vitalis Consulting | VAHANEN | VELUX | Wienerberger | Zumtobel |

Given the high interest and rapid growth of green buildings in Romania, RoGBC has launched a new branch in Transylvania. The new office is located in Cluj and covers the neighbouring counties. The organization has the same infrastructure as the current one and will be organizing events and trainings with a focus within the region.

**Specific activities/expertise:**

The RoGBC is an inclusive organization recognizing the important involvement of a wide array of companies including: Real Estate Developers, Investors, Facilities Managers, Construction Manufacturers, Expertise, and Technology providers, Professional Firms (Architects, Engineers, Consultants, Lawyers, Etc.), Financial Services, Academia, and NGOs.

Recent activities include:

- Offered high standard qualified training in green sustainable construction that benefited more than 1000 participants. Romania Green Building Certification and Training program focuses on significant issues such as: The Financial Valuation of Green Building, Green Design Principles, Sustainable Materials and Resources, Operation and Management of green buildings, Managing Green Building Projects;
- Acknowledged and awarded the green building project of the year, the sustainable company of the year and the green innovation of the year within the “Green Awards” gala event organized by RoGBC;
- Developed and supported a website and a blog that provides latest and most comprehensive information on green construction in Romania;
- Organizes informal meet-ups called “Green Cafes” that attracts participation from people interested in the development and improvement of the Romanian construction environment;

- Successfully organized the international conference “Build Green CEE” that jointed 14 American and European Green Building Councils;
- Collaborates with government agencies and promotes at local, national and international level regulatory framework that fosters the development of a sustainable built environment;
- Implements an exemplary renovation pilot project within an office building in order to increase the energy performance and reduce the environmental impact by using techniques and principles enshrined in green construction. The upcoming pilot project aims at implementing an exemplary new construction that will achieve the “net zero energy consumption” objective;
- Adopts, develops and implements national green building standard and certification system based on collaboration with World Green Building Council and national/international experts.

**Annual turnover for last year:** At the end of 2009 RoGBC’s revenue was 581,117 Lei (~USD 157,000).

#### **4.3 UNDP Support Services (if any)**

UNDP will provide support services related to identifying international consultants and contracting them as well as coordinating interaction with the GEF. UNDP will also provide administrative and programmatic backstopping where necessary. For at least the first two years of the project, this support will be carried out by the UNDP Romania Country Office and afterwards from the UNDP RBEC regional centre.

#### **4.4 Collaborative arrangements with related projects (if any)**

The project will collaborate through the Multi-Organisational Working Group with a number of related projects. However, there are no contractual collaborative arrangements which will be in place.

#### **4.5 Prior obligations and prerequisites**

There are no prior obligations or prerequisites for the implementing partner.

##### **4.5.1 A brief description/summary of the inputs to be provided by all partners**

The project outputs and activities, along with the responsible parties for implementation of these activities are listed in Table 13.

In addition to those organisations which are directly responsible for implementation of the project activities, a number of other stakeholders will be involved in an **Advisory Committee** which will provide input into project implementation. These include:

- **The Ministry of Environment and Forests (MEF)** – Will assist with the process of greening of Assigned Amount Units (AAUs) and implementing “Casa Verde” – The Green Home.
- **The Romanian Loan Guarantee Fund (FRGC)** – Will be involved in guaranteeing loans for thermal rehabilitation of dwellings under the programme “State guarantee for credits made by population for thermal rehabilitation of their homes”, though the programme is implemented by the MDRT.
- **The Ministry of Administration and Internal Affairs (MAI)** – Will be involved in the rehabilitation of the district heating systems – which is not a part of the project, but is related. They will also be implementing some thermal rehabilitation of buildings under

the programme "Termoficare 2006-2015 - caldura si confort" and coordinating activities with the MDRT.

- **The Romanian Energy Efficiency Fund (FREE)** – Will be involved in the identification and implementation of financing mechanisms such as Energy Performance Contracting and, potentially, the greening of Assigned Amount Units (AAUs).
- **Professional Associations** – Romanian Association of Installation Engineers (AIR), Romanian Association for Facility Management (ROFMA), Union of Architects of Romania, and Chamber of Romanian Architects – Will aid in the distribution of information and training of building professionals.
- **National Housing Agency (ANL)** – The ANL stimulates new housing construction, and the rehabilitation and consolidation of existing buildings. It will serve on the advisory board and help provide perspective for the national sustainability of the programme.
- **European Bank for Reconstruction and Development (EBRD)** – The EBRD will be implementing a project to stimulate Energy Performance Contracting in Romania and will serve on the advisory board to provide perspective for any innovative financing measures which may be implemented.
- **INCD URBAN-INCERC** – Will be a part of the Advisory Committee to provide input into standardising professional training and the building certification process/building registry.
- **Ministry of Labour, Family and Social Protection** – Will be a part of the Advisory Committee to provide input into the measures to address fuel poverty and potential for redirecting funds for energy consumption towards EE.
- **Romanian Energy Regulatory Authority (ANRE)** – ANRE will be a part of the Advisory Committee and be a part of the building certification process/building registry development. There is also the possibility that additional co-financing for the implementation of EE measures in public buildings will be leveraged through ANRE's activities.

**Table 13: Outputs, Activities and the responsible organisations for implementation of those Outputs and Activities**

Expected Outcomes	Outputs	Activities	Responsible org.	Additional implementing orgs.
Outcome 1: Romanian energy policy integrates fuel poverty issues and addresses EE needs in low-income communities	Output 1.1: Established national-level, functional multi-organisational working group that formulate and facilitate the approval and adoption of policy recommendations and action plans for EE which integrate poverty alleviation into their working group members' programmes	Activity 1.1.1: Establishment of a multi-organisational working group that meets semi-annually to evaluate current activities related to EE and fuel poverty	MDRT	Organisations listed in Section 1.5.3
		Activity 1.1.2: Development and adoption of policy recommendations and an action plan for integrating EE issues and fuel poverty issues into the practice of public administration at the national level	MDRT	Local Authorities and organisations listed in Section 1.5.3.
	Output 1.2: Identified fuel poverty-related EE improvement activities that are integrated into, and implemented within, development plans and energy plans of selected municipalities/ counties; including leveraging funding sources for EE improvements	Activity 1.2.1: Integration of EE policy making and addressing of fuel poverty into the existing development plans or into a new energy plan of selected counties as pilots - including the implementation and monitoring of the plan	MDRT	Local Authorities
		Activity 1.2.2: Identification of sources of financing of sufficient resources for improvement of EE in buildings	MDRT	Organisations listed in Section 1.5.3.
Outcome 2: Supply of trained architects, building engineers, builders and auditors with EE experience expanded; municipalities in low-income regions have a better understanding of EE issues and are able to	Output 2.1: Increased numbers of building professionals, local government authorities and technical personnel capable of providing technical advice and services on the application of EE measures and techniques in the design, construction and operation of buildings	Activity 2.1.1: Training of building professionals on EE measures and the use of sustainable, locally available/produced building materials	AAEC	RoGBC
		Activity 2.1.2: Development and incorporation of training materials on the application of sustainable, locally available/ locally produced standard and EE building materials into the training curricula of professional building certifying associations	AAEC	RoGBC
		Activity 2.1.3: Development, publication and distribution of a Handbook of training activities, best practices and lessons learnt on retrofitting buildings to improve energy performance	AAEC	RoGBC
		Activity 2.1.4: Training of municipal employees on identifying critical issues and major energy losses in buildings	RoGBC	AAEC
	Output 2.2: Information points in selected public municipalities within two counties for promoting public education on EE measures using	Activity 2.2.1: Establishment and operation of Information Points in selected municipalities and villages distributing information and materials on how to implement EE measures into houses, sources of funding and on locally-available materials	Local Authorities	MDRT

<b>Expected Outcomes</b>	<b>Outputs</b>	<b>Activities</b>	<b>Responsible org.</b>	<b>Additional implementing orgs.</b>
support auditing and weatherization projects – including disseminating information for Do-It-Yourself projects	commonly used and locally-available technologies	Activity 2.2.2: Development and publication of informational materials (brochures) on the basics of EE measures and EE practices for distribution to households that received heating subsidies	Local Authorities	MDRT
	Output 2.3: Local building material producers and building construction companies highly qualified and capable of producing and applying, respectively, EE building materials	Activity 2.3.1: Supporting the development of EE local materials (products) among producers and construction companies in selected counties	RoGBC	Construction companies and building materials producers, INCERC, AAEC
	Output 2.4: Information campaign results and EE success stories disseminated within Romania, UNDP and in the international community	Activity 2.4.1: Organization and implementation of an informational campaign throughout Romania geared towards encouraging EE measures in the residential sector	MDRT	Local authorities
		Activity 2.4.2: Promotional campaign for the project at the EU and global levels	MDRT	Local authorities
Outcome 3: Energy efficient buildings reconstructed (and potentially new buildings constructed) with reduced fuel costs or using improved sustainable energy technologies in low-income communities	Output 3.1: Standard EE building design analysis for key types of existing apartment blocks and retrofitted thermal systems of selected apartment blocks	Activity 3.1.1: Conduct of technical analysis of energy performance of typical apartment block designs – including possibilities for energy efficiency improvements – and streamlining of the planning and application for government funding of building thermal rehabilitation projects	AAEC	MDRT, Local authorities
		Activity 3.1.2: Implementation of a pilot programme on the application of sustainable heating systems in selected apartment blocks that are not on the DH system	MDRT	Local Authorities
		Activity 3.1.3: Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households	MDRT	Local Authorities
	Output 3.2: Thermally retrofitted social buildings (schools, kindergartens, municipal offices and social houses/residences owned by the local government) in selected counties	Activity 3.2.1: Implementation of building rehabilitation/ refurbishment/ construction in social buildings using locally produced, EE building materials	MDRT	Local Authorities



<b>Expected Outcomes</b>	<b>Outputs</b>	<b>Activities</b>	<b>Responsible org.</b>	<b>Additional implementing orgs.</b>
	Output 3.3: Houses built/refurbished using energy efficient, locally-produced materials	Activity 3.3.1: Conduct of energy performance inspections in selected households and implementation of thermal system rehabilitation and construction in these households using sustainable locally-produced EE materials	MDRT	Local Authorities, AAEC, RoGBC
Outcome 4: Data and information available for decision-makers for designing programmes to address fuel poverty	Output 4.1: Regionally-adaptable methodology for fuel poverty assessment proposed and a guide for municipal decision-makers on fuel poverty issues	Activity 4.1.1: Development and approval for use at the national level of a methodology for fuel poverty assessment	MDRT	RoGBC, and AAEC, other consultants (ICCV)
		Activity 4.1.2: Development, publication and distribution to building sector actors of a report on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials	RoGBC	MDRT
	Output 4.2: Local and regional registries/databases of building stock	Activity 4.2.1: Creation, operation and maintenance of a registry/database of social buildings, apartment blocks, and publicly owned housing	MDRT	Local Authorities, ANRE
		Activity 4.2.2: Publication and dissemination of the building registry to potential donors and investors to generate investments	MDRT	Local Authorities, ANRE
Outcome 5: Monitoring, Learning, Adaptive Feedback & Evaluation		Monitoring and evaluation	UNDP	
Project management		Project Management	MDRT	UNDP

#### 4.6 Audit arrangements (required)

The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

#### 4.7 Agreement on intellectual property rights and use of logo on the project's deliverables

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF.

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### 5 Monitoring Framework and Evaluation

The M&E framework will assess the Project's impact on the development of a sustainable market for energy efficiency geared towards the residential sector among poorer households. The foundation of the framework is given in the logical framework (see Section 3 above) which includes indicators, targets, and timelines.

The key performance indicators include:

<b>Success Indicators</b>	<b>Targets (end of project)</b>	<b>Means of Verification</b>
Tonnes CO <sub>2eq</sub> per year reduced (direct reductions) by end-of-project (EOP)	22,228 tonnes saved per year as a direct result of this project	Mid-term and final evaluations combined with the monitoring of implementation of EE/RE measures.
Tonnes CO <sub>2eq</sub> reduced over the lifetime of the EE measures introduced (direct reductions)	666,800 tonnes saved over a 30-year lifetime of the EE measures introduced	Mid-term and final evaluations combined with on-going monitoring and extrapolated for a 20-year lifetime.
MWh in heat energy per year saved as a direct result of this project by EOP	43,374 MWh per year as a direct result of this project.	Mid-term and final evaluations combined with the monitoring of implementation of EE/RE measures.
Contribution to the enabling policy environment	Complete achievement of all the steps in facilitating the implementation of EE measures in communities utilising locally produced, energy efficient building materials and implementing EE measures using innovative financing sources.	Mid-term and final evaluation of the regulatory framework changes along with on-going reporting.
Volume of investments in EE buildings leveraged (cumulative USD by end-of-project)	10.741 Million USD	Mid-term and final evaluations combined with the monitoring of implementation of EE/RE measures.
Number of people living in EE buildings by EOP	110,616	Mid-term and final evaluations combined with the monitoring of implementation of EE/RE measures

See Request for GEF CEO Endorsement for details of how these targets have been estimated.

Monitoring and evaluation of the project will take place at two levels – at the national level and at the municipal level. Activities at the municipal level will be monitored by the implementing partner municipalities with overall monitoring responsibility undertaken by the Ministry of Regional Development and Tourism (MDRT) (the lead Ministry for the implementation of the EU Energy Performance Building Directive), which will collect and review the reports from the municipalities, the RoGBC, the AAEC and from other project partners.<sup>68</sup> Appropriate M&E forms and protocols will be developed as part of the Project Implementation. Municipalities, the RoGBC and AAEC will report to the MDRT at agreed intervals. The M&E information will be aggregated to analyse overall program inputs and may provide the basis for the development of success stories and issues of concern, to be used in outreach activities and in the knowledge management component.

At the general project level, the MDRT Project Management Unit will be responsible for M&E of project activities and results. All data for the project outcome and results indicators will be coordinated by the PIU and reported to UNDP on a regular basis.

Monitoring and verification of the results is key to determining the success of the programme. Participating implementing municipalities and organisations – including district heating utilities and housing organisations – will need to agree to provide the required information as part of the Memorandum of Understanding that will be signed prior to the start of the program. In addition, the usual confidentiality arrangements must be agreed upon.

The energy audits and building designs to be conducted in the participating buildings will provide information on the base year energy consumption of the buildings – which will be checked against the national level data sets which exist on energy consumption. For evaluation purposes, the project will evaluate the annual improvements in buildings that introduce EE measures as a result of the programme and those that do not introduce EE measures.

Given the confidentiality of information on energy use, signed agreements to allow access to information on energy use will be utilised pre-implementation for all households which benefit from the project.

The external M&E will take place with summarised reports showing the overall progress and projects that receive financing and can be used officially.

The Project Manager is responsible for regular progress reports (every 6 month period) with the full support of, and in agreement with, the participating organisations. The reports will also form the basis of discussions with the Advisory Committee – the MDRT, UNDP, the RoGBC, the AAEC, the Ministry of Environment and Forests, and the Ministry of Administration and Internal Affairs.

The project's indicative M&E work plan is shown in Table 14 below.

**Table 14: Project's indicative Monitoring and Evaluation work plan**

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
Inception Workshop (IW)	▪ Project Manager (PM)	\$5,000	Within first two

<sup>68</sup> In Romania, District Heating utilities are owned by the municipalities, which will be involved in the project.

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
	<ul style="list-style-type: none"> <li>▪ UNDP Country Office Focal Point</li> </ul>		months of project start up
Inception Report	<ul style="list-style-type: none"> <li>▪ Project Management Team</li> <li>▪ UNDP Country Office Focal Point</li> </ul>	None	Immediately following IW
Measurement of Means of Verification of project results	<ul style="list-style-type: none"> <li>▪ UNDP Country Office Focal Point will oversee the hiring of specific institutions and delegate responsibilities to relevant team members</li> </ul>	To be finalized in Inception Phase and Workshop. Indicative cost \$10,000	Start, mid and end of project
Measurement of Means of Verification for Project Progress on output and implementation (measured on an annual basis)	<ul style="list-style-type: none"> <li>▪ Oversight by PM and UNDP Country Office Focal Point</li> </ul>	To be determined as part of the Annual Work Plan's preparation. Indicative cost \$10,000	Annually, prior to APR/PIR, according to the definition of annual work plans
APR and PIR	<ul style="list-style-type: none"> <li>▪ PM</li> <li>▪ UNDP Country Office Focal Point</li> <li>▪ UNDP RTA</li> </ul>	None	Annually
Advisory Committee Meetings	<ul style="list-style-type: none"> <li>▪ PM</li> <li>▪ UNDP Country Office Focal Point</li> </ul>	None	Following Project IW and subsequently at least once a year
Quarterly progress reports	<ul style="list-style-type: none"> <li>▪ UNDP Country Office Focal Point</li> </ul>	None	Every three months
Technical reports	<ul style="list-style-type: none"> <li>▪ PM</li> <li>▪ UNDP Country Office Focal Point</li> <li>▪ Hired consultants as needed</li> </ul>	None	To be determined by Project Team and UNDP
Mid-term Review and External Evaluation	<ul style="list-style-type: none"> <li>▪ PM</li> <li>▪ UNDP Country Office Focal Point</li> <li>▪ External Consultants</li> </ul>	\$30,000	At the mid-point of project
Terminal Project Evaluation and Report	<ul style="list-style-type: none"> <li>▪ Project Management Team</li> <li>▪ UNDP Country Office Focal Point</li> <li>▪ External consultants</li> </ul>	\$30,000	Within 6 months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> <li>▪ PM</li> <li>▪ UNDP Country Office Focal Point</li> <li>▪ Project Management Team</li> </ul>	None	At least 3 months before the end of the project
Lessons learned	<ul style="list-style-type: none"> <li>▪ Project Management Team</li> </ul>	\$8,000 (average \$2,000 per year)	Yearly
Audit	<ul style="list-style-type: none"> <li>▪ UNDP Country Office Focal Point</li> <li>▪ Project Management Team</li> </ul>	\$4,000 (average \$1,000 per year)	Yearly
Visits to field sites	<ul style="list-style-type: none"> <li>▪ UNDP Country Office Focal Point</li> <li>▪ UNDP Regional Coordination Unit</li> <li>▪ Government</li> </ul>	None	Yearly

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
	representatives		
<b>TOTAL indicative COST</b> <i>Excluding project team staff time and UNDP staff and travel expenses</i>		<b>\$97,000</b>	

### ***Project Inception Phase***

A Project Inception Workshop will be conducted within the first two months of the project start-up with the full project team, Government counterparts, co-financing partners, the UNDP-CO and representatives from the UNDP-GEF Regional Coordination Unit (Bratislava). A fundamental objective of the Inception Workshop will be to help the project team to understand and take ownership of the project's goal and objective, and to prepare the project's first annual work plan based on the log frame matrix. Work will include reviewing the log frame (indicators, means of verification, assumptions and expected outcomes), providing additional detail as needed, and then finalizing the Annual Work Plan (AWP) with measurable performance indicators. The Inception Workshop (IW) will also:

- a) Introduce project staff to the UNDP-GEF team (the CO and responsible Regional Coordination Unit staff) that will support project implementation;
- b) Detail the responsibilities of UNDP-CO and RCU staff vis-à-vis the project team;
- c) Detail the UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs), and mid-term and final evaluations.
- d) Inform the project team regarding UNDP project related budgetary planning, budget reviews and mandatory budget re-phasing.

An overall objective of the IW is that all parties understand their roles, functions and responsibilities within the project's decision-making structures; and that reporting and communication lines and conflict resolution mechanisms are clear to all. Terms of Reference for project staff and decision-making structures will be again discussed to clarify each party's responsibilities during project implementation.

### ***Monitoring responsibilities and events***

Project management, project partners and stakeholder representatives will collaborate on the development of a detailed schedule of project review meetings to be incorporated in the Project Inception Report. The schedule will include: (i) tentative time-frames for Project Board Meetings and (ii) project related Monitoring and Evaluation activities. The Project Manager will be responsible for day-to-day monitoring of implementation progress based on the Annual Work Plan and indicators. The Project Manager will inform the UNDP-CO of any delays or difficulties so that appropriate and timely corrective measures can be implemented. At the IW, the Project Manager, project team, UNDP-CO, and UNDP-GEF Regional Coordination Unit will fine-tune the project's progress and performance/impact indicators and will develop specific targets and their means of verification for the first year's progress indicators. Every year, the project team will define targets and indicators as part of the internal evaluation and planning processes.

The Project Board Meetings (PBM) will be responsible for twice-a-year project monitoring. The PBM will be the highest policy-level meeting of the partners involved in project implementation. The first such meeting will be held within the first six months of the start of full implementation.

The Project Manager, in consultation with the UNDP-CO and the UNDP-GEF RCU, will prepare a UNDP/GEF PIR/APR for submission to PBM members and the Project Board for review and comments and for discussion at the PB meeting. The Project Manager will highlight policy issues and recommendations and will inform participants of agreements reached by stakeholders during the PIR/ARR preparation on how to resolve operational issues. Separate reviews of each project component will be conducted as necessary. Benchmarks will be developed at the Inception Workshop, based on delivery rates and on qualitative assessments of achievements of outputs. A terminal PBM will be held in the last month of project operations. The Project Manager will prepare a Terminal Report for submission to the UNDP-CO and the UNDP-GEF RCU at least three months in advance of the terminal PBM to allow for review and to serve as the basis for discussions in the PBM. The terminal meeting will consider project implementation, achievement of project objectives, contribution to broader environmental objectives, actions needed to sustain project results, and ways that lessons learnt can feed into other projects being developed or implemented.

The UNDP Country Office, UNDP-GEF RCU, and any other members of the Project Board will annually assess (with detailed scheduling agreed upon at the project Inception Report/Annual Work Plan) progress at the project sites. No less than one month after the visit, the CO and UNDP-GEF RCU will prepare a Field Visit Report/BTOR to be circulated to the project team, all Project Board members, and UNDP-GEF.

### ***Project Reporting***

The Project Manager, in conjunction with the UNDP-GEF extended team, will prepare and submit reports that form part of the monitoring process. The first six reports are mandatory and strictly related to monitoring; while the last two have broader functions such that their frequency and nature are project-specific and to be defined throughout implementation.

**A Project Inception Report** will be prepared immediately after the Inception Workshop. It will include a detailed First Year / Annual Work Plan divided in quarterly time-frames detailing activities and progress indicators guiding first year project implementation. This Work Plan will include dates of specific field visits, support missions from the UNDP-CO, the Regional Coordination Unit (RCU) or consultants, and scheduling of the project's decision-making structures. The Report will also include a detailed project budget for the first full year of implementation based on the Annual Work Plan and the monitoring and evaluation requirements for the first year. The Inception Report will also detail the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project partners. The IR will also discuss progress to date on project establishment, start-up activities, and an update of changed external conditions that may affect project implementation. The finalized report will be circulated to project counterparts who will be given one calendar month in which to respond with comments or queries. The UNDP Country Office and UNDP-GEF Regional Coordination Unit will review the document prior to circulation of the IR.

**An Annual Review Report** will be prepared by the Project Manager and shared with the Project Board prior to each annual Project Board meeting and will consist of the following sections: (i) project risks and issues; (ii) project progress against pre-defined indicators and targets; and (iii) outcome performance. As a self-assessment by project management, the report does not entail a cumbersome preparatory process. At a minimum, the ARR will follow the ATLAS standard format for the Project Progress Report (PPR, although the UNDP Country Office may modify the format, as necessary) and will include a summary of results achieved relative to pre-defined annual targets, progress in meeting the Annual Work Plan, and achievement of intended outcomes via project partnerships. The ARR can also be used to spur dialogue among Project Board and partners.

**The Project Implementation Review (PIR)** is an annual management and monitoring tool mandated by the GEF that has become the main vehicle for extracting lessons learned from on-going projects. The UNDP-CO and project team must provide the PIR, generated using a participatory approach, after one year of project implementation, with submission in July followed by discussion with the CO and the UNDP/GEF Regional Coordination Unit in August and final submission to the UNDP/GEF Headquarters in the first week of September.

**Quarterly progress reports:** The project team will provide short reports each quarter outlining main updates in project progress. Reports will be submitted to the local UNDP Country Office and the UNDP-GEF RCU.

**UNDP ATLAS Monitoring Reports:** A quarterly Combined Delivery Report (CDR) summarizing all project expenditures is mandatory and will be certified by the Implementing Partner. The following logs are to be maintained and updated throughout the project by the Project Manager: (i) The Issues Log captures and tracks the status of all project issues throughout project implementation; (ii) the Risk Log (using ATLAS) captures potential risks to the project and associated measures to manage risks; and (iii) the Lessons Learned Log captures insights and lessons based on good and bad experiences.

**Project Terminal Report:** The project team will prepare the Project Terminal Report in the last three months of the project. This comprehensive report will summarize all activities, achievements, and outputs of the Project, lessons learnt, objectives met or not achieved, and structures and systems implemented. The PTR will be the definitive statement of the Project's activities over its lifetime, recommending any further steps needed to ensure sustainability and replicability of the Project's activities.

**Periodic Thematic Reports:** The project team will prepare Specific Thematic Reports when called for by UNDP, UNDP-GEF, or the Implementing Partner. The written request by UNDP for a Thematic Report provided to the project team will clearly state the issue or activities that need to be reported on. These reports can deal with lessons learnt, specific oversight in key areas, or troubleshooting to evaluate and overcome obstacles and difficulties encountered.

Technical Reports are detailed documents covering specific areas of analysis or scientific issues in the project. As part of the Inception Report, the project team will prepare a draft Reports List that details which technical reports need to be prepared over the course of the Project and their tentative due dates. This Reports List will be revised and updated as necessary, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined research areas within the project framework. These technical reports will represent the project's substantive subject-matter contributions to be included in dissemination of results at local, national and international levels; and as such will be produced in a consistent and recognizable format.

Project Publications will crystallize and disseminate project results and achievements; can include scientific journal articles, informational texts, or multimedia publications; and can be based on selected Technical Reports or syntheses of a series of Technical Reports. The project team in consultation with UNDP, government partners and other stakeholders will determine if any of the Technical Reports merit formal publication and appropriate financial support.

### ***Independent evaluations***

The project will require at least two independent evaluations. A **Mid-Term Evaluation** will assess outcome achievements; will identify needed course corrections; will examine the effectiveness, efficiency and timeliness of project implementation; will highlight issues

requiring decisions and actions; will present initial lessons learned about project design, implementation and management; and will provide recommendations to improve implementation of the second and final half of the project. The UNDP-CO in collaboration with the UNDP-GEF Regional Coordination Unit will develop the organization, terms of reference, and timing of the mid-term evaluation.

An independent external **Final Evaluation** will take place three months prior to the terminal Project Board meeting and will focus on the same issues as the mid-term evaluation as well as on the impact and sustainability of results, capacity building, achievement of global environmental goals, and recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP-CO based on guidance from the UNDP-GEF Regional Coordination Unit.

During the last three months, the project team will prepare the **Project Terminal Report**. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

### ***Learning and knowledge sharing***

Project results will be disseminated within and beyond the project intervention zone via information-sharing networks and forums including the UNDP/GEF networks that involve Senior Personnel of similar and related projects. UNDP/GEF Regional Unit has established an electronic platform for sharing lessons learned among project coordinators. The project will participate in relevant scientific, policy-based and other networks that can benefit project implementation via lessons learned; and will share its own lessons learned with other similar projects. Identification and analyses of lessons learned will be provided and communicated annually. UNDP/GEF will provide a format and assist the project team in categorizing, documenting and reporting on lessons learned.

### **Communications and visibility requirements:**

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: [http://www.thegef.org/gef/GEF\\_logo](http://www.thegef.org/gef/GEF_logo). The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08\\_Branding\\_the\\_GEF%20final\\_0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.



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## 6 Legal Context

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried; and,
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

## 7 Annexes

### 7.1 Annex I: Risk Analysis.

Use the standard UNDP Atlas *Risk Log template*. For UNDP GEF projects in particular, please outline the risk management measures including improving resilience to climate change that the project proposes to undertake.

Risk	Rating	Mitigation strategy
Shift in political priorities means discontinuation of Government co-financing	M-L	<p>The programmes that have been implemented for EE measures are very popular within the country. Though there is a chance of a change in government during the project, it is unlikely that the project would be jeopardised. The project will work to mitigate this risk by prioritising further sources of co-financing.</p> <p>The project will also work in the early stages to make the case that supporting EE measures saves the Government money in the medium-long term and helps to cushion the blow – both politically and in terms of costs and comfort – of reducing supply-side heating subsidies.</p> <p>International commitments also require that Romania set and implement targets for energy performance in buildings and in energy efficiency and energy services. The infrastructure and commitments to energy efficiency are assured during and after the proposed project lifetime.</p> <p>Furthermore, by proposing an integration of EE-related issues into social programs, the project will be able to address economic recovery issues directly through its activities, which include jobs creation, making it relevant to efforts to address economic difficulties. The inclusion of EE-related issues into social programmes will be based on technical studies and will be done through a highly consultative process in order to inculcate political ownership and support.</p>
Lack of funding to support investments that are targeted	M-L	<p>There is significant funding available for energy efficiency improvements in Romania as described elsewhere in this document. Project implementation will focus on coordination and improved information for decision-makers to ensure that this funding is handled in a more efficient way and to improve access to this funding in low-income households and regions.</p>
Lack of investment triggered in low-income communities	M	<p>The low-income communities will derive financial and standard-of-living benefits from the project and the measures that will be carried out under this project are geared towards households in fuel poverty which have some resources to implement measures – i.e. co-financing. The project will also work to raise awareness among communities/households in order to trigger investments.</p>

Professionals / building materials producers not interested in participating in capacity building exercises	M-L	While specific recipients of capacity development have not been identified as of yet, there is in general growing interest in sustainable building practices around the country. This is likely to grow because of the EPBD requirements and due to the demand-side activities of the project. The project will work to mitigate this risk through carrying out extensive outreach to building materials producers and building professionals in the 2 main counties.
Lack of administrative capacity will hinder project implementation in more disadvantaged regions of the country	L	Substantial screening has taken place during project preparation. The proposed project will benefit from UNDP's experience with, and strong support from, local authorities in Romanian regions in both the climate change and other GEF focal areas. The project will also leverage capacity that has been built for Romania to receive regional funding through other international agreements such as from EU funds.

## 7.2 Annex II: Agreements

All agreements, letters of support, and letters of co-financing are included as additional attachments to this project document.

## 7.3 Annex III: Terms of Reference

### 7.3.1 Project Implementation Unit (Employees of the MDRT):

#### Project Manager

##### ***Education and experience***

- University / Master Degree in Engineering or other closely related areas.
- At least 10 years of progressively responsible experience is required at the national or international level in the areas of community-based development and project management in the energy and environment field involving a significant element of community engagement and capacity building in the public sector.
- Previous experience in development assistance or related work for a donor organization, governmental institutions, NGO or private sector / consulting firm is a very strong advantage.
- Strong analytical, drafting and communication skills.
- Experience in the usage of computers and office software packages (MS Word, Excel, PowerPoint, etc) and advance knowledge of spreadsheet and database packages, experience in handling of web based management systems.
- Strong leadership skills and proven experience in managing interdisciplinary teams.

##### ***Duties and responsibilities***

The Project Manager will have the responsibility to plan, oversee and ensure that the Project is producing the expected outputs at the right time, to the right standards of quality and within the allotted budget.

- Plan the activities of the project and monitor progress against the initial quality criteria;
- Mobilize goods and services to initiative activities, including drafting TORs and work specifications;

- Build, motivate and lead a high performing team consisting of project personnel, expert consultants, translators, etc. Undertake personnel performance appraisals and career development coaching at project level;
- Monitor events as determined in the Project Monitoring Schedule Plan, and update the plan as required;
- Manage requests for the provision of financial resources by UNDP, using advance of funds, direct payments;
- Monitor financial resources and accounting to ensure accuracy and reliability of financial reports;
- Responsible for preparing and submitting financial reports to UNDP on a quarterly basis;
- Manage and monitor the project risks initially identified, submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;
- Be responsible for managing issues and requests for change by maintaining an Issues Log;
- Prepare the Project Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;
- Prepare the Annual review Report, and submit the report to the Project Board;
- Prepare the AWP for the following year, as well as Quarterly Plans if required;
- Ensure wide dissemination and visibility of project achievements. Establish and manage mechanisms for exchange of information, experience and lessons learned at the local and national levels
- Maintain close coordination with project partners, ensure synergies, avoid overlaps in project implementation, collaborate with other donors working in the same area, and provide information relevant to the project.

## **Project Assistant**

### ***Education and experience***

- Degree in economics, finance, accounting, law, public administration or other related field.
- At least three years of experience in administrative work, accounting/finance, economics, or other substantive area is required.
- At least two years of previous experience in development assistance or related work for the Government, a donor organization, consulting company, or NGO is a very strong advantage.
- Experience in the usage of computers and office software packages (MS Word, Excel, etc.) and advance knowledge of spread-sheet and database packages, experience in handling web-based management systems.

### ***Duties and responsibilities***

- Provide all types of support to the Project Implementation Unit and national/international consultants in the implementation of their tasks for the achievement of project results (communication, contracts, agenda, visas, hotel reservations, etc);
- Make pertinent logistical arrangements for the prompt and effective implementation of the programme activities;
- Assume overall responsibility for administrative matters of a more general nature, such as registry and maintenance of project files and records;
- Arrange external and internal meetings (including the meetings of the Project Board, Technical level, as well as other relevant meetings etc.).
- Collect project related information data

- Update plans
- Administer the quality review process
- Administer project revision control
- Establish document control procedures
- Compile, copy and distribute all project reports
- Draft minutes of relevant project related meetings;
- Arrange external and internal meetings

## **Procurement Specialist**

### ***Education and experience***

- University degree in economics, finance, accounting, law, public administration or other related field.
- At least five years of experience in procurement, a significant proportion of which should be in the public sector
- At least five years of experience in administrative work, accounting/finance, economics, or other substantive area is required.
- Experience of working in / with international organisations would be an advantage
- Experience of working with energy issues or construction contracts would be an advantage
- Experience in the usage of computers and office software packages (MS Word, Excel, etc) and advance knowledge of spreadsheet and database packages, experience in handling web-based management systems.
- Fluency in Romanian. A good command of English is an advantage
- Computer literacy
- Proven ability to work as part of a multi-disciplinary team

### ***Duties and responsibilities***

The Procurement Specialist will be part of the Project Implementation Unit, under the overall supervision of the Project Manager. The main role of the Procurement Specialist is to take a lead in all matters relating procurement, including the selection of contractors and the drawing up of contracts.

The Procurement Specialist will be responsible for carrying out the following specific tasks:

- With input from other members of the Project Implementation Unit and assistance from consultants engaged within the project, draw up and issue the Request for Letters of Interest (LOI) and the Prequalification Requests (PQRs) aimed at soliciting responses from suitably qualified contractors for the implementation of Energy Efficiency works paid for through the project's funds.
- Using criteria and procedures agreed with the other members of the Project Implementation Unit, evaluate and prioritise the Statements of Qualification (SOQs) received.
- With guidance and training from the Project Manager and consultants engaged in the project:
  - Take the lead role in developing and issuing Requests for Proposals (RFPs) to the contractors that have submitted satisfactory SOQs;
  - Evaluate the proposals received, according to criteria agreed with the other members of the Project Implementation Unit;
  - Draw up contracts with the successful design-build contractors. These steps should be repeated as necessary for each project (or bundle of projects) for which support is requested. It is expected that the consultants engaged for the project to provide Technical Assistance will be available to provide input. It is however important that the Procurement Specialist uses this time to acquire

sufficient knowledge and expertise on the issues related to be able to manage the process independently.

- Work with the Enterprise Development Specialist and Engineers to: (i) develop an outline design for a financing facility (most likely leasing or hire-purchase) under which one or more technology providers will supply a package of equipment and services to prospective building materials producers supply contractors; (ii) identify a suitably qualified technology provider and formulate a co-operation agreement with them; (iii) work with the technology provider and other members of the PMT to finalise the detailed design of the financing facility.
- Work with the PMT Training and Education Specialist to provide on-the-job training and technical support to municipal authorities and potential building materials suppliers in parallel to the implementation of Energy Efficiency projects, in the areas of competitive tendering, management of fuel supply, and quality control.
- Review any procurement-related content of training material on Energy Efficiency developed under the project, and advise the Short-term Trainers as necessary.

### **7.3.2 Technical Assistance Contracts**

#### **Project Task Leader – Service contract from UNDP**

##### ***Education and experience***

- University/Master degree in Engineering or other closely related areas
- At least 10 years of progressively responsible experience is required at the national or international level in the areas of community-based development and project management in the energy and environment field involving a significant element of community engagement and capacity building in the public sector
- Previous experience in development assistance or related work for a donor organization, governmental institutions, NGO or private sector / consulting firm is a very strong advantage.
- Strong analytical, drafting and communication skills.
- Experience in the usage of computers and office software packages (MS Word, Excel, etc) and advance knowledge of spread-sheet and database packages, experience in handling of web based management systems.
- Strong leadership skills and proven experience in managing interdisciplinary teams
- Fluent in Romanian and English

##### ***Duties and responsibilities***

The Project Manager will have the responsibility to work closely with the Project Manager to plan, oversee and ensure that the Project is producing the expected outputs at the right time, to the right standards of quality and within the allotted budget.

- Assist in planning the activities of the project and monitor progress against the initial quality criteria;
- Assist in mobilizing goods and services to initiative activities, including drafting TORs and work specifications;
- Assist in building, motivating and leading a high performing team consisting of project personnel, expert consultants, translators, etc. Undertake personnel performance appraisals and career development coaching at project level;
- Assist in monitoring events as determined in the Project Monitoring Schedule Plan, and update the plan as required;
- Assist in managing requests for the provision of financial resources by UNDP, using advance of funds, direct payments;
- Assist in monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;
- Assist in preparing and submitting financial reports to UNDP on a quarterly basis;

- Assist in managing and monitoring the project risks initially identified, submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;
- Assist in managing issues and requests for change by maintaining an Issues Log;
- Assist in preparing the Project Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;
- Assist in preparing the Annual review Report, and submit the report to the Project Board;
- Assist in preparing the Annual Work Plan for the following year, as well as Quarterly Plans if required;
- Work with the Communications Officer to ensure wide dissemination and visibility of project achievements beyond Romania. Establish and manage mechanisms for exchange of information, experience and lessons learned at the local and national levels
- Maintain close coordination with project partners, ensure synergies, avoid overlaps in project implementation, collaborate with other donors working in the same area, and provide information relevant to the project.

## **Local coordinators – 2 Service contracts from UNDP**

### ***Education and experience***

- Educated to degree level, preferably in social sciences, public administration or related disciplines
- At least five years of experience working in community-based development projects, construction, or energy / environmental projects involving a significant element of community engagement and capacity building in the public sector.
- Experience of working in or with international organisations would be an advantage
- Knowledge of energy / environment issues related to the buildings sector
- Fluency in Romanian required and good command of English would be an advantage.
- Computer literacy
- Proven ability to work as part of a multi-disciplinary team

### ***Duties and responsibilities***

The Local Coordinators will provide technical assistance under the overall supervision of the Project Manager. The main role of the Local Coordinators is to work with the local municipalities to ensure that appropriate communities are identified in which investments in energy efficiency in buildings can be made, and that key stakeholders from these communities are committed to participating in the project.

The Community Mobilisation Specialists will be responsible for carrying out the following specific tasks:

- Finalise selection criteria, in agreement with the rest of the Project Implementation Unit, for communities wishing to participate in the project and, based on these criteria, make an initial selection of buildings with which to focus on EE measures.
- Liaise with the local authorities in each of the selected districts to organise a promotional meeting with the aim of ensuring local buy-in. These meetings should include representatives from each of the relevant County or Municipal Departments, the Mayor or Local Council Secretary from each municipality/village within the county, managers of public institutions (schools, kindergartens, community centres etc.), and local building professionals (including consultants, construction companies, and materials producers / retailers).

- Work with local authorities and local consultants to incorporate issues related to fuel poverty into their Energy plans.
- Undertake a preliminary appraisal of the expressions of interest received from communities, and prioritise interested communities for awareness-raising and interventions in particular building objects.
- Work with the local authorities to publicise a call for expressions of interest from municipalities to implement community-based projects on social buildings (~ 20 buildings per county).
- Identify building professionals and municipal employees for trainings and assist with setting up the logistics for trainings and meetings.
- Assist the local authorities in distributing information to the public about EE opportunities and options.
- Over the course of the 4 year project in each county work with local authorities to publicise a call for expression of interest from:
  - Building materials producers for subsidies for locally producing EE materials,
  - Municipalities for implementing EE measures in social buildings (20 per county)
  - Apartment block associations for implementing sustainable heating sources (10 per county)
  - Apartment block associations for using subsidies to implement thermal rehabilitation (20 per county)
  - Individual houses for using subsidies to implement EE measures using locally produced materials (75 households per county).
- Work with the local consultants and construction companies to conduct field visits to the building objects which undergo works to supervise work quality.
- Work with the local consultants to provide technical assistance to the targeted communities in completing the application forms, and to evaluate the received applications.
- Liaise with the Project Implementation Unit Training and Education Specialist to develop appropriately targeted training materials to match the capacities and needs identified in the local counties.
- Based on the capacities of communities to mobilise the necessary co-financing resources to successfully implement their respective project, provide input to the Project Implementation Unit's prioritisation of projects for investment.
- Solicit further applications by continuing with the above activities on an on-going basis.
- Work in collaboration with the other members of the Project Implementation Unit to develop a strategy for the Annual National Awards component of the project, and to select winning projects.
- Work with the local authorities to ensure that as many buildings as possible are entered into the registry of buildings.

## **Local assistants – 2 Service contract from UNDP**

### ***Education and experience***

- Degree in economics, finance, accounting, law, public administration or other related field.
- At least three years of experience in administrative work, accounting/finance, economics, or other substantive area is required.
- At least two years of previous experience in development assistance or related work for a donor organization, consulting company, or NGO is a very strong advantage.
- Experience in the usage of computers and office software packages (MS Word, Excel, etc.) and advance knowledge of spread-sheet and database packages, experience in handling web-based management systems.



- Fluent in Romanian and strong command of English would be an advantage

#### ***Duties and responsibilities***

- Provide all types of support to the Project Implementation Unit, the Local Coordinator, and national/international consultants in the implementation of their tasks for the achievement of project results (communication, contracts, agenda, visas, hotel reservations, etc.);
- Make pertinent logistical arrangements for the prompt and effective implementation of the programme activities – including trainings and meetings;
- Assume overall responsibility for administrative matters of a more general nature, such as registry and maintenance of project files and records;
- Arrange external and internal meetings (including the meetings of the Project Board, Technical level, as well as other relevant meetings etc.).
- Collect project related information data
- Update plans
- Administer the quality review process
- Administer project revision control
- Establish document control procedures
- Compile, copy and distribute all project reports

### **Communication officer – 1 Service Contract from UNDP**

#### ***Education and experience***

- Educated to degree level
- At least ten years of experience in working with the media, a significant proportion of which should involve taking a leading role in conducting high-level media campaigns successfully targeting national press, television and radio
- A good working knowledge of energy / environmental issues
- Experience of working in / with international organisations would be an advantage
- Fluency in Romanian. A good command of English is an advantage
- Computer literacy
- Proven ability to work as part of a multi-disciplinary team

#### ***Duties and responsibilities***

The Communication Officer will be part of the Project Implementation Unit, under the overall supervision of the Project Manager, but will also be expected to work closely with Communication Officers within the UNDP Country Office and the Ministry of Regional Development and Tourism. The main role of the Communication Specialist is to manage all aspects of communicating the project's aims, successes and impacts to the public and internationally via the print and broadcast media and via high-profile events.

The Communication Officer will be responsible for carrying out the following specific tasks:

- Work in co-ordination with Communications Officers in the UNDP Country Office and the Ministry of Regional Development and Tourism (MDRT) to develop a media strategy. This should include identifying and cultivating key contacts in both the print and the broadcast media, development of a professional media package to provide background information about the project, and establishing processes for:
  - Regular communication with media contacts;
  - Regular production of press releases;
  - Advising and assisting municipalities in managing local media interest at the community level;
  - Monitoring of media exposure.

- Take the lead in implementing the media strategy, in close partnership with UNDP and the MDRT specialists – including outreach to international media sources and information points such as blogs, web-sites, etc.
- Undertake continuous monitoring of the impacts of the media strategy through both a media log and a log of enquiries arising from media exposure.
- Work with the Training and Education Specialists and a marketing company to develop materials geared towards the general public for implementing EE measures in their homes. This should include:
  - Contracting a marketing agency to work with the project representatives from the Romania Green Buildings Council and the AAEC to design a practical handbook/ brochure;
  - Marketing test the booklet with a few dozen households in focus groups to make sure that it is easy to follow and would result in actions being taken.
  - Revising the text and design according to feedback on the handbooks/brochures.
  - Printing and distributing the handbooks/brochures at a wider scale within the county.
  - For monitoring purposes, including an application for subsidies for materials within the handbook/brochure such that the local municipality can gauge its effectiveness.
- Lead the instigation of a National Annual Awards Ceremony, initially for participants in the programme but with the aim of expanding into a more general renewable energy / energy efficiency awards ceremony after the programme finishes. This will involve identifying and developing strategic partnerships and alliances both nationally and internationally with a view to both sponsorship and raising the profile of the ceremony; working with other members of the Project Implementation Unit to develop a detailed plan for the awards ceremony (e.g. timing, award categories, judging criteria, prizes); ensuring high-profile coverage of the event in the print and / or broadcast media; monitoring the impacts of the event.

## **Training and Education Specialists on Energy Efficiency in buildings – Short term contracts hired by MDRT from AAEC and RoGBC**

### ***Education and experience***

- Educated to degree level
- At least five years of experience in developing and delivering training to senior managers in the public and / or commercial sectors related to EE in buildings
- Familiarity with the Romanian professional certification system and curricula, and experience with developing educational material for professionals
- Expertise related to EE and use of sustainable heating systems in buildings
- Experience of working in / with international organisations would be an advantage
- Fluency in Romanian. A good command of English is an advantage
- Computer literacy
- Proven ability to work as part of a multi-disciplinary team

### ***Duties and responsibilities***

The Training and Education Specialist(s) will be part of the Project Implementation Team contracted by UNDP, under the overall supervision of the Project Manager. The main roles of the Training and Education Specialist are to take the lead in developing and delivering all training materials required under the project, and to liaise with external educational initiatives to enhance community understanding and acceptance of EE in buildings and sustainable heating systems.

The Training and Education Specialist will be responsible for carrying out the following specific tasks:

- Develop a comprehensive training package on EE options aimed at:
  - Building professionals (architects, building engineers, construction professionals, and energy auditors);
  - Public municipal employees/ local community representatives who can act as information providers for local populations.
- The training material for building professionals should cover:
  - The existing legislative framework and its consequences for building construction/ refurbishment;
  - Technical solutions for EE for different types of buildings;
  - Local materials/ equipment/ installations available for EE solutions;
  - Roles/ obligations of owners, local authorities, and energy suppliers.
  - Technical aspects of renewable energy (RE) equipment;
  - Costs and benefits of implementing EE and RE solutions;
  - Sources of finance available for implementing EE and RE solutions;
  - Marketing EE and RE products and services to the general public and to institutions;
  - Case studies – success and failure stories.
- The training material for municipal authorities and community representatives should be more basic in nature and cover:
  - The existing legislative framework and its consequences for building construction/ refurbishment;
  - Technical solutions for EE for different types of buildings;
  - Local materials/ equipment/ installations available for EE solutions;
  - Technical aspects of renewable energy (RE) equipment;
  - Costs and benefits of implementing EE and RE solutions;
  - Sources of finance available for implementing EE and RE solutions;
  - Contacts for companies/professionals that can provide services (building equipment, audits, designs etc.)
- Deliver training to municipal authorities using appropriate sections of the material developed above. Training should be delivered at an appropriate level at a number of key stages within the project, including: (i) at county-level promotional meetings aimed at raising awareness of the project among County officials; (ii) during information and awareness-raising field visits to priority communities; (iii) at 3 day training sessions directed at the building professionals; (iv) during 'on-the-job' training on competitive tendering and the management of suppliers, directed at municipal authorities supervising EE works.
- Monitor the impacts of all training sessions using intake and exit surveys of participants along with feedback forms. Training material should be reviewed and revised as necessary according to the results of this monitoring.
- Work with the Project Implementation Unit to develop training materials to be introduced into the curricula for building professionals. This material should highlight the business opportunities and risks presented by the EE market. The material should be produced in a form that enables prospective professionals to engage in self-study, and be made available through the MDRT.
- Monitor the impacts of the self-study material developed through a log of enquiries and requests for help, maintained by the technology provider, and follow-up contacts with recipients of the material.
- Work with the Communications Officer to develop materials for the general public related to EE measures which can be carried out at a household level.

**Enterprise Development Specialist for materials production – Short-term contracts hired by MDRT from RoGBC or AAEC**

### ***Education and experience***

- Educated to degree level in business administration, management, business enterprise development or related disciplines
- At least ten years of relevant experience, which should include a significant element of building the capabilities of entrepreneurs and / or providing technical assistance to support the development of new products related to the buildings sector.
- Knowledge of energy / environment issues would be an advantage, particularly where this is relevant to Romania
- Experience of working in / with international organisations would be an advantage
- Proven ability to work as part of a multi-disciplinary team
- Fluency in Romanian. A good working knowledge of English is an advantage
- Computer literacy

### ***Duties and responsibilities***

The Enterprise Development Specialist will be part of the Project Implementation Team, under the overall supervision of the Project Manager. The main roles of the Enterprise Development Specialist are to provide such technical support as necessary to the municipalities and contractors participating in the project, to strengthen the capacity of municipalities and private contractors to implement the production of EE materials and to undertake market studies related to EE in buildings.

The Enterprise Development Specialist will be responsible for carrying out the following specific tasks:

- Supporting the development of EE local materials (products) among producers and construction companies in the two initial counties and perhaps expanding to others
- Work alongside the Project Implementation Unit's Procurement Specialist and Training and Education Specialists in outlining a design for a financing facility (most likely leasing / hire-purchase) under which a technology provider will provide buildings materials suppliers with necessary equipment and associated services. Detailed design of the financing facility will be developed in agreement with the technology provider(s) and prospective building materials suppliers.
- Monitor the success of the technology provider's financing facility, and recommend actions to improve its effectiveness
- Work with the Procurement Specialist to provide technical support to municipal authorities and potential building materials suppliers in the areas of supplier management and quality control of building supplies
- Co-operate with the Training and Education Specialists in strengthening the capacity of the buildings sector companies to supply, deliver and service EE materials and services, including assisting with the development and delivery of training.
- Work with the Training and Education Specialists to develop training materials targeting commercial building materials/construction companies. This training material should highlight the business opportunities and risks, and should include a generic business plan that could be used by entrepreneurs seeking to understand the market and the steps needed to enter it.
- Work in collaboration with the other members of the Project Implementation Unit to develop a strategy for the Annual National Awards component of the project, and to select winning projects.

### **Technical analysis for building types - either a number of consultants or hired by MDRT from the AAEC**

#### ***Education and experience for consultants***

- Educated to degree level

- At least five years of experience in carrying out technical analysis of buildings and evaluating possibilities for the introduction of EE/RE measures in these buildings
- Expertise related to EE and use of sustainable heating systems in buildings
- Experience of working in / with governmental institutions and building certification processes
- Fluency in Romanian. A good command of English is an advantage
- Computer literacy
- Proven ability to work as part of a multi-disciplinary team

### ***Duties and responsibilities***

The carrying out of this task will involve the technical analysis of 50 common types of apartment buildings in Romania. The purpose of this task is to streamline the application and planning procedure for apartment blocks which are interested either in a government program for thermal rehabilitation or are interested in carrying out the works themselves. The Technical Analysis should provide “off-the-shelf” plans and analysis for EE measures within apartment blocks which can be adjusted to specific buildings of the same type cheaply. The analysis will include the following:

- Analysis for 50 common types of apartment buildings will include:
  - Architectural designs of the buildings.
  - A basic calculation for energy demand of the building – with an independent variable of climate conditions.
  - Information on the original systems of heat/hot water distribution.
  - Technical options for increasing EE within the building which would be applicable to other buildings of its type.
  - A financial assessment of the EE options – including prioritising EE investments according to amount of energy saved, likely costs per square meter, likely costs per household, and payback periods according to energy demand.
  - Technical designs of the EE measures which would be appropriate for most buildings of this type.
- Results of the technical analysis will be posted online in a usable format on the Ministry of Regional Development and Tourism’s website.
- The MDRT will post this technical analysis as a part of the public domain on its website. The website will also include ways to make it easy for households to recognize their type of apartment (including pictures from the outside of the apartment block, basic diagrams of the typical apartment within the block, etc.)
- The Ministry of Regional Development and Tourism will also publicize this analysis to local municipalities throughout Romania – and in particular to the two primary urban areas of Craiova and Petrila. This information will be distributed via the info-offices and other public relations efforts within the project.

## **Database designer – Service Contract from UNDP**

### ***Education and experience***

- Educated to degree level in computer sciences, database management, or a similar field
- At least ten years of experience in organising user-friendly databases containing complex information – including web-based interfaces
- Knowledge of energy issues or the construction sector would be an advantage
- Experience working with international organisations and / or government agencies would be an advantage
- Fluency in Romanian. A good command of English is an advantage
- Proven ability to work as part of a multi-disciplinary team

### ***Duties and responsibilities***

The database designer will work with the Project Implementation Unit to develop a database which will make it possible for city/ town/ village municipal governments to compile building registries to identify high-priority areas for investments. The information included within the registry will include (at a minimum):

- Technical information about the building (useful area, completion date, number of floors, number and size of rooms, etc.)
- Information on the ownership structure;
- Type of building users;
- Number of building users;
- Heating/cooling source;
- Theoretical energy demand (according to any audits carried out);
- Actual energy use (according to previous records);
- Pictures of the building (including areas that need improvement)
- Potential EE measures, including estimated investment costs, energy to be saved, and GHG emissions reduction at the primary energy source;
- For those buildings which have undergone EE improvements, these will be listed along with the impact of the improvements (in terms of theoretical energy demand, actual energy use, and GHG reduction).

Information about how to utilise the building registry will be included in information distributed nation-wide to local authorities along with the message that this registry will facilitate national investment by the government and by donors.

The database should be user-friendly, usable via the internet to upload and download data, and protected against breaches of security.

### **Local consultants for inspecting houses/carrying out energy audits of buildings – Service Contracts hired by the MDRT from the AAEC or RoGBC**

#### ***Education and experience***

- Educated to degree level in an engineering or applied science discipline
- At least five years of relevant experience, including a significant element of working on energy issues in the residential sector.
- Certification in Energy Auditing and/or building inspection from an accredited national institution
- Detailed knowledge of the Romanian energy sector, in particular policies, initiative and institutions relating to residential energy.
- Proven ability to work as part of a multi-disciplinary team
- Fluency in Romanian. A good working knowledge of English would be an advantage.
- Computer literacy

#### ***Duties and responsibilities***

The local consultants for inspecting houses and conducting energy audits of buildings will work with the local coordinators, local authorities and Project Implementation Unit in order to carry out technical assessments of energy savings possibilities within the buildings which may have works implemented.

Among social buildings, the local consultants will carry out the following tasks:

- Carry out an appropriately detailed energy audit and technical analysis to plan for EE implementation.
- Assist local authorities in the supervision of works on these objects.

- Ensure that the data from the project is entered into the buildings registry which will be created during project implementation.

Among apartment blocks involved in the project, the local consultants will carry out the following tasks:

- Where possible, adjust the technical analysis of the buildings which has already been carried out for the top 50 types of apartment buildings in order to develop a plan for EE implementation.
- Where heating systems will be replaced, carry out technical analysis and develop plans for implementing the sustainable heating systems.
- Assist local authorities and apartment building ownership associations with the supervision of the works for EE implementation or sustainable heating systems.

For households which are implementing EE measures using locally produced materials:

- Carry out a walk-through audit of the households to confirm that technical energy savings of over 40% are feasible;
- Carry out a hands-on training on how to utilise these locally produced materials for home improvements and EE measures
- Following the implementation of the EE measures, carry out an inspection of the project to ensure that there are no health and safety issues which must be addressed and to estimate the energy reductions which will result from the measures

Additional technical assistance by local consultants may be requested and agreed to within the scope of the project.

#### **7.4 Annex IV: Capacity Assessment**

*Results of capacity assessments of Implementing Partner (including HACT Micro Assessment)*

**Technical Capacity:** The Ministry of Regional Development and Tourism was set up in 2007, through the fusion of the former Ministry for European Integration with the constructions and public works component of the Ministry of Transportation, Constructions and Tourism. In December 2009, this ministry was added the tourism component, which had been previously handled by various administrative structures, among which, in 2008, a Ministry of Tourism.

The Ministry of Regional Development is one of the most important economic ministries of the Government, developing national level investment projects whose beneficiaries are wide segments of the Romanian population.

The Ministry of Regional Development and Tourism is organized and functions as a specialized body of the central public administration system, with legal personality, subordinated to the Romanian Government.

#### **Managerial, Financial, and Administrative Capacity**

The MDRT carries out programmes financed through European and domestic funds (please see section 1.5.2): The Regional Operational Programme 2007-2013 (REGIO), programmes for European territorial cooperation, PHARE programmes – Economic and Social Cohesion, PHARE programmes – Cross-border Cooperation, programmes for territorial development, building houses, thermal rehabilitation of blocks of flats, the consolidation of building with seismic threat, rural infrastructure development, building sport halls and cultural settlements. Additionally, in the field of transportation, MDRT is also managing a wide range of

programmes aiming at the development of the touristic infrastructure and the promotion of Romania as a touristic destination.

The MDRT develops activities in the following areas: strategic planning, regional development, territorial cohesion and development, cross-border, trans-national and inter-regional cooperation, territorial planning, urban planning and architecture, housing, real estate and municipal management and development, public works, constructions and tourism.

With the purpose of reaching all its agreed objectives, MDRT uses the expertise and the activity of the following institutions:

- its sub-authority, the National Agency for Housing and the National Company for Investments;
- coordinates with: the National Research and Development Institute on Constructions, Urban Planning and Sustainable Territorial Development URBAN – INCERC and the National Research and Development Institute on Tourism – INCDT; and,
- in subordinate: the National Research and Development Centre for the Protection of Buildings against Seismic Activity and Landslide CNRRS.

The MDRT also collaborates with the eight agencies for regional development and with the five regional offices for cross-border cooperation, towards the implementation of the programmes funded through European grants which the ministry is managing.

## **7.5 Annex V: Special Clauses**

*There are no Special Clauses required*

## **7.6 Annex VI: Criteria for choosing counties and buildings**

The following criteria have been chosen for ranking the counties to be focussed on within the project – based primarily at looking at the primary urban areas within the counties. Numerous counties, cities and villages were visited in the course of project preparation in order to come to expert judgement among the project preparation team about which counties should be focused on. These criteria have been judged using an Analytical Hierarchy Process on a 1-10 scale, with 1,000 total possible points with each criterion having its own weight as indicated below:<sup>69</sup>

As an initial screening factor, a local political commitment must be demonstrated to implementing EE projects with GEF/UNDP. This must have been signified by a letter of intent and verbal commitments.

1. Level of funds or in-kind contributions (including labour) available that could be used for EE improvements (at least 30% co-financing and upwards) – necessary.
2. Levels of emissions reduction from implementing EE improvements likely to be high in terms of tonnes CO<sub>2eq</sub>/USD – based upon the fuel source and climate conditions (25% weighting)
3. Likely prevalence of fuel poverty (15%)
4. Higher level of local capacity available (especially expertise) to implement EE measures (15%)
5. Community representative of other sites in Romania, in terms of building type and condition, ownership, level of commitment in local partners, etc.? (10%)

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<sup>69</sup> Note that these criteria are subject to change for the evaluation of different cities/counties if deemed necessary by a unanimous decision of the Project Board during project implementation.



6. Currently active market for local producers of building materials – though not necessarily sustainable, energy efficient building materials (10%)

Based upon this analysis, the counties of Dolj (containing Craiova) and Hunedoara (containing Petrosani) will be initially targeted in the project. Cities/towns within Dolj County include: Craiova, Radovan, Calafat, Vinatori and others. Cities/towns within Hunedoara County include: Petrosani, Petrila, Vulcan, Uricani, Rascoala, Calan, and others.

**Table 15: Evaluation of the cities that are potential focal points of the project activities**

City	Local political commitment to implementing EE projects with GEF/ UNDP	Funds or in-kind contributions available that could be used for EE improvements (25%) - Weighted score out of 250	Levels of emissions reduction from implementing EE improvements likely to be high (25%) Weighted score out of 250	Likely prevalence of fuel poverty (15%) Weighted score out of 150	High local capacity to implement EE measures (expertise) (15%) Weighted score out of 150	Community representative of other sites in Romania, (building type, condition, ownership) (10%) Weighted score out of 100	Current level of activity of local materials producers (10%) Weighted score out of 100	Total
Alexandria	y	125	150	150	45	80	40	630
Turnu Magurele	y	75	100	150	45	50	20	465
Turnu Severin	y	200	125	75	105	50	80	660
Baia de Arama	y	75	150	150	45	60	20	530
<b>Craiova</b>	<b>y</b>	<b>200</b>	<b>250</b>	<b>90</b>	<b>150</b>	<b>80</b>	<b>80</b>	<b>890</b>
<b>Petrosani</b>	<b>y</b>	<b>200</b>	<b>250</b>	<b>120</b>	<b>120</b>	<b>70</b>	<b>60</b>	<b>855</b>
Deva	y	150	150	60	120	70	70	655

The assistance to improve the building envelope of the apartment blocks will be based upon criteria set by the MDRT.

GEF funds utilised in this area will focus on:

- Technical assistance to carry out design analysis for the most common types of apartment blocks which can then be easily and cheaply adapted for specific buildings;
- Specific subsidies to apartment blocks with fuel poor households in order to trigger a larger investment;
- Implementing changes to the heating distribution system to allow households to turn on/off their heating.

It is envisaged that the vast share – potentially all – of the design and construction work will be devoted to existing buildings that are identified as in need of renovation. At this stage, the project does not entirely rule out the possibility of supporting the construction of new buildings because there may be opportunities to construct buildings that exceed the current standards without increasing the cost of construction.

To decide upon the specific buildings that will be addressed within the project, a similar Analytical Hierarchy Process (AHP) will be used upon project inception. The following factors will be assessed:<sup>70</sup>

As an initial screening factor, the project will only support buildings in cases where co-financing (either in-kind or otherwise) is available to cover at least 30% for the construction/reconstruction/ refurbishment of the building. GEF funds will only be used to fund incremental building/design costs (associated with better EE), not baseline construction/design costs. The project will focus on peri-urban villages with more than 3 social buildings which could be refurbished and towns with at least 5 social buildings which could be refurbished.

1. Number of beneficiaries of the building renovation per USD of investment (25%)
2. Level of replicability within the community/village/town (25%)
3. Energy/ emissions reductions possible (CO<sub>2eq</sub>/USD) (25%)
4. Level of co-financing available (including in-kind) (25%)

Each of these factors will be scored as a fraction of 1, weighted according to the percentage, and then the total score (out of 4) will be used to establish which building will be chosen.

A few buildings that have already been identified as likely candidates for interventions are listed below.

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<sup>70</sup> Note that these criteria should be revisited regularly and subject to change if deemed necessary by a unanimous decision of the Project Board during project implementation.

**Table 16: Analysis of a few buildings which are likely candidates for interventions**

County	City	Building Use	Possible improvements (building envelope)	Possible improvements (heating system)	Indicative costs for improvements	No. of beneficiaries	Level of replicability within the community/ village/ town	Level of Co-financing available <sup>71</sup> (including in-kind)
Dolj	Vanatori	Kinder-garten	Refurbishment of the building envelope: wall repairs, windows repaired or replaced where appropriate, repair of the roof and storm-water systems. Improve insulation of walls by applying external insulation, thermal insulation of roof.	Installation of high efficiency wood boiler with radiators OR floor heating system coupled with a geothermal heat pump. Heat recovery ventilation systems. Additional use of solar panels for heating is strongly recommended.	\$24,000	40	High - a large number of schools built between 1960 and 1990 have a high number of similar features.	\$10,000
Dolj	Calafat	Kinder-garten #1	Refurbishment of the building envelope: wall repairs, windows repaired or replaced where appropriate, repair of the roof and storm-water systems. Improve insulation of walls by applying external insulation, thermal insulation of roof.	Installation of high efficiency wood boiler with radiators OR floor heating system coupled with a geothermal heat pump. Heat recovery ventilation systems. Additional use of solar panels for heating is strongly recommended.	\$14,000	30	High - a large number of single family buildings as well as schools functioning in houses have a high number of similar features.	\$8,000

<sup>71</sup> From the building owner, the local municipality, or both.

Hunedoara	Vulcan	Social / low income housing	Refurbishment of the building envelope: wall repairs, windows repaired or replaced where appropriate, repair of the roof and storm-water systems. Improve insulation of walls by means of applying external insulation, thermal insulation of roof.	Installation of high efficiency wood boiler for each stair well together with radiators. Heat recovery ventilation systems. Additional use of solar panels for heating is strongly recommended.	\$65,000	60	High. A large number of 4 story buildings of apartments have similar characteristics	\$30,000
Hunedoara	Petrla	Low income housing	Refurbishment of the building envelope: wall repairs, windows repaired or replaced where appropriate, repair of the roof and storm-water systems. Improve insulation of walls by means of applying external insulation, thermal insulation of roof.	Installation of high efficiency wood or gas boiler (a more elaborate capacity study needs to be carried out) together with radiators. Heat recovery ventilation systems. Additional use of solar panels for heating is strongly recommended.	\$540,000	600	High. A large number of 10 story buildings of apartments have similar characteristics	\$400,000

County	City	Building Use	Number of beneficiaries of the building renovation per USD (25%)	Level of replicability within the community/ village/ town (25%)	Energy/ emission reductions possible (25%)	Level of co-financing available (including in-kind) (25%)	Total AHP score (out of a possible 4) <sup>72</sup>
Dolj	Vanatori	Kindergarten	0.75	1	0.75	1	3.5
Dolj	Calafat	Kindergarten #1	1	1	0.75	1	3.75
Hunedoara	Vulcan	Social / low income housing	0.75	1	1	1	3.75
Hunedoara	Petrla	Low income housing	0.75	1	1	1	3.75

<sup>72</sup> AHP is "Analytical Hierarchy Process" – see further explanation above.

## 7.7 Annex VII: Characteristics of the building sector in Romania

### 7.7.1 Basic information on the building stock in Romania

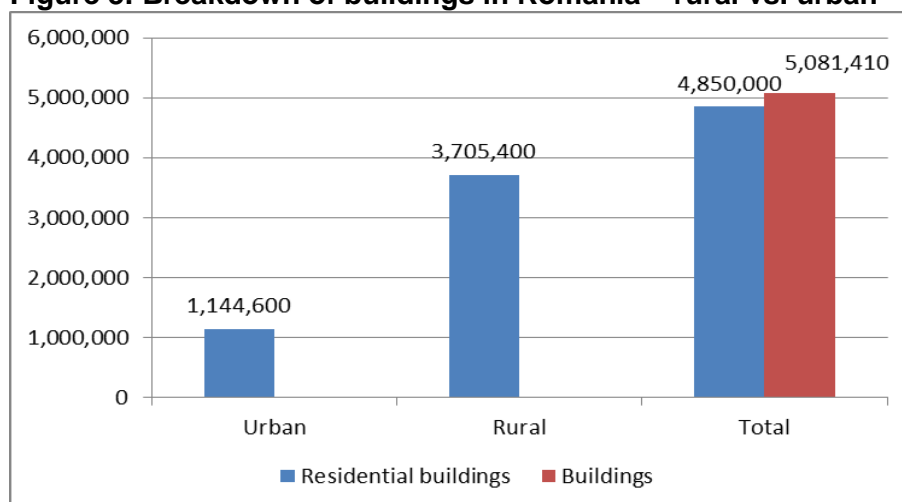
The building stock of Romania is dominated by residential buildings. Residential buildings make up about 95.4% of the total buildings (See Figure 3).

In 2009 the total housing stock included approximately 8.38 million units, serving a population of about 21.5 million people. Most rural housing units (79%) consist of detached houses inhabited by one family. The vast majority of blocks of apartments (94.4%) and semi-detached/row houses (63.1%) are in cities. The majority of the urban dwellings are in blocks - built mainly between 1950 and 1990.

Single-dwelling buildings represent 95% of the total building stock of Romania. They are the majority in both rural and urban areas. Blocks of flats represent about 1.7% of all buildings in the country. However, it is critical to note that, although they represent a small portion of buildings, the blocks of flats represent a large portion of the inhabited units:

- In 2002, 72% of the dwellings from urban areas and 39% of the entire country's dwellings were in blocks of flats.
- Also in 2002, there were 79,077 blocks in the cities and 4,722 blocks in the communes (rural areas), containing 2,984,577 dwellings.<sup>73</sup>

**Figure 3: Breakdown of buildings in Romania – rural vs. urban**



Non-residential buildings also play an important role in the building sector with regard to energy consumption. In addition to their own energy consumption, non-residential buildings have the following characteristics which are important for the general building sector:

- They serve as places where people spend a significant amount of time (for example, schools and offices). As such, their characteristics affect the quality of life of the people who spend time in those buildings.
- They often serve as examples of architecture and building practices for the general public. Particularly in rural areas, the non-residential buildings are often in buildings similar to or identical to the local housing. This is especially true in the public sector buildings. For example, many mayors' offices and schools are within buildings very similar to local dwellings.
- Public buildings have been identified within the EPBD recast as being important to implement EE measures in order to set a good example.<sup>74</sup>

<sup>73</sup> INS 2002

<sup>74</sup> European Parliament 2010, Page 12

- The public procurement process can also be used for public buildings to encourage the removal of barriers to EE implementation.

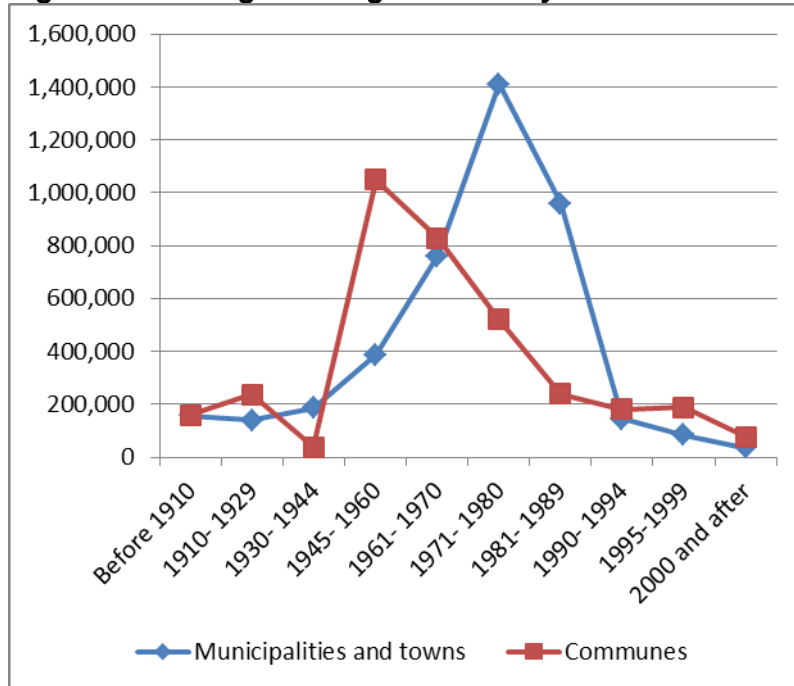
The different functionalities of non-residential public buildings are indicated in Table 17.

**Table 17: Non-residential public building structure (INS 2006)**

Building designation		Number of units
Education	Kindergarten	3,769
	Schools	12,055
	Higher education	770
	Libraries	3,764
	Theatres, cinemas, museums	898
Health	Hospitals	442
	Health Center	1,156
	Nursery	291
	Small health centre	28,193
	Drug stores, labs	8,239
	Social centres	1,664
Commerce	Small commercial shops	139,992
	Supermarkets	8,435
Tourism	Hotels, motels	1223
	Chalets, holiday villages, camping sites	2,994
Mail offices, financial services	Mail offices in cities	422
	Mail offices in villages	6,129
	Banks and insurance companies	5,882
	Small services companies	1,682
Public administration	City halls	325
	Town halls	2,851
	Head-offices of national public administration	234
<b>TOTAL</b>		<b>231,410</b>

The construction of new buildings – particularly in the residential sector – has fallen dramatically since 1990 due to dramatic economic changes following a shift from communism to a capitalist system. This means that a large proportion of the population will continue to live in 50-80 year old buildings for many years to come (See Figure 4). This is a problem because the vast majority of all residential units are in serious disrepair despite the fact that most of them are owned by users. This is true especially for low-income households, where the option of building or purchasing a better new home is very small. A newly built apartment or house costs over 1300 USD/m<sup>2</sup> in Bucharest, 700 USD/m<sup>2</sup> in other larger cities outside of Bucharest, and around 400 USD/m<sup>2</sup> in villages. Meanwhile, the house-hold income for the bottom 40% of the population is less than USD 387 per month. As such, any effort to stimulate EE in buildings should include significant efforts to stimulate refurbishment and EE measures in existing buildings.

**Figure 4: Existing Dwellings and their year of construction in Romania**



**Ownership structure:** Most dwellings have been privately owned since 1995 (a process which started with the revolution in 1989). As of 31 December 2009, the state owned only 3.2% of dwellings in urban areas and only 1.2% in rural areas (the communes). Private ownership is 97.7% at the national level.<sup>75</sup> The vast majority of dwellings in Romania are built with private resources and are privately owned. Approximately 95% of Romania's housing stock is owner-occupied, so most households act simultaneously as owners and users. The homeowners, as individuals or owners' associations, must contract directly with utility companies for services (e.g. heating, water, electricity, rubbish collection, gas, telephone, cable TV, etc.) that may differ considerably in type and quality depending on the locality. Each of the service companies has its standard contracts covering the basic obligation to provide the service and maintain the installations.

As such, any comprehensive effort to address the barriers confronting energy efficiency in buildings should make sure to address the residential sector, including both blocks of flats and single dwelling buildings, and focus on ways to ensure that private citizens take action to improve EE in their homes.

### 7.7.2 Costs of building and refurbishing

New build costs, depending on the materials, technique and height of the building (one or several stories high) can vary largely. For instance, a typical new build of one to two stories high made out of modern building materials costs around USD 248 EUR per square meter of built area. A similar new build using cob (with ground level only) can cost five times less. A substantial portion of the cost of new build consists of the interior and exterior finishing, electrical and plumbing network etc. Opting for standard interior finishing and roof cover, can actually double the cost of new build per square meter, which ends up being in excess of USD 410 per built square meter. Again, use of traditional building materials for roofing such as reed or straw can dramatically diminish the cost of building while providing substantial thermal insulation.

<sup>75</sup> INS 2009



All the aforementioned aspects make the costs for capital renovation of houses comparable to a new build, which is many times the preferred choice, especially in villages, where the availability of land for developing a new building is not an issue. In such cases the old house is demolished or used as a temporary house for “the elder”. In the case of brick houses, the bricks are recovered and used either for the construction of the new one or for other purposes, as building annexes or paving.

More information regarding the building costs are presented in Table 18.

**Table 18: Costs of new build and capital repairs**

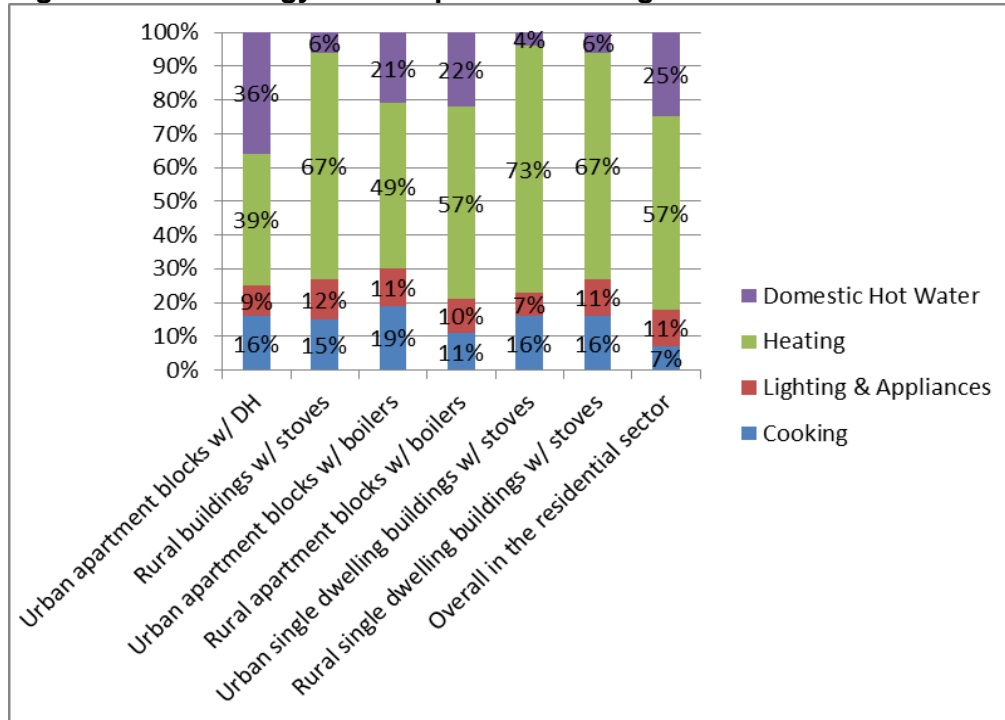
	<b>Average (Lei/m<sup>2</sup>)</b>	<b>Average (USD/m<sup>2</sup>)</b>	<b>Average size of dwelling</b>	<b>Average cost per dwelling (USD)</b>
<b>New build</b>				
Reinforced concrete structure with Ytong walls	932	277	40	11,063
Reinforced concrete structure with Porotherm brick walls	1,017	302	40	12,069
Wooden house with chipboard prefabricated walls	635	189	40	7,543
Roofing, interior finishing, mechanical and electrical systems	763	226	40	9,052
<b>Total</b>		<b>482</b>		<b>39,727</b>
<b>Thermal rehabilitation</b>				
Apartment buildings	254	75	40	3,017
Individual houses	424	126	40	5,029

### 7.7.3 Energy use in buildings

As noted, buildings make up a significant part of energy consumption and hence are responsible for a large amount of GHG emissions in Romania. Households consume almost one-third of all energy consumed in Romania – total energy consumption in the residential sector of Romania in 2006 was **91 TWh/year**. Meanwhile, the service sector consumed approximately 22 TWh.<sup>76</sup> Though the specific uses of consumption vary according to the type of housing, it is evident from Figure 5 that heating and domestic hot water make up the bulk of energy use – at least 70% in all cases.

<sup>76</sup> IPCT

**Figure 5: Final energy consumption according to use in the residential sector**

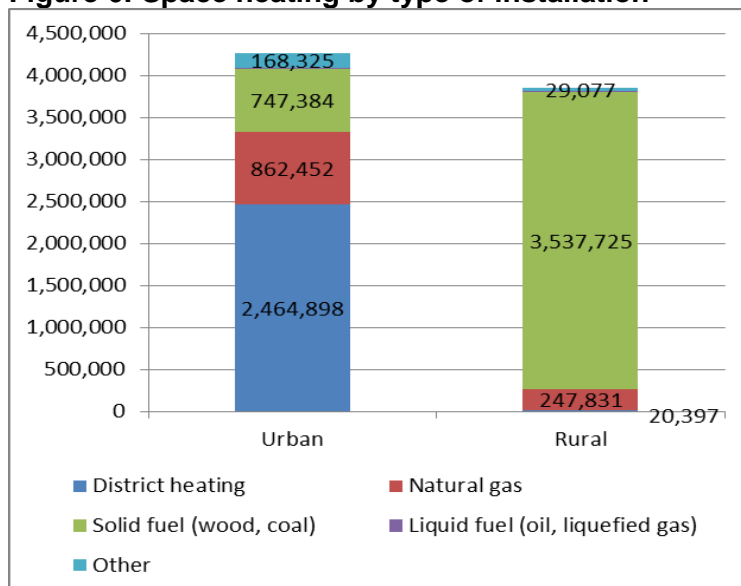


Source: ARCE 2002

Space heating is achieved primarily through three sources (See Figure 6):

1. District heating in cities via a central boiler – sometimes as a part of electrical cogeneration. This is most common for cities and larger towns. These boilers are powered by a range of fuels, including coal, fuel oil, natural gas, wood and others.
2. Individual local boilers (most often gas-fired) within houses/flats.
3. Wood or (less often) coal stoves – which are particularly common in rural areas.

**Figure 6: Space heating by type of installation**



Source: INS 2002

Residential buildings located in **urban areas** have – on average – the energy requirements per square metre per year as indicated in Table 19.

**Table 19: Energy indicative needs for residential housing in cities, by type of energy use**

Dwelling/ building/ heating system	Heating (kWh/m <sup>2</sup> year)	Domestic Hot Water (kWh/m <sup>2</sup> year)	Average dwelling size (m <sup>2</sup> )	TOTAL (kWh/ year)	Total Domestic Hot Water (kWh/year)	Average cost (Lei/kWh)	Total average cost for heating (Lei per year)	Total average cost for DHW (Lei per year)
Apartment / Block / DH	137.55	120.75	39.00	<b>5,365</b>	<b>4,709</b>	0.13	683	600
Apartment / Block / local boiler	137.55	57.50	39.00	<b>5,365</b>	<b>2,242</b>	0.13	696	291
Coupled dwelling / house / DH	164.47	137.66	39.00	<b>6,414</b>	<b>5,369</b>	0.13	817	684
Coupled dwelling / house / local boiler	164.47	65.55	39.00	<b>6,414</b>	<b>2,556</b>	0.13	833	332
Coupled dwelling / house / wood stove	164.47	13.11	39.00	<b>6,414</b>	<b>511</b>	0.07	448	36
Single dwelling / DH	220.26	112.12	39.00	<b>8,590</b>	<b>4,373</b>	0.13	1,094	557
Single dwelling / local boiler	220.26	53.39	39.00	<b>8,590</b>	<b>2,082</b>	0.13	1,115	270
Single dwelling / wood stove	220.26	10.68	39.00	<b>8,590</b>	<b>416</b>	0.07	599	29

Source: ARCE 2002

Residential buildings placed in **rural areas** have the typical energy needs as indicated in Table 20.

**Table 20: Energy indicators for residential dwellings in communes, by type of house use**

	Number of buildings	Total gross built area, m <sup>2</sup>	Total energy consumption, MWh/year	Typical specific energy consumption, kWh/m <sup>2</sup> year
Single buildings	3,638,595	282,238.57	48,262.80	171.00
Coupled buildings	47,883	8,626.70	1,268.12	147.00
Blocks of flats	14,264	6,245.95	1,180.48	189.00
<b>TOTAL</b>	<b>3,705,464</b>	<b>297,111.22</b>	<b>50,711.40</b>	<b>170.68</b>

Source: Cazanescu, R, S Cazanescu, and D Berbacaru, 2009

Residential buildings in Romania are considered energy efficient and receive an “A” certification if their specific heating energy consumption is below 70 kWh/m<sup>2</sup> per year. The level for a “B” certification is 117 kWh/m<sup>2</sup> per year (see Annex X for more details).

Case studies performed by companies providing energy performance certificates have estimated values for the specific heating consumption in non-residential buildings. These are described in Table 21.

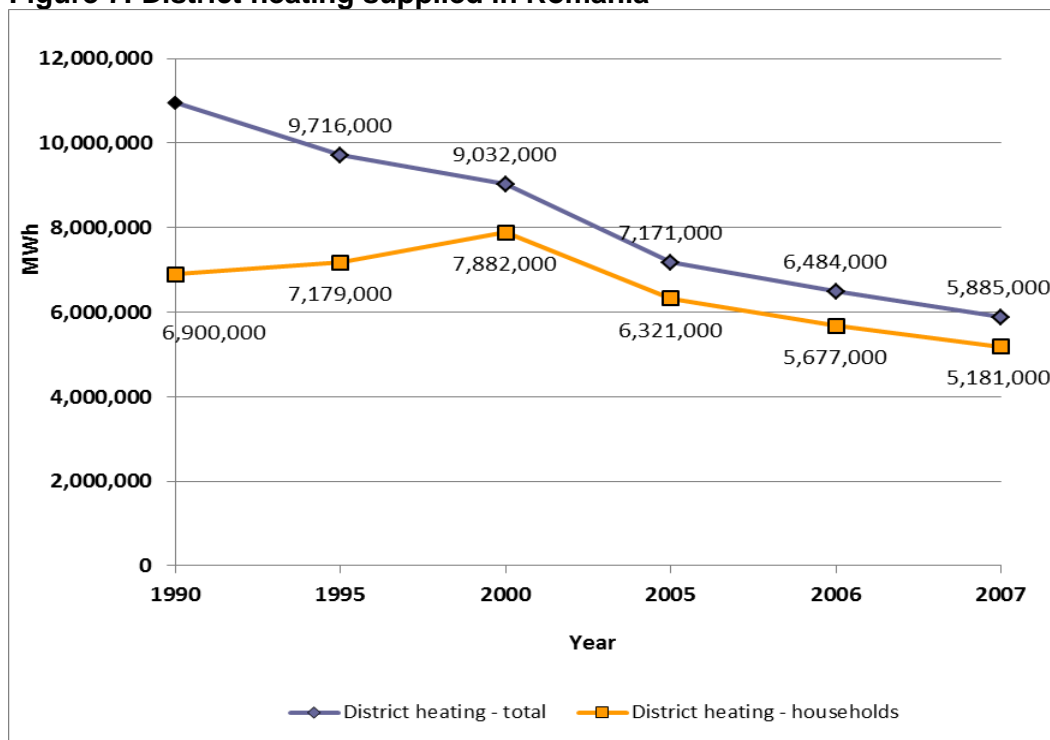
**Table 21: Specific average heat consumption [kWh/m<sup>2</sup>year] for non-residential buildings**

Schools	Offices	Cultural centres	Social buildings	Health centres	Warehouses	Restaurants
283	190	495	240	356	304	300

Source: INS 2002

In 2002, 38.9% of Romanian dwellings were connected to the district heating (DH) networks. Since then, many apartments have ended their connection and have switched to other thermal energy supply sources (See Figure 7). Between 2000 and 2005, the number of apartments using DH as a heating source dropped by 30%.

**Figure 7: District heating supplied in Romania**



Source: INS 2008

This drop can be attributed to a number of factors:

- A continuous increase in energy prices – especially in natural gas and fuel oil, which leads to higher DH costs.
- The high heating tariffs for DH, driven by high levels of system inefficiency among other things. It is estimated that energy losses are around 35-40%.<sup>77</sup> For example, the efficiency on average throughout the country of the DH systems is about 43% (i.e.

<sup>77</sup> Leca et al. 2006

43% of heat generated at the source is translated into end-user heat). In Bucharest, the efficiency level is 63%. This is far less efficient than on-site or in-house boilers.






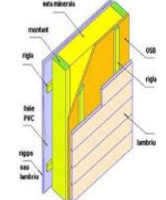
- Low incomes among the population who cannot pay the district heating bills and so disconnect from the system to either use wood or coal (which are cheaper) or simply make do without heating by using their cooking stoves to heat their apartments (with gas), or with improvised new systems.
- Because of the way the billing system works, most apartments do not have a separate heating meter, and most people cannot turn their heat on or off – meaning that people do not have control over how much they spend. Therefore, many people – even those who may be able to afford the heat – disconnect from the DH grid and install their own boilers or stoves.






It is important to note that there are currently significant supply-side subsidies of the DH producers (which are owned by the municipalities). According to analysis carried out for preparation of this project, these supply-side subsidies range drastically, but often represent over 40% of the supply price.

The poor quality of the building stock along with inefficiencies in the DH system in Romania leads to a substantial amount of energy wasted and emissions. Inefficient heating systems result in poorer households unable to afford heat (resulting in fuel poverty) and the Government spending an inordinate amount of money on heating subsidies geared towards heating producers and consumers – perhaps over USD 500 million per year according to analysis carried out during project preparation. This energy wasted is a large reason why – whilst energy intensity has decreased at a relatively stable rate since 1990 – energy use and subsequent GHG emissions from Romania remain at high levels relative to economic activity. As of 2004, energy intensity in Romania was more than 3.5 times higher than the EU-25 average.

## 7.8 Annex VIII: Information on building materials in Romania

**Table 22: Characteristics of typical building materials used in Romania**

Product	Name	Brief description	Conductivity W/m <sup>2</sup> K	Typical cost/ m <sup>3</sup> Lei	Typical cost for 80 m <sup>2</sup> house* Lei
<b>Building materials – walls</b>					
	Concrete Brick	<ul style="list-style-type: none"> <li>- made of cement mortar and aggregates resourced locally</li> <li>- can be used for load bearing an non-load bearing walls</li> </ul>	0.51	200	5,220
	Clay Brick – energy efficient	<ul style="list-style-type: none"> <li>- made of clay compressed in moulds and fired</li> <li>- can be used for load bearing an non-load bearing walls</li> </ul>	0.3-0.4	300	7,830
	Clay Brick	<ul style="list-style-type: none"> <li>- made of clay compressed in moulds and fired</li> <li>- can be used for load bearing an non-load bearing walls</li> </ul>	0.6	800	20,880
	Aerated concrete block	<ul style="list-style-type: none"> <li>- made of sand, lime and cement through an aeration process, cured at high temperature</li> <li>- cannot be used for load bearing structures</li> </ul>	0.12-0.15	250	6,525
	Cob	<ul style="list-style-type: none"> <li>- made of clay, sand and straw</li> </ul>	0.6	50	2,610
	Wood sandwich panels	<ul style="list-style-type: none"> <li>- made of prefabricated panels (OSB, insulation) with wood structure</li> </ul>	0.1	80	9,360

Insulating materials					
	Mineral wool slab (10 cm thick)	- Made of mineral fibres	0.035	180	1,296
	Glass fibre quilt (10 cm thick)	- Made of glass fibres	0.040	70	504
	Expanded polystyrene slab (10 cm thick)	- Made of expanded polystyrene	0.035	115	828
	Hemp slab (10 cm thick)	- Made of hemp fibres	0.040	580	4,176
	Cellulose	- Made of shredded paper waste	0.035	140 (@40kg/cubic meter)	1,008

\* 30 cm thick outer walls, 10 cm thick inner walls, 2.5 m wall height. The price for specified material only, not including labour, mortars etc. The insulation price only accounts for outer walls insulation and does not include labour, adhesives, insulation system etc.

**Table 23: Building materials availability, and the evolution of these materials use throughout of the 20<sup>th</sup> century in Romanian low-income households**

Regions	Raw building materials available locally					Traditional building materials (in the last 40-100 years)									Recent building materials for housing (last 40 years)														
						Foundation			Walls			Roof			Foundation			Walls			Roof								
	Wood	Stone	Clay	Straw	Reed	Stone	Fired brick	Earth	Wood	Cob	Fired brick	Shingles	Tiles	Straw	Reed	Stone	Fired brick	Reinforced concrete	Fired brick*	Aerated concrete brick*	Cement brick	Cob	Wood	Reed	Shingles	Tiles	Galvanized Steel	Cement asbestos	
<b>Plains</b>																													
Dobrogea			x	x	x			x		x			x	x		x	x		x	x						x		x	x
Danube Delta			x	x	x			x		x				x		x	x		x			x							x
Baragan			x							x				x		x	x		x	x		x						x	x
Western Plains	x		x							x			x			x	x		x	x		x				x		x	x
<b>Hills</b>																													
Transilvania plateau	x	x	x			x	x		x		x	x	x	x	x		x							x			x	x	x
Subcarpathian hills	x	x	x			x	x		x		x	x	x	x	x		x		x	x		x				x	x	x	x
Moldavian plateau	x	x	x			x	x		x		x	x	x	x	x		x		x	x		x				x	x	x	x
Dobrogea plateau	x	x	x	x	x	x				x				x	x		x		x	x		x				x	x	x	x
<b>Mountains</b>																													
Western Carpathians	x	x	x			x			x			x		x	x		x		x	x		x			x	x	x		
Middle Carpathians	x	x	x			x			x			x		x	x	x	x		x	x		x			x	x	x		
Eastern Carpathians	x	x	x			x			x			x		x	x		x		x	x		x			x	x	x		

\* Mostly used with reinforced concrete structures



## 7.9 Annex IX: Description of stakeholders in the buildings sector in Romania

### 7.9.1 Governmental Authorities

#### *National level authorities*

**The Parliament** has two chambers: the Senate and the Chamber of Deputies. The Government has initiatives and introduces bills in the chambers. Within the Senate, the housing-related bills are passed to its Permanent Commission for Public Administration, Regional Organizing and Environment Protection. Within the Chamber of Deputies, such bills are submitted to its Permanent Commission for Public Administration, Regional Planning and Ecological Equilibrium.

**The Ministry of Regional Development and Tourism (MDRT)** is responsible for housing and coordinates consultation on parliamentary bills with other ministries before the bills are submitted to the specialized permanent commissions. It has a special General Directorate for the Relation with the Parliament and Social Dialog. Through their permanent commissions, the two chambers have developed international housing activities with the Global Parliamentarians for Habitat and its European Regional Council for Habitat. Strong relations are being developed on these issues now with the European Parliament Committees for Regional Development, for Environment, Public Health and Food Safety, and for Employment and Social Affairs.

The MDRT also handles construction, housing and urban matters. It prepares relevant legislation and provides ministerial services and management and planning functions in its area of responsibility. MDRT has the following major housing and regional development subdivisions that include energy efficiency issues:

- The General Directorate of Management Authority – The Regional Operational Program (strategy, coordination, administration, evaluation and monitoring, verification and complaints)
- The General Directorate for Public Acquisitions
- The Unit for Public Policies
- The General Directorate for Regional Development
- The General Directorate for Public Works
- The General Directorate for Housing Construction and Thermal Rehabilitation
- The General Directorate for Technical Legal Frame (laws and regulations) in Construction.
- The State Inspectorate for Construction

The MDRT is also responsible for State quality control during the whole lifecycle of all buildings and this obligation is carried out by officials of the State Inspectorate for Construction.

**The National Centre for Human Settlement (CNAU)** was established in 1991 (revised in 2005), mainly to formulate a national habitat strategy, aimed primarily at “an adequate habitat for everyone” and the identification of mechanisms to achieve this. NCHS is a specialized department within the MDRT and reports directly to the Prime Minister, while the Minister of regional Development and Tourism is its chairman. CNAU represents Romania in associated international relations and its Secretariat communicates with the ONU Commission for Human Settlement and UN Centre for Human Settlement, as well as with governmental and non-governmental European Commission structures.

**The Administration of Environment Fund** is a legal public institutions, fully financed from own funds under the Ministry of Environment and Forest (MMP) coordination. It manages the Environment Fund, (Law 105/2006) which is an economical and financial instrument for projects related to environment protection. For housing sector, of special interest is the program called "Casa Verde" (Green Home) that implies important state subsidies (in the range of 6000-8000 RON/equipment) when classical heating installations are partially or totally replaced with renewable energy equipment.

**The Ministry of Administration and Internal Affairs (MAI)** coordinates through a specially established Project Management Unit the program known as "Termoficare 2006-2015 - caldura si confort" (Heat and Comfort – GO no. 462/2006, MO 471/2008). This program has two components: rehabilitation of the district heating system, and the thermal rehabilitation of buildings (indoor installations). The projects are financed partially from the local budgets and the rest from the State (MAI) budget. It is not addressed to natural persons, although it might rehabilitate residential buildings as well.

**The National Housing Agency (ANL)** is a public-interest institution, created in 1998 (law no. 152, modified in 2010) to stimulate new housing construction, and the rehabilitation and consolidation of existing buildings. At present, its main objective is new housing, as explicitly mentioned in the Romanian Government's program for 2009-2012. The ANL represents cooperation between State, the commercial banks, and the potential clients for new homes. It proposes housing-related financial products (e.g. mortgage) for the Romanian market and manages their use as packages. It also acts as a consultant by compiling technical, economic, legal and financial reports on aspects of ownership. The mortgage-financed housing units can be of two types: apartments in buildings with high quality finishing and single-family houses. Under Law no. 152/1998 on the establishment of the National Housing Agency, amended by the Emergency Ordinance no. 105/2005, Romanian citizens domiciled in Romania, irrespective of their age, may take out mortgage loans for dwellings built through the National Housing Agency. The ANL has a special program for young people to rent and then buy a new house.

**National Institute of Research and Development in Building and Construction, and in Urban and Sustainable Regional Development (INCĐ URBAN-INCERC)** was founded in 2009 by the Government Decision no. 1938 through the fusion of two research and development national institutes, Urbanproiect and INCERC. Its main fields of activity are, inter alia, earthquake engineering, building rehabilitation, structural stability and durability, energy saving and insulation, and professional training.

**Romanian Energy Regulatory Authority (ANRE)** is a public independent body of national interest whose mission is to create and implement the appropriate regulatory system to ensure the proper functioning of the electricity, heat and gas markets, in terms of efficiency, competition, transparency and consumer protection. In discharging its competencies and tasks, ANRE works together with other central or local public administration bodies, electricity, heat and gas undertakings, with international organizations in the field, so that interests of all sector players may be harmonized and transparency of the regulatory process assured. Among the ANRE departments, of significant interest for building sector is the newest one, the Regulatory Department for Energy Efficiency, which is the former National Agency for Energy Conservation (ARCE) that became part of ANRE as stipulated in the Law 329/2009 regarding the restructuring of some public authorities and institutions.

### ***Sub-national level authorities***

In Romania, the basic administrative units are counties, municipalities, and communes. There are 41 counties plus the municipality of Bucharest. Each of these units has its own local council, as do the municipalities and communes into which each county is divided.

Bucharest is divided into urban quarters, each with its own council. Consequently, there are nearly 3000 directly elected mayors and councils, out of which 265 are in cities. The powers and duties of local authorities are laid down in legislation. According to the Romanian Constitution (Art. No. 119), their powers are based on the principle of local autonomy and independence. They are however, highly reliant upon central Government, not least for subsidies and funding supervision. The national Government also appoints each county's Prefect, who represents national interests.

**Regional bodies:** The Law no. 151/1998 on Regional Development in Romania created eight regions, as shown in Figure 8 below:

- |               |               |
|---------------|---------------|
| 1. North-East | 5. West       |
| 2. South-East | 6. North-West |
| 3. South      | 7. Centre     |
| 4. South-West | 8. Bucharest  |

For each region, the institutional structure and roles are:

- The National Council for Regional Development – decides for regional policy
- The National Agency for Regional Development – implements the policy
- The National Fund for Regional Development – finances the programs.

**Figure 8: Map of the counties and development regions of Romania**



The development regions were established by voluntary cooperation among the counties and have no legal status as administration units. The main aims of regional development policies are:

- Decrease existing regional imbalances;
- Harmonize the institutional framework to correspond to EU membership criteria;
- Balance central government policy for sectoral development with regional and local resources and the need to stimulate local initiatives;
- Stimulate cooperative links between authorities for inter-regional, internal, and international projects.

**Local councils:** The powers, duties and responsibilities of local authorities are laid down in parliamentary acts. In recent years, the Government transferred considerable obligations to the councils, in an attempt to restructure the local authorities into institutions which are better placed to deal with local problems, including local housing. Currently, the competences of local councils in housing-related issues are to:

- Develop, implement and monitor local policies according to the general principles of national policy;
- Monitor the local housing market through careful evaluation of supply and demand;
- Facilitate access to housing for specific categories of families and individuals, and establish their own priorities;
- Secure special funds for new housing for socially disadvantaged individuals and households;
- Provide land for new housing;
- Develop land for new housing, providing the basic infrastructure;
- Allocate land in local government ownership to social housing;
- Finance the development of social and emergency housing from local budgets;
- Provide technical assistance, finance and consultancy for the consolidation of the housing stock against seismic damage;
- Support urban renewal and rehabilitation policies, including energy efficiency in housing;
- Implement specific programs to support local action and community management;

Local councils manage the public properties and private housing sector as well. They are responsible for the creation of a general urban development plan (land use) for their municipality or commune, and check whether the existing housing stock is fit for habitation. The plans should provide for the medium-term development of the area (e.g., land zoned for new housing, redevelopment, and infrastructure provision), are then checked by the MDRT and submitted for approval to the local authorities.

### 7.9.2 Private individuals and associations

Romania's economy is a free market economy (Constitution, art. 134) and private individuals (or households) have been institutionalized as consumers within that free market, and as such are expected to make their own choices based upon their own preferences in order to achieve their personal level of satisfaction. Property rights and their concomitant responsibilities are also granted to the individual and are critical aspects of the institutional environment. At the same time, the Government has responsibilities toward the individuals, and for this, a legal framework is set up to clarify the role and performance of all the individual players.

**Property-owning households:** There are two major institutional relationships which officially bind each single property-owning household:

- Legal obligations created by society giving full responsibility for the property,
- Contractual obligations to private sector organizations which provide households the different services affecting housing quality.

Since approximately 95% of Romania's housing stock is owner-occupied, most households must act simultaneously as owners and users.

**Owners' Associations in blocks of flats:** By privatizing blocks of flats in Romania and selling them to sitting tenants, the State created the conditions for the new owners to identify their mutual interests, and hence to engage in the joint management and maintenance of common spaces, structures and facilities. For this purpose, the owners may form an association with the capacity of a legal person, defined by the Housing Act (L 114/1996-2008) as a non-profit-making company for improving and managing the block. The blocks

may be managed by natural or legal persons, associations, public agencies, or specialized agencies. In each case, however, the management is to be appointed by and under the control of the joint owners, in whose interest it operates.

### **7.9.3 Private sector organizations**

In its market-based approach, Romanian housing policy relies on private sector companies to provide the major services for all households. The private commercial organizations in the housing market fall into one of the following categories:

- Financial institutions providing mortgages and housing loans
- Entrepreneurs in the construction and property market
- Utility companies
- Consultancy and research companies

#### ***Financial institutions:***

**The Community Financial Institutions (CARs)** established by the Law 122/1996/2009, is an association organized around the collective membership of small business and homeowner associations and its capitalization is based primarily on members' deposits. It offers members both depository and lending services. The CAR lending policy is geared to individual home improvements. More CARs can form regional unions that are all affiliated to the National Union of CARs.

**The Romanian Loan Guarantee Fund (FRGC)**, founded in 1993 as a joint stock company of a series of banks, is a commercial institution targeting the new middle class seeking new homes for owner occupation. Among the more recent financial products are loans given to home-owner associations for thermal rehabilitation of their blocks of flats.

**The Romanian Energy Efficiency Fund (FREE)**, founded on 1 April 2003 with initial finance from the Global Environment Facility (GEF), is a financial institution providing commercial financing of investments projects aiming the rational use of energy. The Fund assists industrial companies and other energy consumers in adopting and use of modern technologies for efficient use of energy. Thus, the Romanian economy could be affected by the reduction of its final energy intensity and the mitigation of greenhouse gases and other pollutant emissions. FREE is independent and financially autonomous, a client-oriented financial institution based on funds revolving operation, and a private-public partnership promoter, providing support for all implemented energy efficiency investments. FREE aims to promote a demonstration impact and increase the interest of the banking sector in supporting energy efficiency investments in Romania.

#### ***Entrepreneurs in the construction and property market:***

The construction industry is based on private entrepreneurship and plays the key role in housing by producing buildings and the necessary infrastructure. The sector covers the traditional construction works, but also the development of technology, civil engineering, and also repairs and maintains built structures. The share of construction work in GDP was always significant, falling within the range of 8-13%, although of some smaller values during the on-going economic crisis.

#### **Utility companies:**

Utility companies operate the service lines, and are at the same time responsible for repairing these engineering facilities. Electricity and Natural Gas companies have been privatized in the last ten years. Water and sewage as well as district-heating companies are

managed by the municipal authorities that dictate these companies' operational policy. Examples of such companies include Enel Muntenia, Apa Nova, GDF-SUEZ, and RADET.

### **Consultancy and research companies:**

There are a few research institutions undertaking surveys in the housing sector.

**The Research and Design Institute for Buildings** known as **IPCT INSTALATII** offers, among other services, specialized studies & research, energy audits for buildings and installations, and technical regulations in the installations field.

**The Institute for Studies and Power Engineering (ISPE)** delivers complex and integrated solutions (technically, financially and commercially) within business areas such as:

- Energy (power and heat generation, renewable energy sources, power transmission and distribution)
- Environment
- Infrastructure - Municipal Services and Civil Works
- Other Industries

ISPE offers consultancy and engineering services to public and private sector clients, in Romania and abroad. The entire Romanian National Power System (NPS) was practically developed based on ISPE projects. In the recent years, IPSE became partner in the European Passive House network Passnet and performed energy audits for public and residential buildings in the country. Special studies were also performed on social issues in housing.

### **7.9.4 Non-governmental organizations**

Non-governmental organizations (NGOs) play an important role within the building/housing sector. The NGOs active in the building/housing sector can be classified as:

- Citizens' initiative and interest-based associations;
- Professional bodies representing the interests of different business communities related to housing;
- Other organizations representing the public sector and promoting awareness of housing issues.

Romania has many professional associations and each has or can have input into the building/housing sector.

**The Romanian Green Building Council** is a non-profit, non-political association of businesses and other organizations active throughout the country. They are a leading organization promoting environmental responsibility and energy efficiency in the Design, Construction, Operation, and Deconstruction of Romania's buildings.

**The Romanian Association of Energy Auditors for Buildings (AAEC)** is a professional association founded in 2004 to promote and protect the role of energy auditors on the building energy efficiency market, a new dimension strongly driven by the European Directive on the energy performance of buildings. It is accredited by the Ministry of regional Development and Tourism, performs a diversity of activities related to energy certification and energy performance of buildings, from expert training to pilot projects and national conferences with international participation where many actors in the field are held together to debate the national capacity to address specific issues in Romania, in comparison to other EU Member States. AAEC has been a continuous adviser for national legislation on energy efficiency in the building sector of Romania.

**The Romanian Association of Installation Engineers (AIR)** plays an active role in promoting building energy certification and auditing, especially through its Commission on Building Energy Efficiency. It organises trainings, seminars and conferences which contribute to the dissemination of information among experts and countries.

**The Romanian Association for Facility Management (ROFMA)** is a non-profit professional organization in the field of property and facility management, aiming to create a unitary vision of European level and to give educational, informational, and legal support to its members. ROFMA is affiliated to the European network EuroFM. Among its specific objectives, there is stipulated the promotion of most recent technologies and trends of international know-how in the field, inter alia, of energy performance in buildings. Such an approach, once familiar to the building managers, would provide high values for the Key Performance Indicators on the Romanian facility market.

**Local Energy Management Agencies** in cities of Brasov, Iasi, Baia Mare, Miercurea Ciuc, and Alba, Energy Management Agencies were founded with European funds and aim mainly to promote efficient use of energy in their areas by giving contracted support to local authorities. Energy efficiency in housing and public buildings are one of their major priorities, and, for this, they collect and analyse building energy consumption data that form later the basis for energy saving targets for local authorities.

**The Romanian Institute for Energy Development Studies (IRE)** was founded in June 1926 as a professional organization with the main objective to promote its members' interests in dealing with entities active within the power field at national and international levels. Since its founding, IRE was the ideal partner of public authorities and of power industry in discussing and promoting the power sector reform or in promoting the worldwide interests of Romania. Based on its own expertise IRE laid the cornerstones of legislative and technical regulation complying with European standards. It built up institutions perfectly compatible with international administrative, professional and patronal organizations, and developed a coherent and efficient policy for the national power sector, taking full advantage of the wide spectrum of available national energy resources. Among its diverse activities, IRE initiated a debate among the energy market stakeholders on energy efficiency in buildings. IRE also established and maintained close contacts with international scientific and professional organizations, particularly with UNIPEDE, presently EURELECTRIC, to which it is affiliated since 1929. Nowadays IRE is the national representative to EURELECTRIC. Since 1950 IRE is editing the professional review *Energetica*, which in time was the backbone of its entire activity.

**HABITAT Urban League** was founded in 1991 and is the only national association that represents the interests of home-owner associations in urban Romania. It is accredited at the Chamber of Deputies and has partnerships with other NGO's, and with central and local Government. Moreover, it is member of the International Union of Tenants, partner of the European Committee for Social Habitat (CECODHAS) and permanent inviting of the United Nations Committee on Housing and Land Management. It has an active role in promoting the national rehabilitation program among its members, organizes seminars for training and increase of awareness, publishes dissemination leaflets and organizes conferences related to the quality of housing in Romania.

**The Romanian Patronate of Public Services (PSP)** was founded in 2000 to develop a unitary strategy while protecting the interests of its members. It is considered as the most active partner in the dialogue with the union trades and central public administration on communal services issues. PSP is member of the European Centre of Local Public Enterprises) and of The European Centre of Employers and Enterprises providing Public services (CEEP) and of European Network of Elected Representatives for Local Services of General Interests (NEELS). Starting with 2005, PSP organizes every end October a national

conference on public services, where energy efficiency of public services are also intensely debated.

**The Romanian Association of Real Estate Agencies (ARAI)** was officially recognized in 1995. Today it has links with several international associations. Its aim is to identify and solve the problems of the property market, issue professional and ethical standards, and to focus on training. Government Ordinance No.3/2000 created a **National Union of Real Estate Agencies (UNAI)** in Romania. All property companies wishing to continue on the property market have to join this association and the Ordinance lays down the rules for private-sector companies. This shows that this union represents certain government interests in the field. Membership of this union entails following special courses for representatives of local property companies, giving it a clearly defined role in developing professionalism. In this way, central Government is using the voluntary sector to prolong its direct control over housing programmes.

**The National Association of Romanian Real Estate Valuers (ANEVAR)** was founded in 1992 and since 1996 its members have started real-estate valuation, and so become part of the business community. The Association promotes professionalism through training schemes and membership standards. Today ANEVAR is recognized internationally as its assessments are in line with European valuation standards and accepted by the banking sector. ANEVAR currently shows an increased interest in energy performance of buildings, as this feature is included now in the financial assessment methodology and is required more and more by the banks when granting funds.

**The Romanian Centre for European Policies (CRPE)** was established in 2009 by a group of experts bound by the shared objective of supporting Romania's role in Europe. The mission of the CRPE is to promote Romania as an influential leader in the development of EU agendas and policies. Another mission is to advance the Europeanization processes in Romania by providing expertise in various fields and by initiating or participating in public debates. While a few Romanian organizations developed a record on the nexus between EU-level policies and the domestic policy process, none of them does so consistently and systematically. It is this gap that the Romanian Centre for European Policies attempts to fill as an expertise-based member of the wider Romanian civil society. There are several key challenges in the energy sector that the EU acknowledges and seeks to respond to: ensuring the access of European citizens and companies to affordable energy, fighting climate change and limiting the increasing dependency on imported fuel. A coherent EU policy package is targeted at creating a competitive internal energy market which offers quality services at affordable prices, developing renewable energy sources, capping emissions and reducing the intensity of energy consumption.

#### **7.9.5 International organizations**

**Habitat for Humanity International (HFHI)** is a non-profit ecumenical Christian housing organization and has been working in Romania since 1996. Working through locally run affiliates, HFHI partners with low income families in need to build and renovate simple, decent, healthy and affordable housing.

**Express Finance – Institutie Financiară Nebancară S.A.** is a joint-stock company with foreign equity, whose major shareholder is the Cooperative Housing Foundation International (CHFI). It supports the financial needs of medium and small enterprises and provides a range of financial products to support the housing and business needs of low income families. Established in January 2006, Express Finance is a stand-alone financial institution that continues the microfinance activities previously executed by CHF Romania. By promoting improved housing and the growth of small and medium enterprises, Express Finance contributes to the development of communities and the rise of household incomes.



Express Finance has become one of the largest development finance providers in the country, operating in 25 of Romania's 42 counties and partnering with over 50 non-governmental organizations, member-based business service organizations, and Chambers of Commerce. In addition, it works with the Romanian government in targeted rural and mining areas and has been a lead player in the flood response through home improvement lending. In 2007, Express Finance successfully registered as a Non-Bank Financial Institution with the National Bank of Romania, enabling it to better serve its customers. Since 1996, the Express Finance portfolio has grown to an outstanding loan portfolio of more than USD 12 million serving over 2,000 clients. Express Finance has 14 operational offices, as follows: Timișoara, Arad, Oradea, Deva, Alba Iulia, Sibiu, Târgu Mureș, Drobeta Turnu Severin, Resita, Petrosani, Târgu Jiu, Râmnicu Vâlcea, Slobozia, and Alexandria.

**The United Nations Human Settlements Programme (UN-HABITAT)** is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all. The main documents outlining the mandate of the organization are the Vancouver Declaration on Human Settlements, Habitat Agenda, Istanbul Declaration on Human Settlements, the Declaration on Cities and Other Human Settlements in the New Millennium, and Resolution 56/206. The agency's budget comes from four main sources - the vast majority in the form of contributions from multilateral and bilateral partners for technical cooperation. The agency also receives earmarked contributions from governments and other partners, including local authorities and foundations, and around 5 per cent from the regular UN budget. In Romania, UN-HABITAT is coordinating with CNAU.

## 7.10 Annex X: Energy Efficiency Standards in the Romanian Building Sector

In the last 50 years, EE standards in the Romanian building sector have become stricter. Table 24 includes the norms for minimal thermal resistances of building envelope elements in the residential sector since 1950. Norm C107 – 2005/2010 describes the current EE standards for buildings.

**Table 24: Regulated values of thermal resistances for residential buildings**

Period of validity	Norm	R [m <sup>2</sup> K/W]			R' [m <sup>2</sup> K/W]		
		Exterior wall	Slab for terrace or attic	Slab over basement	Exterior wall	Slab for terrace or attic	Slab over basement
1950...1961	-	0.76	0.96	0.82	-	-	-
1962...1968	STAS 6472 - 61	0.76	0.96	0.82	-	-	-
1969...1973	STAS 6472 - 68	0.80 <sup>1)</sup>	1.02	0.87	0.60 <sup>2)</sup>	-	-
1974...1975	STAS 6472 - 73	0.80 <sup>1)</sup>	1.02	0.87	0.60 <sup>2)</sup>	-	-
1976...1984	STAS 6472 - 75	0.80 <sup>1)</sup>	1.02	0.78	0.60 <sup>2)</sup>	-	-
1985...1987	STAS	0.76	0.87	0.56	0.76	0.87	0.56
	NP 15 – 84	1.20	1.55	1.08	1.20	1.55	1.08
1988...1989	STAS	0.76	0.87	0.56	0.76	0.87	0.56
	NP 15 – 87	1.20	1.55	1.08	1.20	1.55	1.08
1990...1997	STAS 6472 - 89	1.00	1.24	0.67	1.00	1.24	0.67
	NP 15 – 87	1.20	1.55	1.08	1.20	1.55	1.10
1998...2000	C107/1-1997	-	-	-	1.20	2.00	1.65
2001...2006	C107/1-2005	-	-	-	1.40	3.00	1.65
2007-2009	Mc 001/1	-	-	-	1.50	3.50	1.65
<b>2010...</b>	<b>C107/1 - 2010</b>	-	-	-	<b>1.80</b>	<b>5.00</b>	<b>2.90</b>

1) One-directional thermal resistance;

2) Thermal resistance corrected to account for the thermal bridges

The same regulatory norm, C107/2005, indicated the energy consumption regulated values for dwellings, shown here in Table 25.

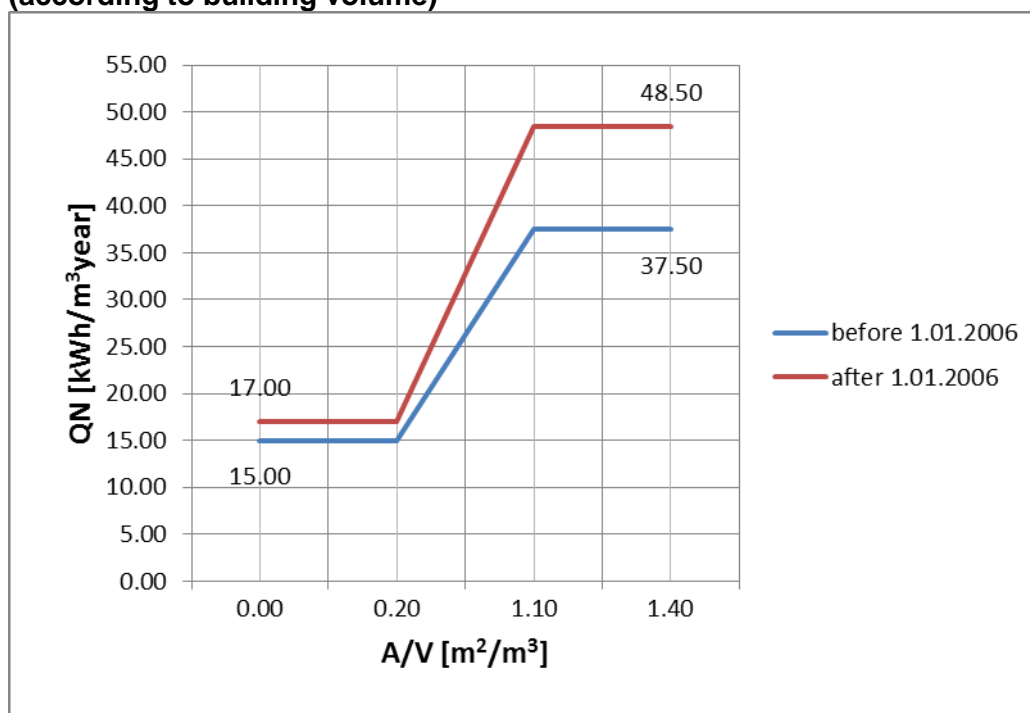
**Table 25: Regulated values for energy consumption for heating in dwellings (C107-2005)**

C 107/2005	Existing dwellings	New dwellings
	Period of construction	Period of construction

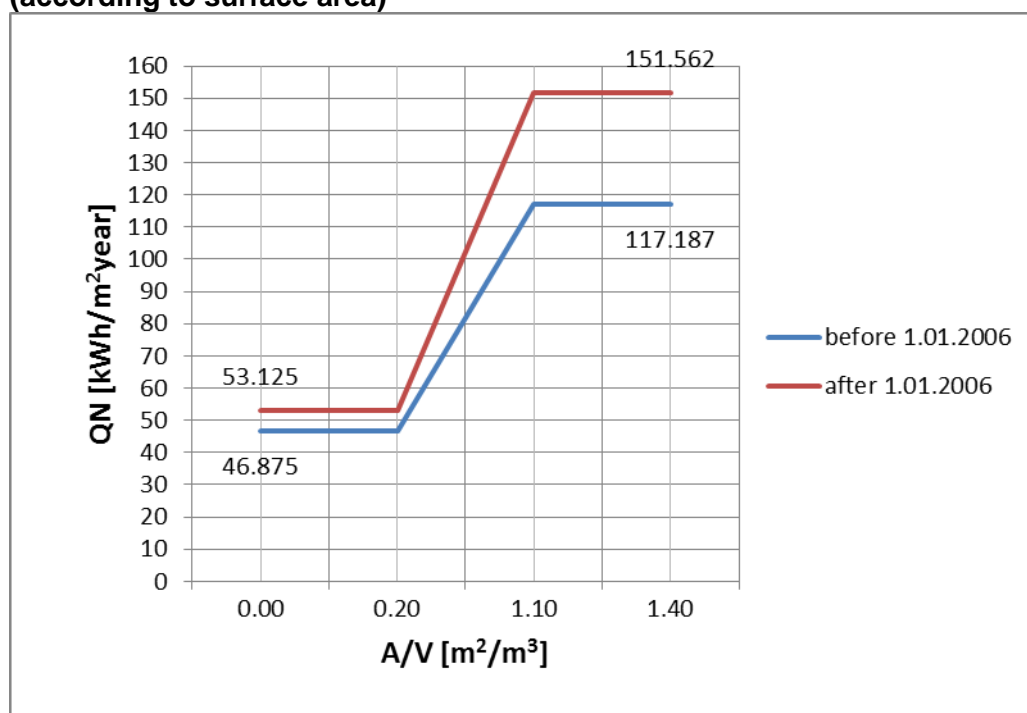
	Before 1985	1985 - 1996	1996 - 2000	2000 - 2010
R global thermal resistance of building $R_{om}$ [m <sup>2</sup> K/W]	0.6 - 0.7	0.9 - 0.95	1.75	2
The regulated specific energy consumption for heating, G [W/m <sup>3</sup> K]	1	0.8	0.5	0.4
The maximum heating power per dwelling $Q_{max}$ [KW/apart]	7	5.6	3.5	2.8
<b>The regulated annual energy consumption for heating per dwelling</b>				
$Q_{year}^{heat}$ [kWh/apart]	15,750	12,600	7,875	6,300
$Q_{year}^{heat}$ [GJ/apart]	56.70	45.36	28.35	22.68

Figure 9 provides a graphical representation of the standard specific thermal energy consumption, QN, for the residential buildings of Romania, as a function of the building shape factor (envelope area / envelope volume), and for reference climate conditions defined by 3400 degree-days and global solar radiation of 210 kWh/m<sup>2</sup>year. The standard heat consumption is given relative to both useful volume and useful surface area of the building.

**Figure 9: Standard specific heat consumption for residential buildings of Romania (according to building volume)**



**Figure 10: Standard specific heat consumption for residential buildings of Romania (according to surface area)**



For other types of buildings, regulated values are different from the residential ones only since 1998 (C 107/1). Table 26 includes thermal resistances for various building envelope elements. The values in black correspond to buildings continuously used or with high thermal inertia, while the values in red refer to buildings with discontinuous use.

**Table 26: Standard thermal resistance values for non-residential buildings of Romania (C107-2010)**

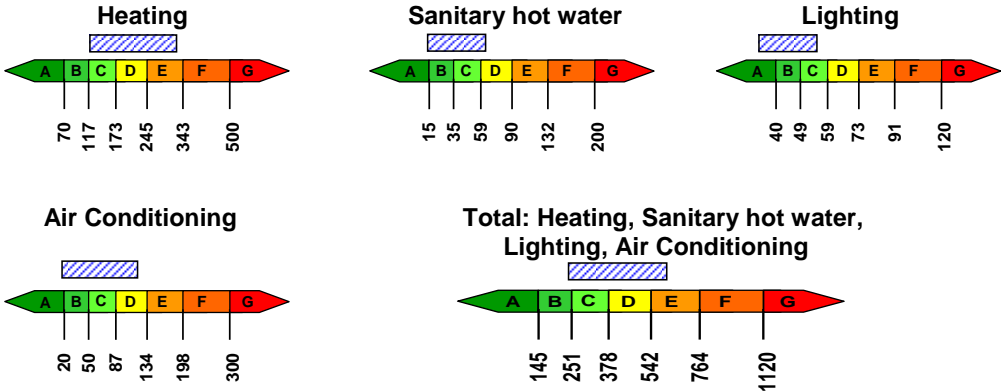
Building type	Climate zone	R – external walls [m²K/W]	R - terrace [m²K/W]	R basement [m²K/W]	R <sub>i</sub> ground [m²K/W]	R windows [m²K/W]
Hospitals, kindergartens, policlinics	I	1.70 / 1.50	4.00 / 4.00	2.10 / 2.00	1.40 / 1.40	0.69 / 0.69
	II	1.75 / 1.60	4.50 / 4.50	2.50 / 2.30	1.40 / 1.40	0.69 / 0.69
	III, IV	1.80 / 1.70	5.00 / 5.00	2.90 / 2.60	1.40 / 1.40	0.69 / 0.69
Schools and sport centres	I	1.70 / 1.50	4.00 / 4.00	2.10 / 2.00	1.40 / 1.40	0.50 / 0.50
	II	1.75 / 1.60	4.50 / 4.50	2.50 / 2.30	1.40 / 1.40	0.50 / 0.50
	III, IV	1.80 / 1.70	5.00 / 5.00	2.90 / 2.60	1.40 / 1.40	0.50 / 0.50
Offices, commercial buildings, and hotels <sup>x)</sup>	I	1.60 / 1.50	3.50 / 3.50	2.10 / 2.00	1.40 / 1.40	0.50 / 0.50
	II	1.70 / 1.60	4.00 / 4.00	2.50 / 2.30	1.40 / 1.40	0.50 / 0.50
	III, IV	1.80 / 1.70	4.50 / 4.50	2.90 / 2.60	1.40 / 1.40	0.50 / 0.50
Other buildings (industrial with normal use)	I	1.10 / 1.00	3.00 / 2.90	1.10 / 1.00	1.40 / 1.40	0.40 / 0.40
	II	1.10 / 1.00	3.00 / 2.90	1.20 / 1.10	1.40 / 1.40	0.40 / 0.40
	III, IV	1.10 / 1.00	3.00 / 2.90	1.30 / 1.20	1.40 / 1.40	0.40 / 0.40

<sup>x)</sup> for guest rooms, the residential buildings' standards apply

### The Romanian energy certification scheme (Mc001/1-5)

The scheme has energy scales for all building types as shown in Figure 11. The common scale ranges for the buildings of Romania are indicated above each grid.

**Figure 11: Energy scales for the energy certification scheme in Romania**



**7.11 Annex XI: Detail on the emissions reductions resulting from the project and value-added of GEF involvement in the project**

**Introduction**

Without the GEF project, the “baseline” scenario will involve a small increase in the number of buildings in the residential sector and apartment complexes implementing EE improvements on the building envelope. It is highly unlikely that without the GEF project there would be any EE improvements in social buildings or amongst poorer individual houses; nor would there be any significant improvements in relation to heating equipment/ systems. This is because – especially in the poorer areas – there is a lack of public awareness, a lack of locally-produced EE goods on the market due to a lack of producers/suppliers, and a lack of technical capacity amongst the local municipalities. This is despite the various EE programmes that have been implemented in Romania, which have had an impact on the more prosperous areas of the country.

Detailed calculations for emissions reductions and energy savings are provided below.

**System boundary**

The geographical boundary of the proposed project is the national territory of Romania, within which is the buildings sector to be addressed by the project:

- Apartment blocks with heating based on the District Heating System (DH), wherein improvements to the building envelope will result in energy use reductions.
- Apartment blocks not on the DH system, wherein improvements to the building envelope will result in energy use reductions.
- Apartment blocks not on the DH system, wherein improvements to the heating source (i.e. either the fuel or the heating system itself) will result in greater efficiency and lower emissions.
- Individual houses not on the DH system, wherein improvements to the building envelope will result in energy use reductions.
- Public social buildings, wherein improvements to the building envelope will result in energy use reductions.

**Emission factors**

The emissions factors used in calculating the emissions reductions were developed using global reference values for the fuels used for heat and electricity production as described in

Table 27. In examining Romania's GHG inventory, country-specific emission values for particular fuels were not found.

**Table 27: Emission coefficients for each fuel**

Fuel Source	KgCO <sub>2e</sub> /kWh
Wood from unsustainable sources - Closed heater <sup>78</sup>	0.4151
Wood from sustainable sources - Closed heater	0.0205
Wood from sustainable sources - Industrial boiler	0.0068
Average for wood from a closed heater	0.2178
Natural Gas	0.2016
Coal	0.3409
Heavy Fuel Oil	0.2765
Light Fuel Oil (Diesel)	0.2657
Electricity <sup>79</sup>	0.4850
District heating average <sup>80</sup>	0.3863

For GHG emission reductions due to district heating reductions, localised emissions coefficients were calculated using the source fuel for the district heating and the approximate end-use energy efficiencies (taking into account heat loss over the system).

Subsequently, each building intervention had its own localised emissions coefficient. These are provided in an aggregated manner in Table 28 and Table 29.

For reductions in buildings not using district heating, specific local emissions factors were used for those based on either wood or coal. For wood-based heating, a conservative emissions factor was used which assumed that the wood was half non-sustainable and half-sustainable. It is likely that the wood used is actually non-sustainable in the majority of the cases.

### The baseline scenario

*The baseline scenario* describes the project without GEF support.

Under the baseline, investments in energy efficiency will be drastically limited within these sectors because of the lack of existing local awareness, technical capacity and investment capital for EE measures to improve the buildings.

Two key problems related specifically to the direct global environmental benefits would persist in absence of project:

1. There would continue to be a lack of efficiency in prioritizing spending in this area; and
2. There would be a lack of capacity to disburse the funds effectively and successfully – especially in poorer areas.

At a nationwide level, the current goal of the National Energy Efficiency Action Plan of 250 apartment blocks implementing building envelope improvements has already been reached. As such, future improvements may occur through government programmes or due to individual apartment associations, but it is estimated that the number of additional apartment

<sup>78</sup> International Greenhouse Partnerships Office, 2000 for the next few sources except for Electricity and district heating average.

<sup>79</sup> Taken from UNDP/GEF 2006

<sup>80</sup> This is calculated by taking the average emission factor of all the sources of district heating in Romania, taking into account average heat losses in transmission.

blocks will not be more than 50 without further engagement within the framework of the UNDP/GEF project.

Apartment blocks not on the DH system or which disconnect from the DH system may be inclined to change their heating systems – but this is likely to shift towards non-sustainable sources such as local natural gas boilers or using non-sustainable wood, coal or fuel oil for heating sources.

Individual houses that are not on the DH system within Dolj and Hunedoara are not expected to implement significant EE improvements due to lack of awareness, lack of local capacity and lack of locally-available, locally-produced EE materials. Indeed, the dominant building material in these areas is concrete bricks which are most often not insulated or even sealed.

Within the public social buildings, the direct interventions planned within the framework of the project would not have occurred otherwise. However, other interventions would probably occur in other areas of the country which would affect the indirect emissions reduction estimates.

*Greenhouse gas reductions:* The greenhouse gas reductions reduction under the baseline scenario within the 5 types of buildings addressed in this programme would be approximately 849 tonnes of CO<sub>2</sub>e per year – with reductions of 25,500 tonnes over a 30 year period, which is the standard lifetime of these sorts of interventions. See Table 28 below for more detail on the calculations.

### **GEF Alternative Scenario**

Under *the alternative scenario*, GEF support (along with co-financing) is expected to remove many of the existing barriers and reduce the impact of others, thereby transforming the market for energy efficiency related to the residential buildings sector and addressing fuel poverty.

GEF involvement will be crucial to enhancing Government programmes. The project will assist in identifying and evaluating a pipeline of EE projects in buildings – thus becoming an integral part of the Government programmes. With project implementation, it is highly likely that the effectiveness of the Government programmes will increase dramatically.

In the past, the Government has allocated money for buildings EE and has not been able to spend it because of lack of capacity (especially in poorer areas – where localities did not even request Government funds). Furthermore, the Government has not been able to prioritize its investments and lacks appropriate information/data on the potential interventions or the results of previous interventions. The GEF project will be critical to making sure this project pipeline yields more investments – especially to address fuel poverty.

The GEF resources will add value and generate benefits over and above the baseline project in a number of ways:

- It will aid the national Government actors and local Governments in integrating EE policies to address fuel poverty in a cohesive manner;
- It will increase the knowledge of both suppliers and consumers of EE materials and services (including local government actors and the general public);
- It will demonstrate the cost effectiveness of EE interventions designed to specifically address fuel poverty as well as assist in the improvement of the pipeline of projects for EE improvements; and
- It will make information available to decision-makers about the impacts of interventions on reducing fuel poverty, the cost-benefit of doing so, and opportunities for investment.

The actual direct investment in GHG reducing activities which is considered as additional GEF financing and co-financing is a total of USD 47,674,840. This includes:

- The GEF financing – USD 2,974,840;
- Co-financing from the Ministry of Regional Development and Tourism – USD 36,000,000; and
- Ten per cent (10%) of the co-financing from the Ministry of Environment and Forests – USD 8,200,000.

Using this total for investment, along with very conservative estimates for direct emissions reductions the total cost-effectiveness per tonne for non-private investment. While this amount is high, it is consistent with similar project interventions cited in the IPCC's 2007 report– with reported costs ranging from USD 43 to 100 per tonne.<sup>81</sup>

One of the primary reasons for GEF and UNDP involvement is to work with the government to make their programmes more effective at reducing energy consumption, reducing GHG emissions, and reducing fuel poverty. Thus, the GEF/UNDP involvement will have a direct impact on emissions reductions from building improvements funded through Government programmes. Additionally, with project implementation, it is highly likely that cost-effectiveness of the government programmes will increase dramatically, but this was unquantifiable based on current information available and current government commitments.

Estimated costs per building intervention – including co-financing from the Romanian Government – are approximately USD 36,000.

#### **Direct reductions:**

The outputs and activities that are expected to lead to direct emissions reductions are:

**Output 3.1:** Standard EE building design analysis for key types of existing apartment blocks and retrofitted thermal systems of selected apartment blocks

- Activity 3.1.1: Conduct of technical analysis of typical apartment block designs – including possibilities for energy efficiency improvements – and streamlining of the planning and application for government funding of building thermal rehabilitation projects
- Activity 3.1.2: Implementation of a pilot programme on the application of sustainable heating systems in selected apartment blocks that are not on the DH system<sup>82</sup>
- Activity 3.1.3: Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households

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<sup>81</sup> See: Levine, M., D. Ürge-Vorsatz, K. Blok, L. Geng, D. Harvey, S. Lang, G. Levermore, A. Mongameli Mehlwana, S. Mirasgedis, A. Novikova, J. Rilling, H. Yoshino, 2007: Residential and commercial buildings. In *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Page 433 – where the Netherlands reports costs ranging from USD 43 to 100.

<sup>82</sup> Additional investments will be carried out under the “Casa Verde” programme being carried out by the Ministry of Environment and Forests. The project will provide some assistance and input into this programme. For the purposes of emissions reduction estimates, 10% of the emissions reduction expected within this programme have been counted as part of the incremental impact of this project. This is a (highly) conservative approach adopted to reflect the fact that the Casa Verde the project would proceed regardless of the GEF project, but the GEF project will contribute with lessons learned and will result in investments in apartment buildings (instead of just houses). Therefore, 90% of the USD 82 million in co-financing from the Ministry of Environment and Forests should be counted as baseline co-financing (though still counted as co-financing) with 10% going towards emissions reductions which can be claimed by the project.



**Output 3.2:** Thermally retrofitted social buildings (schools, kindergartens, municipal offices and social houses/residences owned by the local government) in selected counties

- Activity 3.2.1: Implementation of building rehabilitation/ refurbishment/ construction in social buildings using locally produced, EE building materials

**Output 3.3:** Houses built/refurbished using energy efficient, locally-produced materials

- Activity 3.3.1: Conduct of energy performance inspections in selected households and implementation of thermal system rehabilitation and construction in these households using sustainable locally-produced EE materials

The direct reductions that can be attributed to this project are expected to be approximately 22,227 tonnes of CO<sub>2eq</sub> per year without subtracting for the baseline and 21,378 tonnes of CO<sub>2eq</sub> after subtracting the baseline totals.

The vast majority of investments will be in what is classified as “Green Buildings” within the GEF GHG reduction methodology – with an average useful investment lifetime of 30 years. As such, the estimated lifetime emissions reductions for the project are 666,800 tonnes CO<sub>2eq</sub> without subtracting for the baseline and 641,344 tonnes CO<sub>2eq</sub> after subtracting the baseline reductions.

The resulting energy saved would be 43,374 MWh per year without subtracting for the baseline and 41,177 MWh after subtracting for the baseline reductions. More detail regarding the calculations are included in Table 28.

### **A note on suppressed demand**

In dealing with addressing fuel poverty and GHG reductions estimates in the buildings sector, it is necessary to address the issue of suppressed demand. Normally, the evaluation of suppressed demand is dealt with in order to “credit growth in demand for energy services where it is currently suppressed as a result of poverty and/or lack of infrastructure or suppressed demand”.<sup>83</sup> In the context of this project, suppressed demand is an issue for the direct reduction of energy use in the following ways:

- For apartment blocks on the DH system (Activities 3.1.1 and 3.1.3): because the users of the DH system typically do not have apartment-level control over their billing, there is no heat which they do not use because of lack of income. Instead, their bills are covered through demand-side subsidies. Suppressed demand is not, therefore, an issue for this set of households.
- For public social buildings: suppressed demand is not an issue because the Government or Municipal Authorities pay for the heating bills.
- For apartments not on the DH system or for houses not on the DH system: suppressed demand is an issue which should be accounted for.
  - However, due to significant demand-side subsidies (direct to households), and based on household surveys, it does not appear that expenses in poorer households for heating are more than 20-25% less than those of wealthier households (on a basis of expenses per square metre).
  - The statistics used in estimating emissions reduction in Table 28 are based on conservatively low analytical estimates of heating needs for apartments and houses.
  - In order to arrive at a more correct estimate of the baseline of energy used for heat in these households, the current heating use was estimated as the analytical heating requirement MINUS 20% of that requirement (a correction factor for suppressed demand).

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<sup>83</sup> See Winkler and Stone (2002) *Baselines for suppressed demand: CDM projects' contribution to poverty alleviation*. Paper submitted to Forum for Economics and Environment

- Since the project aims to reduce the heating requirement to ***below this corrected amount of heating utilisation***, there is no need to project the “suppressed demand” impacts on emissions reductions.
- However, the impact of the suppressed demand correction factor on current heating consumption results in slightly reduced “actual” levels of GHG emission reductions expected in the households that are not connected to the DH system.
- The calculated heat used before and after interventions is therefore based on the changes from “kWh/m<sup>2</sup> actual before intervention” and “kWh/ m<sup>2</sup> - heating after intervention”.

### **A note on emission factors**

Emission factors for each of the fuels were taken from International Greenhouse Partnerships Office (2000) Workbook for Calculating Greenhouse Gas Reductions from Projects Using Electricity and Heat Generation from Fossil Fuels. The values for end-use energy emissions were based on the loss of energy due to district heating transmission losses for apartment blocks on the District Heating systems (with specific values for each county). Similarly, each of the emissions factors is based on the precise blend of fuels used in specific counties.

**Table 28: Description of the direct emissions reductions expected from the project**

Activity	Heating source	Number of buildings for the programme	Surface area of the buildings	Kg GHG/ KWh	KWh/m <sup>2</sup> - heating before intervention	Correction for suppressed demand (KWh/ m <sup>2</sup> )	KWh/m <sup>2</sup> actual before intervention	KWh/m <sup>2</sup> - heating after intervention	KWh saved per year	Tonnes GHG per year reduced
Activity 3.1.1: Conduct of technical analysis of typical apartment block designs – including possibilities for energy efficiency improvements – and streamlining of the planning and application for government funding of building thermal rehabilitation projects	Varied	900	1,053,000	0.39	138	0	138	100	39,543,075	15,274
Activity 3.1.2: Implementation of a pilot programme on the application of sustainable heating systems in selected apartment blocks that are not on the DH system <sup>84</sup>	Coal, wood, electricity stoves	194	226,405	0.39	100	0	100	100	0	4,972
Activity 3.1.3: Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households	Varied	20	23,400	0.62	138	0	138	100	878,735	549
Activity 3.1.3: Implementation of a pilot programme on the provision of subsidies to apartment blocks with a few poor households	Coal, wood, electricity stoves	20	23,400	0.41	220	44	176	100	1,783,184	727
Activity 3.2.1: Implementation of building rehabilitation/ refurbishment/ construction in social buildings using locally	Coal and Gas District Heating	40	8,000	0.66	285	0	285	171	911,015	600

84

Activity	Heating source	Number of buildings for the programme	Surface area of the buildings	Kg GHG/ KWh	KWh/m <sup>2</sup> - heating before intervention	Correction for suppressed demand (KWh/ m <sup>2</sup> )	KWh/m <sup>2</sup> actual before intervention	KWh/m <sup>2</sup> - heating after intervention	KWh saved per year	Tonnes GHG per year reduced
produced, EE building materials										
Activity 3.3.1: Conduct of energy performance inspections in selected households and implementation of thermal system rehabilitation and construction in these households using sustainable locally-produced EE materials	Wood and coal	150	5,850	0.37	220	44	176	132	257,699	106
<b>Totals</b>		<b>1,324</b>	1,340,055						43,373,708	22,227
Business as Usual	Varied	50	58,500	0.39	138			100	2,196,838	849
<b>Total Incremental impact</b>		<b>1,274</b>	<b>1,281,555</b>						<b>41,176,871</b>	<b>21,378</b>

## Direct post-project emission reductions

No Direct Post Project emission reductions have been counted in this analysis.

## Indirect emissions reductions

A primary focus of this project is the stimulation of the EE market for EE measures in the buildings sector – especially the residential and social buildings sector in Romania. As such, there are many outputs which will lead to indirect emissions reduction by facilitating the up-scaling of the market and improving the likelihood of public and private investments. These Outputs and Activities include:

**Output 1.1:** Established national-level, functional multi-organisational working group that formulate and facilitate the approval and adoption of policy recommendations and action plans for EE which integrate poverty alleviation into their working group members' programmes

- Activity 1.1.1: Establishment of a multi-organisational working group that meets semi-annually to evaluate current activities related to EE and fuel poverty
- Activity 1.1.2: Development and adoption of policy recommendations and an action plan for integrating EE issues and fuel poverty issues into the practice of public administration at the national level

**Output 1.2:** Identified fuel poverty-related EE improvement activities that are integrated into, and implemented within, development plans and energy plans of selected municipalities/counties; including leveraging funding sources for EE improvements

- Activity 1.2.1: Integration of EE policy making and addressing of fuel poverty into the existing development plans or into a new energy plan of selected counties as pilots - including the implementation and monitoring of the plan
- Activity 1.2.2: Identification of sources of financing of sufficient resources for improvement of EE in buildings

**Output 2.1:** Increased numbers of building professionals, local government authorities and technical personnel capable of providing technical advice and services on the application of EE measures and techniques in the design, construction and operation of buildings.

- Activity 2.1.1: Training of building professionals on EE measures and the use of sustainable, locally available/produced building materials
- Activity 2.1.2: Development and incorporation of training materials on the application of sustainable, locally available/ locally produced standard and EE building materials into the training curricula of professional building certifying associations
- Activity 2.1.3: Development, publication and distribution of a Handbook of training activities, best practices and lessons learnt on retrofitting buildings to improve energy performance
- Activity 2.1.4: Training of municipal employees on identifying critical issues and major energy losses in buildings.

**Output 2.2:** Information points in selected public municipalities within two counties for promoting public education on EE measures using commonly used and locally-available technologies

- Activity 2.2.1: Establishment and operation of Information Points in selected municipalities and villages distributing information and materials on how to implement EE measures into houses, sources of funding and on locally-available materials
- Activity 2.2.2: Development and publication of informational materials (brochures) on the basics of EE measures and EE practices for distribution to households that received heating subsidies

**Output 2.3:** Develop capacities of the local materials producers and construction companies to utilise locally-produced building materials

- Activity 2.3.1: Supporting the development of EE local materials (products) among producers and construction companies in selected counties

**Output 2.4:** Information campaign results and EE success stories disseminated within Romania, UNDP and in the international community

- Activity 2.4.1: Organization and implementation of an informational campaign throughout Romania geared towards encouraging EE measures in the residential sector
- Activity 2.4.2: Promotional campaign for the project at the EU and global levels

**Output 4.1:** Regionally-adaptable methodology for fuel poverty assessment proposed and a guide for municipal decision-makers on fuel poverty issues

- Activity 4.1.1: Development and approval for use at the national level of a methodology for fuel poverty assessment
- Activity 4.1.2: Development, publication and distribution to building sector actors of a report on the costs and benefits of implementing EE measures to address fuel poverty using locally-produced sustainable materials

**Output 4.2:** Local and regional registries/ databases of building stock

- Activity 4.2.1: Creation, operation and maintenance of a registry/ database of social buildings, apartment blocks, and publicly owned housing
- Activity 4.2.2: Publication and dissemination of the building registry to potential donors and investors to generate investments

### **Indirect emissions reductions – bottom-up**

Calculating the indirect emissions reduction based on the bottom-up replication of the project's direct emissions reduction, the replication factor is 3 – for a project geared towards market transformation and demonstration capital. Based on a replication factor of 3 and the direct impact of 641,374 tonnes CO<sub>2eq</sub>, we expect an additional indirect reduction of 1.924 million tonnes.

### **Indirect emissions reductions – top-down**

In addition to bottom-up indirect emissions, it is expected that there will be significant top-down emissions reduction based on the potential nation-wide market of the EE measures in the residential sectors and in public buildings.

It is expected that, due to the development of the market actors, the regulatory framework and public/policy-maker and government awareness, a conservative estimate of market penetration for EE measures would be 10% (i.e. 10% of the available market would implement EE measures). This would result in annual emissions reductions of 641,444 tonnes of CO<sub>2eq</sub>. The total 10 year potential for CO<sub>2eq</sub> reductions would then be estimated to be around 6.414 million tonnes CO<sub>2eq</sub>.

The project has a significant focus on developing the market for EE measures, demonstrating the cost-effectiveness of the measures, and developing plans for addressing fuel poverty at a national level. However, recognizing that there are other initiatives in Romania, the causality factor is given as between Level 1 – “weak” – and Level 2 – “modest” – or 25% to be a conservative estimate.

As such, the total top-down indirect emissions reduction is expected to be 1.604 million tonnes over a 10 year period. See Table 29 for more on how these estimates were reached.

**Table 29: Estimates of indirect top-down potential GHG reductions**

Type of building	Heating source	Total number of buildings	Surface area of the buildings	Estimated percentage of total market change	Kg GHG/KWh	KWh/ m <sup>2</sup> - heating before intervention	KWh/ m <sup>2</sup> - heating after intervention	KWh saved per year	Tonnes GHG per year reduced	Notes
Apartment blocks on district heating	Varied	51,947	62,930,907	10%	0.39	138	100	236,323,037	91,281	
Apartment blocks not on district heating - efficient building improvements	Coal, wood, electricity, stoves, natural gas	31,832	9,902,728	10%	0.41	220	100	330,090,930	134,529	
Apartment blocks not on district heating - heating source improvement	Coal, wood, electricity stoves, natural gas	9,550	9,902,728	10%	0.39	100	100	0	38,041	Change in Kg GHG/KWh from 0.39 to 0.01 for 10% of apartment blocks not on the DH Grid
Total number of houses possible for EE improvement	Various - mostly wood	2,763,157	107,763,131	10%	0.37	220	132	474,708,565	174,018	Assumes 60% of houses could use EE improvement, of which 10% would implement improvements
Total number of public buildings in Romania	Various	231,410	46,282,000	10%	0.39	285	171	527,045,175	203,575	
<b>Totals</b>		<b>3,087,896</b>						<b>1,568,167,707</b>	<b>641,444</b>	

## Summary of CO<sub>2</sub>e emissions reductions

In total, the project is expected to deliver the following GHG emissions reductions and energy savings above the baseline:

- *Lifetime emissions reductions of 666,800 tonnes CO<sub>2eq</sub> without subtracting for the baseline and 641,344 tonnes CO<sub>2eq</sub> after subtracting the baseline reductions.*
- *Direct energy savings would be 43,373 MWh per year without subtracting for the baseline and 41,177 MWh after subtracting for the baseline reductions.*
- *Indirect bottom-up emissions reductions: 1.924 million tonnes CO<sub>2eq</sub>*
- *Indirect top-down emissions reductions: 1.604 million tonnes CO<sub>2eq</sub>*
- *As such, there is a range of indirect emissions reductions between 1.604 million and 1.924 million tonnes of CO<sub>2eq</sub>*

Note that there is significant potential for additional direct emissions reduction as a result of investments from 'greened' AAUs in Romania being directed towards energy efficiency in the residential sector as a result of the project.

## 7.12 Annex XII: References

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GOVERNMENT OF ROMANIA



www.mdrd.ro

Bucharest, 25 November 2010

### COFINANCING CONFIRMATION

**Subject:** Co-financing of the Ministry of Regional Development and Tourism (MRDT) of the project *"Improving Energy Efficiency in Low-Income Households and Communities in Romania"*

Dear Mrs. Oruc-Kaya,

The Ministry of Regional Development and Tourism has the pleasure to confirm the co-financing of the above mentioned project in amount of 37 million US\$. We understand that this amount will be managed by the Ministry of Regional Development and Tourism and will not represent any additional cash contribution to the project budget.

This amount with which MRDT is contributing to the achievement of the overall goal of the joint project, refer to the following items:

- Salaries of the MRDT staff involved in the project implementation, office costs and utilities;
- Part of the costs of the Thermal Rehabilitation Programme already carried out by the MRDT in the areas of interest for the project through the GEO 18/2009.

With kind regards,

Elena Gabriela UDREA

MINISTER

Mrs. Yesim Oruc-Kaya  
Resident Representative a.i.  
United Nations Development Programme (UNDP)  
Country Office Romania





Strada Ialomicioarei 21  
Sector 1  
Bucharest, Romania  
011277

13 December 2010

United Nations Development Programme  
Country Office Romania  
Mrs. Yesim Oruc-Kaya  
Resident Representative a.i.

#### LETTER OF ENDORSEMENT

Re: Co-financing of the Ministry of Regional Development and Tourism (MRDT) of the project "Improving Energy Efficiency in Low-Income Households and Communities in Romania"

Dear Ms. Oruc-Kaya,

The Romania Green Building Council (RoGBC) has the pleasure to confirm the co-financing of the above mentioned project in amount of 71,000 US\$ to promote energy efficiency measures while promoting the uptake of sustainable construction materials usage.

This amount with which RoGBC is contributing to the achievement of the overall goal of the joint project, refer to the following items:

- Salaries of the RoGBC staff involved in the project implementation, office costs and utilities;
- Part of the costs of the training and awareness programmes carried out by the RoGBC in the areas of interest for the project, in collaboration with other project partners.

I will be happy to answer any questions and can be reached at +40.21.222.5135 or +40.21.222.0011.

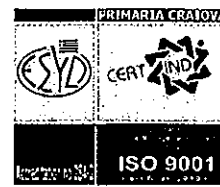
Kind regards,



Steven Borncamp, President  
Romania Green Building Council



MUNICIPIUL CRAIOVA  
PRIMĂRIA MUNICIPIULUI CRAIOVA  
Str. A.I. Cuza, Nr. 7  
Craiova, 200585  
Tel.: 40251/416235  
Fax: 40251/411561  
consiliulocal@primariacraiova.ro  
www.primariacraiova.ro



Nr. 216006/15.12.2010

**Catre,**  
**Programul Natiunilor Unite pentru Dezvoltare**

**Scrisoare de intentie**

**Subiect:** Sustinerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de catre Primaria Municipiului Craiova

**Stimata Doamna Oruc-Kaya,**

Primaria Municipiului Craiova isi exprima prin prezenta adresa, angajamentul de sustinere, in functie de fondurile disponibile, a proiectului Programului Natiunilor Unite pentru Dezvoltare (PNUD), cu privire la urmatoarele activitati care se vor derula sub proiectul mai sus amintit:

- Co-finantarea lucrarilor de reabilitare termica a cladirilor din zona noastra;
- Elaborarea si implementarea ghidurilor de includere a aspectelor de eficienta energetica in planurile de dezvoltare locala;
- Instruiri si sesiuni de constientizare pe teme de eficienta energetica in cladiri.

**Cristina,**  
**Pf. Primar,**  
**Viceprimar Marinica Dinca**



PRIMĂRIA MUNICIPIULUI CALAFAT		
CABINET PRIMAR		
Nr.	61363	
Data: anul	10	luna 12 ziua 14
Anexa	101	

Programul Națiunilor Unite pentru Dezvoltare  
Romania  
Dna. Yesim Oruc-Kaya  
Resident Representative a.i.

Bucuresti, 13 December 2010

**Scrisoare de susținere**

**Subiect: Susținerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de catre Primaria Calafat.**

Stimata Doamna Oruc-Kaya,

Primaria municipiului Calafat isi exprima prin prezenta adresa, angajamentul de susținere a proiectului Programului Națiunilor Unite pentru Dezvoltare (PNUD), cu privire la urmatoarele activitati care se vor derula sub proiectul mai sus amintit:

- co-finantarea lucrărilor de reabilitare termica a cladirilor din zona noastra intr-un quantum stabilit de comun acord;
- elaboararea si implementarea ghidurilor de includere a aspectelor de eficienta energetica in planurile de dezvoltare locala;
- Instruiri si sesiuni de constientizare pe teme de eficienta energetica in cladiri ;

Cu stima,

PRIMAR,

Ec. Mircea Gută





Programul Natiunilor Unite pentru Dezvoltare  
Romania

Bucuresti, 13 December 2010

Dna. Yesim Oruc-Kaya  
Resident Representative



### SCRISOARE DE SUSTINERE

**Subiect: Sustinerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de catre Primaria municipiului Vulcan.**

Stimata Doamna Oruc-Kaya,

Primaria municipiului Vulcan isi exprima prin prezenta adresa, angajamentul de sustinere a proiectului Programului Natiunilor Unite pentru Dezvoltare (PNUD), cu privire la urmatoarele activitati care se vor derula sub proiectul mai sus amintit:

- co-finantarea lucrărilor de reabilitare termica a cladirilor din zona noastra
- elaborarea si implementarea ghidurilor de includere a aspectelor de eficienta energetica in planurile de dezvoltare locala.
- Instruiri si sesiuni de constientizare pe teme de eficienta energetica in cladiri

Cu stima,

PRIMAR,  
ING. GHEORGHE ILE

Romania  
Judetul Hunedoara  
Primaria Municipiului Petrosani  
Nr. 25276 /15.12.2010

Catre,

**Programul Natiunilor Unite pentru Dezvoltare**  
Romania  
Dna. Yesim Oruc-Kaya  
Resident Representative a.i.

**Scrisoare de sustinere**

**Subiect: Sustinerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de catre Primaria Municipiului Petrosani**

Stimata Doamna Oruc-Kaya,

Primaria Municipiului Petrosani isi exprima prin prezenta adresa, angajamentul de sustinere a proiectului Programului Natiunilor Unite pentru Dezvoltare (PNUD), cu privire la urmatoarele activitati care se vor derula sub proiectul mai sus amintit, in limita bugetului institutiei noastre :

- cofinantarea lucrărilor de reabilitare termica a cladirilor din zona noastra
- elaboararea si implementarea ghidurilor de includere a aspectelor de eficienta energetica in planurile de dezvoltare locala.
- Instruiri si sesiuni de constientizare pe teme de eficienta energetica in cladiri

Cu stima,

PRIMAR  
Tiberiu Iacob Rădăci



Programul Națiunilor Unite pentru Dezvoltare  
Romania  
Dna. Yesim Oruc-Kaya  
Resident Representative a.i.

Bucuresti, 13 December 2010

### Serisoare de sustinere

**Subject: Sustinerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de catre Primaria Petrila**

Stimata Doamna Oruc-Kaya,

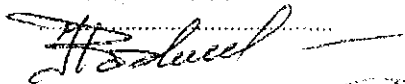
Primaria orasului PETRILA, isi exprima prin prezenta adresa, angajamentul de sustinere a proiectului Programului Națiunilor Unite pentru Dezvoltare (PNUD), cu privire la urmatoarele activitati care se vor derula sub proiectul mai sus amintit:

- co-finantarea lucrărilor de reabilitare termica a cladirilor din zona noastra
- elaborarea si implementarea ghidurilor de includere a aspectelor de eficienta energetica in planurile de dezvoltare locala.
- Instruiri si sesiuni de constientizare pe teme de eficienta energetica in cladiri

Cu stima,

PRIMAR

ILIE PADUCEL



ROMANIA  
JUDEȚUL HUNEDOARA  
PRIMĂRIA ORAȘULUI CĂLAN

Călan, str. Gării, nr.1; tel/fax 0254/730223, 732954; e-mail: primariacalan@yahoo.com

SERVICIUL UADPP  
ACHIZIȚII PUBLICE  
Nr. 647/14.10.2010

*Către,*

**PROGRAMUL NAȚIUNILOR UNITE PENTRU DEZVOLTARE**  
*România. București.*

În atenția: Dna. Yesim Oruc-Kaya  
Resident Representative a.î.

**SCRISOARE DE SUSTINERE**

**Subiect: Susținerea proiectului "Improving Energy Efficiency in Low-Income Households and Communities in Romania" de către Primăria Orașului Călan**

Stimata Doamna Oruc-Kaya,

Primăria orașului Călan, județul Hunedoara își exprimă prin prezenta adresa, angajamentul de susținere a proiectului Programului Națiunilor Unite pentru Dezvoltare (PNUD), cu privire la următoarele activități care se vor derula sub proiectul mai sus amintit:

- Co - finanțarea lucrărilor de reabilitare termică a clădirilor din zona noastră
- Elaborarea și implementarea ghidurilor de includere a aspectelor de eficiența energetică în planurile de dezvoltare locală.
- Instruire și sesiuni de conștientizare pe teme de eficiența energetică în clădiri

Pentru alte informații vă stăm la dispoziție prin Serviciul UADPP, persoană de contact: ing. Stanciu Petru, telefon 0254.730223, fax 0254.732.954, mobil 0734.773.441, 0722.294.281, email [primariacalan@yahoo.com](mailto:primariacalan@yahoo.com), [petrestanciu@gmail.com](mailto:petrestanciu@gmail.com)

*Cu stimă,*

**PRIMAR**  
ADRIAN FILIP IOVANESCU

**ȘEF SERVICIU**  
PETRU STANCIU

**Signature Page**

**Country:** Romania

**UNDAF Outcome (s)/Indicator (s):** N/A

**CPAP Outcome (s)/Indicator (s):** Enhanced national capacity for promotion and protection of local, regional and global public goods such as biodiversity, climate stability, culture and practice of tolerance and peace, and development knowledge

**CPAP Output (s)/Indicator (s):** The project contributes to CPAP Outputs 2, 3, and 4 under the Environmental Governance Focus Area

**Executing Entity/ Implementing Partner:** Romanian Ministry of Regional Development and Tourism

**Implementing entity/ Responsible Partner:** Ministry of Environment and Forests, Romania Green Building Council, The Association of Energy Auditors for Buildings

Programme Period:	2011-2015
Atlas Award ID:	00061005
Project ID:	00077064
PIMS #	4289
Start date:	March 2011
End Date :	May 2015
Management Arrangements	NIM
PAC Meeting Date	13 July 2010

Total resources required	\$ 122,176,840
Total allocated resources:	\$ 122,176,840
Cash contributions :	
o GEF	\$ 2,974,840
o UNDP	\$ 50,000
Cash / In-kind contributions:	
o Nat'l Government	\$ 119,000,000
o NGO	\$ 152,000

**Agreed by (Executing Entity/Implementing Partner):**

NAME \_\_\_\_\_  
Date/Month/Year

SIGNATURE \_\_\_\_\_



**Agreed by (UNDP):**

NAME \_\_\_\_\_  
Date/Month/Year

SIGNATURE \_\_\_\_\_

