Lot 3 - Evaluation of ROP 2014-2020 interventions

Evaluation Report

Theme 3. Supporting energy efficiency and promoting carbon reduction strategies

May 2019

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Lattanzio Advisory SpA (Lead partner)
Lattanzio Monitoring & Evaluation Srl (Partner)

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EVALUATION REPORT - FINAL VERSION

May 2019

DISCLAIMER

This report is the result of an independent evaluation conducted by the consortium led by Lattanzio Advisory Spa (Lead partner) and Lattanzio Monitoring & Evaluation Srl (Partner 2) on the basis of the contract concluded with the Ministry of Regional Development and Public Administration in September 2018.

The expressed opinions are of the consortium and do not necessarily reflect the views of the Contracting Authority, namely the Ministry of Regional Development and Public Administration, nor of the Managing Authority for the Regional Operational Program 2014-2020.

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List of Abbreviations

CA	Contracting Authority
CdS	Specifications
CSF	Common Strategic Framework
DG	Directorate General
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECC	Evaluation Coordination Committee
EE	Eficient Energy
EEA	European Environmental Agency
EIB	European Investment Bank
EPC	Energy Performance Contract
EQ	Evaluation Question
ERDF	European Regional Development Fund
ESC	Evaluation Scientific Committee
ESCO	Energy Service Companies
ESIF or ESI Funds	European structural and investment funds, namely the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund
ETC	European Territorial Cooperation
EU	European Union
EUSDR	European Union Strategy for the Danube Region
FG	Focus Group
GDP	Gross Domestic Product
GES	Greenhouse Gases
IFI	International Financial Institutions
INS	National Institute of Statistics
IP	Investment Priority

IR	Initial Report
ITI	Integrated Territorial Investments
IUDS	Integrated Urban Development Strategy
LC	Local Council
LIOP	Large Infrastructure Operational Program
MA	Managing Authority (Managing Authority)
MA	Management Authority
MC	Monitoring Committee
MEP	Multi-Annual Evaluation Plan
NEEAP III	National Energy Efficiency Action Plan approved by GD no. 122/2015
NLDP	National Local Development Program
NRAE	National Regulatory Authority for Energy
NRDP	National Rural Development Program
OET	Oil equivalent tons
OP	Operational Program
PA	Public Authorities
PA	Priority Axis
RDA	Regional Development Agencies
ROP EO	EO Office for the Evaluation of the Regional Operational Programme
ROP	Regional Operational Program
SMIS	Integrated Information Management System
TA	Technical Assistance
UAT	Territorial Administrative Unit
USMP	Urban Sustainable Mobility Plans

1. EXECUTIVE SUMMARY

Following the assessment steps, the evaluation team made a series of conclusions and recommendations that may be useful to the management decisions on possible mid-term reallocations, improvement of the overall axis management, encouraging technical and financial progress of operations, as well as adjustments to the selected objectives, priorities and eligible activities.

To formulate the recommendations, we considered **two key perspectives - the whole life cycle of the projects, and the theory of change based on impacts**, which are considered among the most appropriate methods for improving the implementation of European fund interventions.

1. Findings

- The implementation of PA3 is satisfactory from the point of view of the capacity to launch the calls and the absorption of budget allocation, but there are delays in the commencement of works envisaged under the 408 contracted projects. There are achievements in terms of energy efficiency, mainly in terms of buildings (especially residential ones), while interventions on sustainable urban mobility and street lighting are still delayed;
- Although the rate of real progress in the implementation of projects is very low (less than 4% of the budget has been spent so far), the non-reimbursable budget for the projects contracted until the end of 2018 registers a satisfactory level (38.7% of the financial allocation at the axis level, which is comparable to the progress made at European level) and is growing rapidly, taking into account the number of projects still under contracting (283) and evaluation (427) phases;
- In the 5 years remaining for contracting and spending the funds, the conclusion of the evaluator shows that it is possible to achieve an absorption level of at least 80% of the allocation.
- Up to the date of this report, 34 projects in the field of energy efficiency in residential buildings have been completed (PI 3.1.A). Investments in street lighting and urban mobility could only be analyzed from the perspective of the information included in the financing applications for contracted projects;
- The interventions have not yet reached the expected and potential effects (they can be quite large in terms of energy savings and the reduction of GHG emissions); the number of households with an improved energy rating (on average 40% compared to the ex-ante situation) is constantly increasing, but the data on the actual energy consumption of the households in the sample tested indicate mixed trends. This can be determined by a variety of reasons, but it certainly suggests that intense action is advisable to raise awareness on changing attitudes toward energy use among final consumers;
- It is necessary to improve the skills of the human resources involved from the companies responsible for carrying out the works, the beneficiaries' external consultants, the end users.
- The improvement of energy efficiency as a result of the rehabilitation of residential buildings and investments in street lighting is at the level of European standards (in both types of operations the potential for a 50% reduction in energy consumption was reached). The

increase of the efficiency in the case of the rehabilitation of the public buildings is even greater (71%), but this may be determined by the high degree of deterioration of the buildings before the intervention;

- In terms of efficiency (cost / ton CO2 equivalent), improving the energy efficiency of buildings has the best cost / benefit ratio for reductions in CO2 emissions (average cost of € 2,939 / ton CO2 equivalent for residential buildings and € 11,956 / ton CO2 equivalent for public buildings). In addition, the improvements in this sector have reached a high level of standardization, the works are carried out quite smoothly, without major delays or problems. On the other hand, street lighting and urban mobility interventions have a much higher unit cost for reducing CO2 emissions (67,742 € / ton CO2 equivalent, respectively 177,358 € / ton CO2 equivalent);
- SMIS does not allow proper monitoring of the key aspects of the project life cycle. It seems more geared towards meeting the reporting requirements for the EU than providing information on each key aspect of the project. The number of projects between the reports produced through SMIS differs, in many cases, the data regarding the target indicators or the achieved indicators are missing and / or the quality of the data that can be found in the system does not seem adequate. In addition, there is no information available about the time required to complete certain stages (i.e. completion of the evaluation, signing the contract, starting the project, etc.). The MA should receive a clear alert signal, in case that a blockage in the general project cycle (i.e. longer time is recorded for the implementation of a procedure) occurs.

2. *Conclusions*

- PA 3 responds to social needs, there is a balance in the allocation of funds, a strong interest in calls and limited problems in implementing interventions. The results of the four investment priorities (IP) regarding the reduction of energy consumption are comparable with the European standards;
- It is necessary to accelerate the general progress of the axis: overall, the progress is limited, and the cost effectiveness of the different PIs needs to be considered in more detail. Taking into account the delay in launching the first calls, this may also cause delays in implementation. Thus, a control of the expenditures made until the end of 2019 can provide a clearer estimate of progress: if the pace does not accelerate, the MA should consider the redistribution of funds between regions and the IP;
- There is a strategic need to simplify the procedures for some stages of the project cycle: the submission of financing applications, contracting and reporting face obstacles that slow down the progress of the axis in technical and financial terms. Long durations (even more than one year) were recorded for evaluating the financing applications and projects' contracting for the four PIs. As a result, much of the documents submitted must be updated or revised, and spending at the axis level is thus limited;
- Although the implementation of the axis is delayed, it can be stated that the implementation experience from the first two years (2017 and 2018) will prove especially beneficial for PI 3.1.C and 3.2. These are the areas where technological and organizational innovations are developing faster, so the following calls could promote more innovative proposals by increasing the level of quality selection criteria. In general terms, these types of

interventions could be the focus of attention for the next programming period, together with the investments related to the current PI 3.1.B, where the demand is still very high. On the other hand, interventions for saving energy in residential buildings could be the focus of the current national programme on energy performance of residential buildings, having procedural and implementation rules that are easier compared to the current ROP;

- The evaluation highlights the major problems faced by a large part of the beneficiaries in managing the projects financed under PA3. Some of them consider that the situation has worsened compared to the previous programming period;
- The implementation stage does not pose significant problems, according to the financing beneficiaries;
- Beneficiaries should focus on value-added operations and be informed on best practices. They often spend more time solving procedural problems than properly monitoring the implementation of the project, making new proposals and / or connecting with users;
- End users need to be more involved in the project cycle. The actual impact of each PA 3 investment depends to a large extent on the behavior of the end users. However, the attention paid to them so far seems limited;
- It cannot be assumed that the house owners will change their habits regarding the energy consumption or that the citizens will use the new means of urban transport as soon as they become available. For this reason, it is necessary to carefully evaluate the degree of awareness and their availability to join the new projects envisaged under Axis 3 except 3.1.C, whose final result does not depend on the behavior of the end users;
- Adequate support for the technical dimension of sustainability is needed. The evaluation highlighted the risk that in the near future skilled workforce will become insufficient. This potential problem becomes even more serious, given the fact that AP3 is aimed to promote the use of relatively new materials and technologies at the level of Romanian SMEs. In addition, it should be kept in mind that in the next 2-3 years a large number of new projects will be financed;
- Also, ensuring a good maintenance of all the interventions carried out will be of critical importance, which requires the availability of a qualified workforce.

3. *Recommendations*

- Increasing the degree of synergy with other ROP axes and between all administrative levels. Paying more attention to potential synergies with other ROP axes (i.e., AP2 - SME competitiveness, AP4 - Sustainable urban development) at a higher hierarchical level can prove extremely beneficial for Axis 3. If Axis 2 implementation is successful, the availability of labor force in the areas where Axis 3 intervenes can increase; if there are valuable projects under Axis 4, it can provide pilot cases for new proposals under Axis 3. It is recommended to improve the communication between all administrative levels: a timely response to a clarification can largely support the success of a project proposal or project implementation.
- Shortening the duration of the evaluation and contracting stages will facilitate the start of projects and will increase the rate of absorption of the funds allocated to the axis.
- Maintaining flexibility regarding the reallocation between IPs and improve the process of monitoring and evaluating the cost effectiveness of each major investment. The situation of the

projects submitted in the regions is somewhat similar to the one registered under ROP 2007-2013DMI 1.2, when all the three regions in the South were slower in accessing the funds allocated as compared to Bucharest region, which proved extremely active. Thus, more long-term actions are needed to reduce this imbalance. Each PI presents specific problems and potential benefits, so evaluation is more difficult. In this respect, it is recommended that the MA maintains a high level of flexibility for managing and possibly reallocating the budget, taking into account the rate of submission / contracting of the projects and the evolution of the cost effectiveness in each intervention at the IP level.

- Repeated review of the documents related to the calls (i.e. guidelines, list of eligible expenses, etc.) after their opening has a negative impact on the PA implementation. Although this type of problem can often occur in the initial phase of an axis implementation, these situations should be avoided for future calls.
- A two-tiered selection system, as other EU-funded programmes already do (i.e. the LIFE program), can reduce the time required to evaluate projects, as well as the administrative burden on beneficiaries. This involves the initial presentation of a project file (max. 5-6 pages) with a minimum set of financial data. Only the best project fiches can present the full version of the application. This recommendation is especially valid for PI 3.2 (and partially for 3.1.C), where the complexity of preparing the financing applications is higher.
- Hiring more evaluators would reduce the financing applications' evaluation duration, would ensure a uniform approach to the evaluation and regular verification of the evaluators' results (at the end of 2018, the ratio between the number of pending applications and the number of approved projects was 170%);
- Increasing the level of pre-financing (currently 10% of the project's eligible value), although it would be a complex initiative (as it would require the modification of Government Emergency Ordinance, GEO, 40/2015), would have two advantages: it would support the beneficiaries more strongly at the beginning of the project; it would accelerate the overall financial progress of the operations. Currently the EU structural funds allow 30% pre-financing to beneficiaries;
- Avoiding the need to re-approve projects by local councils if the changes do not substantially modify the initial approach and structure and if the results from the point of view of energy efficiency are improved;
- Reducing the number of on-site visits to the project sites before signing contracts with the MA;
- Simplifying the reimbursement procedures by reducing the volume of documents or by reducing the frequency of reimbursement requests (i.e., from 3 to 4 months: keeping the reimbursed amounts annually would reduce the administrative burden of the beneficiaries by 25%).
- It is necessary to harmonize the format of the modules in MySMIS to monitor projects' progress. Differences in terms and formats used are the cause of significant workload for preparing and submitting reimbursement documentation. An interdisciplinary working group could facilitate solutions within a reasonably short time.
- Improving SMIS by paying attention to the quality of the data and extending its use to obtain reporting documents. SMIS has the potential to assist the MA in monitoring the entire life cycle of the project, and simple improvements regarding the introduction of several control

points for data reliability, calculation of progress and indirect indicators (and their unit costs) and greater flexibility in creating reports can greatly contribute to the overall management of the axis. The other beneficial change would be the possibility to upload the reporting documents through MySMIS, without having to send them every three months in paper format. Although this is already feasible, it has not yet become a standard practice. Also, a simplification of the current workflow, by using two parallel systems to monitor the progress of projects (one through the records kept by RDAs - with weekly updates to MA and other information with traceable data in SMIS) can be very useful;

- Supporting vocational training, updating knowledge and exchanging best practices among PA staff. Due to the delay in projects' implementation (except PI 3.1.A), the identification of the best practices has proven quite difficult. Two cases can be mentioned in the NW region:
  - setting up a web platform by the RDA through which the beneficiaries present and monitor the projects;
  - organizing a large and consistent set of awareness and participation activities addressed to the final beneficiaries by the Turda City Hall under the PI3.2 project.

However, there is no database of pilot examples and no apparent incentive / system to detect and test them. Therefore, it is recommended to initiate a programme to identify and highlight them, thus facilitating the exchange of experience (and solutions) between the most advanced and least developed authorities;

- Implementation of awareness-raising/ awareness actions addressed to potential beneficiaries at the level of all PIs. Contacting and involving the AP3 projects' end users can take place at various stages: the first contact could take place during consultations related to the strategy and planning the services that affect the neighborhood and / or the city in which they live, or they can be involved at a later stage, before deciding which technology to be used to improve the energy efficiency of their buildings. The essential aspect is to understand their interest on projects and the willingness to improve the "environmental footprint".
- In order to sustain ROP interventions, it is extremely useful to invest in increasing the end users' awareness (owners in the case of residential buildings and administrators of public buildings) through various tools, such as organizing activities addressed to both administrators and home owners, who seem to be sensitive enough to the growing concern for environmental issues.
- The same approach applies in the urban mobility sector, which is based on the increase in the number of passengers using public transport. If this expected change in stakeholders' behavior fails to materialize, then the initial gains related to CO2 reductions, may prove too optimistic.
- Cooperation with ESF and other national funds for the provision of quality workforce. Improving the average quality of the workforce involved in the AP 3 projects is the third pillar of its successful implementation, together with the improvement of the quality of the internal staff and the end users' awareness. Joint action with the MFE is required to plan the training and updating of appropriate skills. In a similar approach, all other nationally funded programmes operating on similar issues should be contacted and activated. Otherwise, the risk of not having enough human resources to complete funded projects will become real.

- When contracting companies for works' implementation, the beneficiaries should pay more attention to their ability to provide maintenance services after the completion of the works. This can be a permanent additional condition in the specifications.

In conclusion, the clarity of the calls for project proposals, clear and stable guidelines (without repeated reviews) and the quick response to the clarification requests received by the potential beneficiaries remain extremely important for the submission of a large number of quality financing applications. Simplifying the public procurement procedures would greatly help the beneficiaries, as well as streamlining the current reporting procedures (i.e. MySMIS module format, frequency of reports, etc.) would be very useful. Also, improving internal and external human resources and end-user behavior are two key horizontal priorities for ROP success.

2. PRESENT SITUATION (up to 31/12/2018)

The purpose of this mid-term evaluation of Priority Axis 3 of the Regional Operational Program 2014-2020 in Romania was mainly to evaluate:

- if the implementation of the axis leads to the achievement of the objectives set out in the programming document, i.e. increasing the energy efficiency of buildings and reducing CO2 emissions in urban areas;
- the progress registered in implementing the axis (both technically and financially);
- the extent to which the expected effects on energy use and GHG emissions have been achieved;
- what types of interventions have proven to be more effective, and
- how sustainable can be considered the conducted interventions.

Priority Axis 3 - Supporting the transition to a low-carbon economy, covers two investment priorities, 3.1 and 3.2:

- **Investment Priority 3.1** - Supporting Energy Efficiency, Smart Energy Management and the Use of Renewable Energy in Public Infrastructures, including Public Buildings and Housing, Operation A - Residential Buildings, Operation B - Public Buildings, Operation C - Public lighting;
- **Investment Priority 3.2** - Promote carbon reduction strategies for all types of territories, especially for urban areas, including the promotion of sustainable urban mobility plans and the adaptation of measures relevant to mitigation.

For the 2014-2020 programming period the total financial allocation of the PA3 is 8.038,3 mil. lei[1], accounting for about **20.6% of the ROP allocation, of which FEDR allocation is of 6,762.8 lei.** The distribution of the financial allocation on the four PIs is presented in table 1 of the Annex 1 to this report.

[1] Inforeuro December 2018: 1 euro = 4,6531 lei

By December 31, 2018, the information gathered from the SMIS indicated that under Priority Axis 3 ***1.286 applications were submitted***, *corresponding to a total non-reimbursable budget of 11.2 billion lei. Of these*, ***408 were approved and contracted***, *with a total non-reimbursable budget of 3.1 billion lei.* ***34 of the contracts were completed***, *all within IP 3.1.A (energy efficiency in residential buildings).* ***The coverage of the non-reimbursable financial allocation through the contracted budgets is of 38.7%; the payments made until 31.12.2018 amounted to 287.2 million lei, representing approx. 3.6% of the total allocation at the Priority Axis level.*** **Progress recorded at 31.12.2018 in AP3 and investment priorities implementation is shown in table 1.**

Table 1 Progress recorded at AP3 level and investment priorities on 31.12.2018

Nr. crt.		UM	Investment Priority				Total
			3.1.A	3.1.B	3.1.C	3.2	
1	Financial allocation at program level	Mil. lei	2.459,56	2.251,5	457,66	2.869,55	**8.038,27**
2	Non-refundable funding requested from the submitted CF	Mil. lei	1.854,67	4.324,34	1.377,83	3.685,91	**11.242,75**
3	Approved non-refundable funds	Mil. lei	1.319,62	2.026,35	125,92	2.223,12	**5.695,01**
4	Contracted non-refundable funds	Mil. lei	865,83	1.478,36	64,81	703,87	**3.112,87**
5	Payments made to grant recipients	Mil. lei	277,7	8,97	0	0,5	**287,17**
6=2:1	Rate of access to the program	%	75,4%	192,1%	301,1%	128,4%	**139,9%**
7=3:2	Approval rate	%	71,2%	46,9%	9,1%	60,3%	**50,7%**
8=4:3	Processing rate of contracts	%	65,6%	73,0%	51,5%	31,7%	**54,7%**
9=5:4	Processing rate of payments	%	32,1%	0,6%	0,0%	0,1%	**9,2%**
10=4:1	Contracted Financing / Financial Allocation	%	35,2%	65,7%	14,2%	24,5%	**38,7%**
11=5:1	Absorption rate of payments	%	**11,3%**	**0,4%**	**0,0%**	**0,0%**	**3,6%**

(Curs inforeuro December 2018 1 Euro=4.6531 lei)

The intermediate targets set for 2018 through the ROP performance framework have been far exceeded in the more developed regions (Bucharest-Ilfov): 16,259 households with a better energy consumption classification compared to 1,000 scheduled, 441.4 million lei expenditures eligible programs compared to scheduled 94.8 million lei, 2 contracted operations for public transport and non-motorized compared to 1 scheduled. In the case of less developed regions, only the indicator for contracted public and non-motorized transport operations was achieved (19 operations compared to 10 scheduled), while only 84 households with a better front-end energy consumption ranking of the 5,600 programmed and eligible expenditures were of only 31.1 million lei compared to the programmed 396.9 million lei (see table 2 in Annex 1 of the report).

The beneficiaries of funding are public administration authorities and public institutions. 70% of the total of 163 beneficiaries are territorial administrative units at local level (cities and communes), their contribution to the total non-reimbursable budget being of 56.6%. The distribution of the contracted value at the county level is quite balanced, with only Bucharest (29.1%) and Cluj County (14.0%) having a relatively higher share of contracted projects (see Table 3 in Annex 1).

The launch of project calls was made with a significant delay determined both by the approval of the ROP by the EC in June 2015 and by the need to prepare the implementation of the program. The first calls for IP 3.1.A and 3.1.B were launched more than two years after the beginning of the programming period, the calls for IP 3.2 three-and-a-half years after the beginning of the programming period and those for IP 3.1.C after 4 years (see Figure 1 in Annex 1). The call open period ranged from 6 to 10 months, with the exception of the SUERD call for unfinished projects that was only open for 2 months.

The number of simultaneously open calls was higher at the beginning of 2018.

The **general overview** of the number of contracted projects at the level of each development region and for every IP is presented herewith (table 2).

Table 2 Number of projects contracted at the level of each development region on each of the investment priorities (31.12.2018)

Region	Investment Priority 3.1.A		Investment Priority 3.1.B		Investment Priority 3.1.C		Investment Priority 3.2	
	Contracted contract	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	Total non-reimbursable budget contracted
1.North-East	5	0,7%	39	21,4%	-	0,0%	0	0,0%
2.South-East	5	0,7%	28	10,3%	-	0,0%	0	0,0%
3.South - Muntenia	2	0,2%	10	4,2%	-	0,0%	0	0,0%
4.South-West Oltenia	11	4,4%	26	6,5%	-	0,0%	0	0,0%
5.West	14	2,8%	33	12,5%	-	0,0%	0	0,0%
6.North-West	18	5,3%	48	24,8%	3	100,0%	19	76,5%
7.Centre	3	1,0%	50	18,0%	-	0,0%	0	0,0%
8.Bucharest-Ilfov	84	85,0%	8	2,3%	-	0,0%	2	23,5%
ITI	0	0,0%	0	0,0%	-	0,0%	0	0,0%
SUERD	0	0,0%	0	0,0%	-	0,0%	0	0,0%
Total number of projects	**142**	**100,0%**	**242**	**100,0%**	**3**	**100,0%**	**21**	**100,0%**

Region	Investment Priority 3.1.A		Investment Priority 3.1.B		Investment Priority 3.1.C		Investment Priority 3.2	
	Contracted contract	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	% Total non-reimbursable budget contracted from the total on IP	Contracted contracts	Total non-reimbursable budget contracted
Total non-reimbursable budget contracted, Mil. Lei	**865,83**		**1.478,36**		**64,81**		**703,87**	

3. PHASES OF THE STUDY

This section shows the logical steps taken by the team to perform the tasks required in the contract.
In particular, the section illustrates the following details:

- Specialized literature analysis;
- Identifying, collecting, analysing and validating of data;
- Testing and adapting the Intervention Logic, and describing its Methodology;
- Limitations and problems encountered, as well as measures taken to overcome them.

A. SPECIALIZED LITERATURE ANALYSIS

The Evaluation Team has carried out a review of the relevant existing literature on the effects of low emissions policies. For this purpose it has been analysed all relevant documents according to the different Investment Priorities, from which the following conclusions has been drawn:

For what concerns **IP 3.1 'Supporting energy efficiency**, intelligent **energy management** and **renewable energy use** in **public infrastructures**, **including** in **public buildings** and in the **housing** sector ', the Evaluation team has initially reviewed the literature concerning Operations A (Residential Buildings) and B (Public Buildings). EU countries have agreed on a new framework for climate and energy policy defines the targets for 2020 and 2030. The objectives for 2030 are: 40% reduction of the greenhouse gas emissions compared to 1990 levels, at least a 27% share of renewable energy consumption, and at least 27% energy savings compared to the business-as-usual scenario (European Commission, 2014).

In this respect, the research of the Buildings Performance Institute Europe[2] states that investing in energy efficiency is the most convenient way to get reductions in carbon dioxide emissions and 30% of energy savings could be obtained from investments in energy renovation of buildings in the EU 2020. Therefore, Member States were invited to promote investments in energy efficiency of buildings and also to promote the transformation of old buildings into buildings with high energy performance and the use of renewable energy sources. As a result, many states and regions have included specific actions to promote efficiency energy in buildings and cities as a key tool for progressing towards an economy a low carbon emission[3].

The literature review found that energy efficiency can have a number of benefits for families, businesses and society in general. Some of these benefits can be quantifiable in economic terms, while others, such as health or safety benefits energy, they are less easy to measure.

A growing literature recognizes the potential of investments in energy efficiency in the construction sector: while a group of articles analyses the correlation between energy prices and / or investment in energy efficiency and energy consumption[4], other authors have observed the effects of investments on energy efficiency from an environmental perspective[5].

Finally, another group of scholars recognizes the economic potential of efficiency investments energy and observes it from a private and / or public perspective, claiming the benefits for individuals, families and businesses deriving from improving the quality of life and health, the increase in disposable income and from the increase in efficiency from the point of view of supply. The investments in energy efficiency also affect the performance of various other sectors (industry, transport, service sector, etc.).

The analysis of the impact on employment received particular attention during the past period from the financial crisis of 2008, when job creation has become an important topic to support such programs in EU countries. However, in contrast to the positive effects, the literature recognizes the problem of the effects of rebound[6] (Ryan and Campbell, 2014 and others) which

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[2] "Europe's buildings under the microscope: A country by-country review of the energy performance of buildings". Brussels, 2011. Retrieved from http://bpie.eu/wpcontent/uploads/2015/10/HR_EU_B_under_microscope_study.pdf

[3] Among the most recent examples we can highlight the following ROPs 2014/2020: Friuli Venezia Giulia Region (Italy): Axis III, action 3.1- Promotion of eco-efficiency and reduction of primary energy consumption in public buildings, monitoring and optimization of energy consumption "smart buildings"); Lombardy Region (Italy): Axis 4- Investment Priorities 4c - Supporting efficiency energy, the intelligent use of energy in public and residential buildings. Target specific 4c.1: reduction of energy consumption in public buildings and integration of renewable energy sources; Emilia Romagna Region (Italy) - Axis 4 - Promotion of a low-carbon economy of carbon in the territory and in the production sector; Bulgaria: POR includes Investment Priorities 3.1 "Energy, technology and efficiency energy "under Priority Axis 3:" Energy and resource efficiency ", in compliance with thematic objective 4 "Support for the transfer to an economy with reduced carbon emissions in all sectors "; Furthermore, Hungary has included Axis 5 in the POR-2007-2013, an axis dedicated to use energy efficiency, whose main objective was to contribute to the annual reduction of 1% of energy consumption, in accordance with the Action Plan for improvement of energy efficiency in the European Community.

[4] For example, Burman, Mumovic and Kimpian, 2014, Hamilton, Steadman, Bruhns, Summerfield and Lowe, 2013

[5] Germani, Landi; Rossi, 2015; Konstantinou & amp; Knaack, 2011; Nemry et al., 2010; Power, 2008

[6] The rebound effect is, in our case, the tendency of final users to counteract with a more wasteful behavior the savings potentially available thanks to the energy efficiency improvements.

needs to be kept in consideration in estimating economic impacts, leading to a reduction in the prices of certain products and services.

The literature review also found that the production and installation of equipment on energy efficient materials is a relatively high intensity activity of labour that has the potential to enhance local labour markets. However, the necessary skills are often quite specific, so there can be room for active intervention in providing training for the local workforce.

Finally, it is also interesting to note that there is some literature that reports increases in construction of values and rents as a result of improved energy efficiency.

Regarding Operation 3.1 C and Investment Priority 3.2 the Review has principally aimed at detecting possible trends and practices already in place elsewhere in EU which may work as benchmark for the analyses.
In this sense, as for Operation **3.1 C (**Public **lightning**) the team has reviewed:

- the Streetlight-EPC project;
- the SIMPLA project;
- the *Guideline on finding a suitable financing model for public lighting investment*.

Similarly, for **IP 3.2** (*Promotion of sustainable urban mobility plans, in particular for urban areas, including the promotion of sustainable urban mobility plans and mitigation measures)*, the evaluation team has reviewed a bunch of reports and case studies, among which *Origins for Urbact post 2020", "Roadmap for Urban Urban Assessment* and ***Sustainable Urban Mobility: European Policy, Practice and Solutions European Union, 2017.***

Both studies highlight that due to the extensive economic activities in urban areas, many European cities face multiple problems related to or caused by transport and traffic. Congestion, air pollution, safety and noise pollution are examples of commonly shared problems in European cities. Besides the direct impact of traffic, urban transport also affects social development, social exclusion and accessibility for people with reduced mobility. The need for sustainable transport is increasingly recognized and receives more and more attention. European cities face the challenge of needing to enhance mobility, ensure accessibility and create high quality and efficient transport systems while, at the same time, reducing congestion, pollution and accidents. Transport is essential to economic growth and welfare as well as to the quality of life in urban areas, in terms of fostering social cohesion, addressing health problems and adapting to demographic developments.

We also analysed the evaluation report for the ROP of the previous programming period (2007-2013), where one measure similar to IP 3.1A/B was included (DMI 1.2 ”Sprijinirea investiţiilor în eficienţa energetică a blocurilor de locuinţe”), and another measure, partially similar to the current IP 3.2, was mentioned - POS CCE, DMI 4.1 ”Efficient and sustainable energy (improving energy efficiency and environmental sustainability in the energy system)” .

The final evaluation for the first measure concluded that it managed to achieve approx. 79% of the expected target in terms of the number of involved blocks, but only 10% in terms of energy reduction. Bucharest-Ilfov was by a large extent the region that had more projects approved, while the North East, and the three southern regions lagged behind.

B. DESCRIPTION OF THE METHODOLOGY and DATA COLLECTION

The methodological approach of the evaluation aims to an **impact evaluation**[7] based on the theory of change where between Needs, Changes, Activities and potential actors are strongly connected. This evaluation is at the same time centred on the analysis of the whole life cycle of the project in its key phases (preparation of the funding application, contracting phase, and implementation phase, monitoring and reporting). From this perspective, our analysis was mainly focused on the question "**Why and how interventions work",** paying particular attention to include in the analysis all the stakeholders involved in each stage of the life cycle of the project. To this regard, we have tried to maintain a balance between compliance and a needs-based evaluation approach.

The other relevant factor that we needed to take into account was the delayed state of the axis implementation: it was known that the range of data concerning completed projects and impacts deriving from them will be limited. As a consequence, we developed a system of qualitative data collection activities that were meant to contact different stakeholders about the same critical issues at stake (e.g. project impact, suggestions to improve their performance, behaviour of final users etc.).

Finally, throughout the data collection activity, we have pursued some fundamental rules:

- we kept an integrated and consistent approach (guided by the theory of change and by the life cycle of a project);
- we set clear goals (Evaluation Questions) and a clear set of indicators;
- we tried to ensure an intensive Triangulation of the different data and information we have used. In this respect, we highlight in the tables 4, 5 and 6 of Annex 1 the most important links between each evaluation activity, the key Evaluation Questions and the most relevant actors involved in the evaluation process. The benefits of this triangulation approach are presented in table 4 of the Annex 1 to the Evaluation Report where we present the link between each EQ and the various evaluation steps undertaken. In this way we considered feasible to highlight inconsistencies in progress and trends, different perceptions of the most frequent problems at different stages of the life cycle of the project, and to obtain useful information for providing final recommendations, tested by different stakeholders;
- we have taken care to provide an independent assessment and opinion in all of our activities.

Quantitative and qualitative data collection was carried out basically using the methods described in the following table. Supplementary, we added an activity based on a qualitative method: the end-user questionnaire in Sector 3 of Bucharest, thanks to the City Hall's support,

[7] We endorsed the concept of “impact evaluation” as better defined in paragraph 1.2.2.1 of the “EU Guidance Document on Monitoring and Evaluation” of the ERDF-Cohesion Fund (version revised in 2018). In the same paragraph one can find why a counter-factual evaluation could not be recommended in our case (see pag.7).

given the significant number of projects completed on the investment priority 3.1 A (**33 projects completed on the date of this study**). The following table outlines the type of activity, the implementation period, the type of data, the source of data, the reason for using the data and other key notes relevant to every data collection activity.

Table 3 Overview of Data collection activities performed during the Interim Evaluation ()

Type of activity	Implementation period	Type of data	Data source	The main reason for using the data	Note
Technical and financial data collection	Oct. - Mar.2019	CN	Reports extracted from SMIS, reference date 31.12.2018	Monitoring financial and technical progress up to 31.12.2018	1286 applications for funding
Data collection from final reports of completed projects	Nov. - Mar.2019	CN	ROP Projects (PI 3.1.A)	Obtaining data for the output and output indicators	Excerpts from 33 final reports
Data collection on current use of thermal energy	Ian. - Feb.2019	CN	RADET Company	To check changes in post-project power usage mode	Use of thermal energy
Data collection from Energy Performance Certificates	Ian.2019	CN	Energy Performance Certificates, completed projects (3.1.A)	To check for energy efficiency improvements and potential energy improvements	204 buildings in sector 3 - Bucharest where the rehabilitation works were completed
Data collection from approved grant applications	Feb.2019	CN	ROP Projects (PI 3.1.B, PI 3.1C, PI 3.2)	To estimate key progress and results indicators	A total of 39 applications for funding have been analysed
Online survey for beneficiaries	From11.01.2019 to01.02.2019	CN, CL **	Public Authorities, beneficiaries of IP 3.1A și PI 3.1B	To evaluate the life cycle of the project and to identify critical issues	62 answers to the 135 questionnaires sent to the beneficiaries of financing through PI 3.1.A and 3.1.B (Annex 10)
Direct interviews	Ian. - Feb.2019	CL	8 Public Authorities	To evaluate the life cycle of the project and to identify critical issues	Sector 3 Bucharest, ADR North-East, CL Sibiu, ADR North-West, CL Turda

Type of activity	Implementation period	Type of data	Data source	The main reason for using the data	Note
					CL Zalău, CL Carei, ADR South-West Oltenia, CL Isaccea
Survey for end users	15.01.2019 - 05.02./2019	CL	Bucharest - Sector 3	To analyse changes in energy use	The questionnaires were distributed with the support of the District 3 City Hall and the managers of the owners' associations, and 496 completed questionnaires were returned from a population of 16.259 households (3%).
Focus Group with end users	05.02.2019	CL	Building Administrators - Representatives of homeowners in rehabilitated buildings	To analyse changes in energy use and to learn about other environmental changes	9 Participants
First FG with Experts	12.02.2019	CL	Focus group with experts	In order to validate the data obtained and to select the case studies	6 participants
Case studies	Mar.2019	CL	4 Public Authorities	To evaluate the life cycle of the project and to identify critical issues	Galați, Carei, Petrila, Turda
Second FG with Experts	07.03.19	CL	Focus group with experts	To classify possible scenarios for the future of the ROP and to identify potential improvements	6 participants

CN*= Cantitativ; CL**= Calitativ

For all of the activities listed above, preliminary contacts with key stakeholders and beneficiaries (City Halls, RDAs, Local Public Authorities and Public Institutions) were needed, in order to inform them properly and get the best evaluation data. The collected data allowed us calculate all the indicators required for results.

For what concerns the Scale of mandatory priorities (see IR pag. 36), this method was used in the selection process of case studies in the 1st Focus Group with Experts.

Due to time limitations in the conduct of the evaluation activities (see below), the Delphi method mentioned in the IR was not used. As a matter of fact, one round of questionnaires can take up to three weeks and a full analysis, which is done in three rounds, may take more than one month.

C. LIMITATIONS AND CONSTRAINTS

We need to highlight two general remarks concerning the main limitations and constraints regarding data collection:

- Axis 3 is the largest axis of the 2014-2020 POR in terms of budget endowment. This means that the total number of projects and of proposals is one of the highest of ROP, therefore analysis and elaboration of SMIS data required a higher amount of time;
- The evaluability of some data proved harder than originally foreseen, because the data available on the SMIS are not always complete, detailed, and/or consistent. This is the case, for instance, of the differences encountered between the number of projects registered in different SMIS reports and of the missing or inconsistent data for target values of some indicators.

As a consequence of the above remarks we needed to enlarge the range and scope of the qualitative evaluation tools carried out.

Quantitative data:

As already stated, the axis suffers from a delayed implementation, especially for what concerns IPs 3.1C and 3.2. This meant that we could gather data from completed projects only from IP 3.1.A (energy efficiency in residential buildings), while for all of the other IPs we needed to consult the approved project proposals (and as a consequence to spend more time in order to locate and retrieve the specific data we were looking for-e.g. data regarding the reduction of energy consumption and CO2 emissions).

For what concerned actual energy use by the final users, we originally planned to get data regarding electric energy consumption from the company ELCEN SA, but this did not prove feasible (due to the difficult transition period that company is facing). Also getting the thermal energy data from company RADET needed several attempts and long awaiting.

Qualitative data:

Survey design was constrained by the actual availability of potential respondents. In the case of the survey addressed to administrators of owners associations and to tenants it was offered to us the assistance of the Sector 3 City Hall, but we could not ask for specific sampling criteria, so the survey addressed both building administrators and single households. This being the case we had also organised a Focus Group with final beneficiaries of the intervention and the actual data on thermal energy use to assist our evaluation.

Also, we organised two FGs with experts (six participants in both cases and we also used the direct interviews and the case studies to complement our analysis.

Analysis of regional disparities in the axis implementation could not take advantage of previous evaluation works, because this was the 1st time that an axis centred on energy efficiency and low-carbon economy is included in the ROP evaluation. Therefore we mainly relied on the analysis of regional distribution from SMIS, and on the direct interviews and the case studies.

4. ANALYSIS AND INTERPRETATION

The chapter describes how the data and information gathered was verified, analysed and interpreted to obtain findings, conclusions and recommendations for the investigated interventions, while describing the techniques used. In the Annexes to this Report, there is the data for all the analysed activities, plus copies of all records (minutes, Focus Group transcripts). The analysis and interpretation of the data was done by applying the methods described in the section on methodology. Each method is presented below, along with how it was implemented.

In the tables 4 and 5 from the Annex 1 to the Report, we present the logical links between the key questions of the evaluation and the evaluation activities.

A. ANALYSIS OF COLLECTED DATA

The activities described below, carried out at the different stages of the project, were essential for three main outcomes:

- quantifying the set of indicators;
- answering the Evaluation Questions;
- drafting conclusions and recommendations.

To this extent, the 5 table, in Annex 1, summarizes the level of relevance of the Evaluation Questions for each type of data collecting activity.

The preparation, carrying out and the key outcomes of all the data collection and evaluation activities are presented below according to the main type of source used, and/or of stakeholder involved.

Technical and financial data from projects

In order to analyse the progress in implementation until the reference date (31.12.2018) reports have been retrieved in Microsoft Excel format from the Information Management System (SMIS), regarding:

- the Projects submitted for funding under the PA 3 and their progress in the evaluation and contracting phases (identification data, location of the project, requested budgets, status);
- the targets of the project for outcome indicators and output indicators (target values assumed for specific indicators according to the Investment Priority);
- the progress made in achieving the indicators;

- payments made on the basis of payment claims and reimbursement requests.

The dataset taken from the integrated management system was completed with information on the launched calls, the financial allocation taken from the site www.inforegio.ro and records of applications for funding and contracted projects made available by the Contracting Authority.

According to the available data, the Graph 1 of the Annex 1 to this Report presents the call launching schedule; by the reference date a total of 20 calls for projects were launched, as follows:

- IP 3.1.A - two calls for less developed regions, 2 calls for the Bucharest Ilfov region (more developed region)- first calls being launched in March 2016 and closed in November 2016, 1 call for ITI Danube Delta (launched in July 2017 and closed in February 2018) and 1 call for the SUERD area (launched in December 2017 and closed in August 2018);
- IP 3.1.B - two calls for less developed regions, 2 calls for the Bucharest Ilfov region, 1 call for ITI Danube Delta (launched June 2017 and closed in January 2018) and 1 call for the SUERD area (launched in December 2017 and closed August 2018);
- IP 3.1.C - one call for less developed regions, one call for the Bucharest Ilfov region and one for the ITI Danube Delta, all launched in January 2018 and closed October 2018;
- IP 3.2. - one call for less developed regions, one call for the Bucharest Ilfov region and one for ITI Danube Delta, launched July 2017 and closed June 2018, 1 call for unfinished projects in less developed regions- launched August 2018 and closed October 2018.

From the point of view of the number of submitted funding applications, the investment priority 31B, which aims at the rehabilitation of public buildings, is the most requested. The number of financing applications submitted under the IP 31C and 32 until 31.12.2018 is lower, on the one hand, due to the later launch of calls and also due to the increased complexity of the operations.

Table 4 Situation of applications for funding submitted up to 31.12.2018

Stage of Application Forms	UM	3.1.A	3.1.B	3.1.C	3.2	Total
Applications for funding, out of which	**nr.**	**369**	**686**	**124**	**107**	**1286**
Grant applications rejected	nr.	8	150	8	2	**168**
Applications for funding in the evaluation	nr.	102	177	104	44	**427**
Projects in the contracting process	nr.	117	117	9	40	**283**
Contracts contracted	nr.	142	242	3	21	**408**

Source: Own processing based on information retrieved from SMIS

A significant number of applications for funding are still under evaluation (427) and contracting (283). A detailed situation of the distribution of these applications by IP, call and region is presented in table 7 from Annex 1. Table 31 in Annex 1 is presenting the situation detailed by region and IPs.

Only 34 projects were finalized by 31.12.2018, all within PI 3.1.A, out of which 33 in Sector 3 Bucharest and one in Petrila, Hunedoara County (West Region).

Financial Progress

The situation on investment priorities as of 31.12.2018 is as follows (see Table 8 in Annex 1):

- ***For IP 3.1 A***. "Residential Buildings Energy Efficiency", the total non-refundable budget requested (submitted financial requests) from the allocated budget is 75.4%; the total non-reimbursable budget contracted from the allocated budget is 35.2%; where total payments made from the allocation are 11.3 %.
- ***For the IP 3.1 B***. "Public Buildings Energy Efficiency", the total non-reimbursable budget requested (submitted financial requests) from the allocated budget is 192.1%; the total non-reimbursable contracted budget from the allocated budget is 65.7%; Total payments made from the allocation are 0.4%.
- ***For the IP 3.1 C***. "Public Lighting Energy Efficiency", the total non-refundable budget requested (submitted financial requests) from the allocated budget is 301.1%; the total non-reimbursable contracted budget from the allocated budget is 14.2%; the total of payments made from the allocation is 0.0%.
- ***For the IP 3.2***. "Urban Mobility", the total non-refundable budget requested (submitted financial requests) from the allocated budget is 128.4%; the total non-reimbursable budget contracted from the allocated budget is 24.5%; the total of payments made from the allocation is 0.0%.

The graphic scheme below shows the coverage of the allocation on investment priorities (% of the total non-reimbursable allocation on PA3). The regional distribution of the number of submitted financing applications and of the contracted projects is presented in table 9 of the Annex 1.

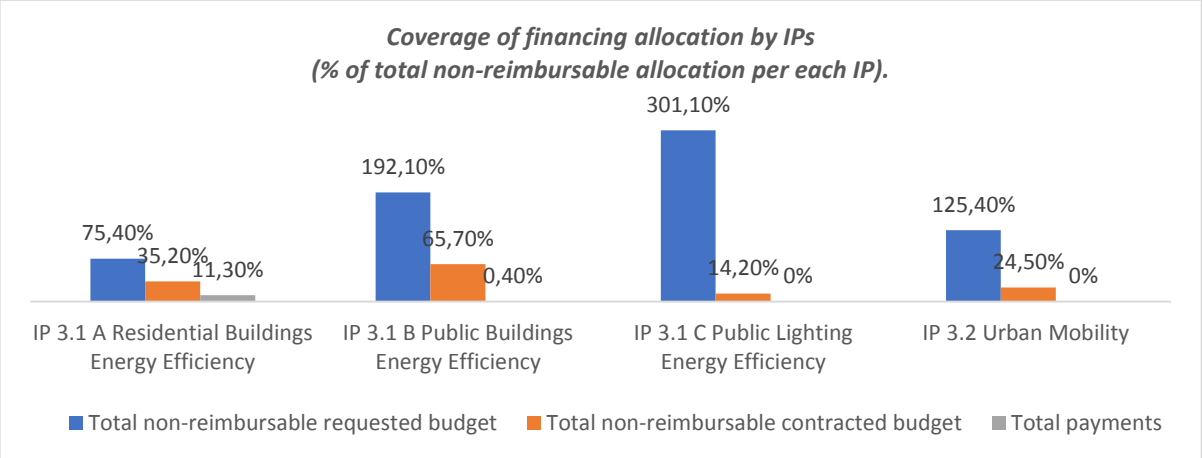

Figure 1 Coverage of investment allocation (% of total non-reimbursable AP3 allocation.

- Coverage of the financial allocation through applications submitted under the IP 3.1.B, 3.1.C and 3.2 creates the premises for achieving the financial targets within the

performance framework by the end of the programming period, provided both that the evaluation and contracting process and work contracts procurement procedures are accelerated;

- In regards the IP 3.1.A, with the exception of Bucharest Ilfov region, both the level of demand and of the contracting until 31.12.2018 indicate a risk regarding the achievement of the target levels established for the result and output indicators.

Data regarding Energy use (Energy certificate and data on actual energy use)

We have analysed the energy performance certificates issued after the completion of an energy efficiency project in residential buildings (under IP 3.1.A.) These certificates are attached to the final report of the project and it is indicated the energy category in which the building has been located after the improvements made. Energy classes vary from "A" (best) to "G" (worst) in terms of energy consumption, due to the poor insulation of the building, and are expressed in KWh/year.

We analysed 204 building certificates in which five types of improvements were made: - from ”C” to ”B”; - from "C" to "A"; - from "D" to "B"; - from "B" to "A"; - from "D" to "A".

Comparing the differences between the ex-ante and the ex-post situation, we found that, for the 818.419 sq. m surface area of the buildings on which thermic rehabilitation has been finished, an average improvement of 40% was achieved regarding the structure of the building compared to the use of energy. In practice, this means that the new conditions of the apartments after the project’s completion made them able to consume 40% less energy compared to the ex-ante situation; this percentage is comparable to European standards and can be considered as a positive result. In order to check this data, we also elaborated the information provided by Sector 3 City Hall from the final report of 18 projects out from the 33 projects concluded in Bucharest (see table 10 from Annex 1). In this case the average improvement in terms of primary energy saving is of 49.5%. These data are particularly relevant for the answers to EQ2 and EQ3.

As an additional consequence, a positive impact of the IP 3.1.A interventions on the reduction of CO2 emissions can be achieved. However, this always depends on how end users change their energy consumption behaviour.

For what concerns the actual ex-post use of energy, it was possible to obtain from RADET data on the use of thermal energy in 127 buildings in sector 3 in Bucharest, where energy efficiency projects had been completed between January and March 2018. This data is provided for the period dating from January 2015 until January 2019 (inclusive). This allowed us to compare a full year of ex post situation with the corresponding ex ante period. After verification, it was found that during this 4-year period (especially with regard to minimum and average daily temperatures) there was no significant difference in climatic conditions, so we analysed the difference for the seven months in which heating was used: from January to April, from October to December, and between 2017 (before project interventions) and 2018. For the month of January we compared 2018 to 2019, because some projects had been already completed in January 2018. They show that in the period at stake energy consumption increased by approx.

3,6% when comparing year 2018 with 2017, but that it had decreased by 10% when comparing the ex-post period with the average 2015/2017 period (see table 22 from Annex 1).

These data proved highly beneficial for replying to EQ 2 and EQ3.

Survey and Focus Group with final users (administrators and households)

The evaluation team performed two activities involving administrators and householders:

- a survey;
- a Focus Group.

The first was based on a questionnaire structured in 4 main questions regarding their experience with the rehabilitation works and energy use after the completed interventions (see Annex 11). Approximately 1,500 copies of the questionnaire were distributed with the support of Sector 3 City Hall and of building administrators in mid-January-early February 2019 period, and it enabled the collection of 496 answers from a population of 16,259 households. The survey outcomes are as follows:

- 70% of respondents declared they were acknowledged about the intervention before the works begin, and their source of information was mainly the administration of the householders association;
- 88% of respondents declared to be satisfied and very satisfied with the results of the rehabilitation works;
- The percentage of those who declared they have changed their habits in the field of energy use is also high – 84,5%, while 4,4% said they did not change their habits at all or very little;
- 63% of respondents believe that they will adopt other decisions with a positive impact on the environment in the future.

To note that the survey addressed both households and administrators; the Evaluation team could not check how many respondents fall in each of the two categories. This is important because administrators do not always manage the actual energy use inside flats, and presumably tended to overstate the positive impact of the carried out interventions.

As far as the Focus Group is concerned, it took place at the beginning of February and aimed at collecting additional information by the final users. It was structured in two sections: the collection of individual answers to a set of 5 topics and the subsequent plenary discussion (see Annex 6).

Nine participants (administrators and presidents of the households associations - no direct households) living in the buildings rehabilitated before April 2018 took part to the event. The represented buildings had heating system mainly centralised, with some exceptions which are using individual gas heating systems, and heat level individually managed by householders.

The following main outcomes can be outlined:

- all respondents were well informed about the intervention;

- the majority of respondents (8 out of 9) felt that consumption decreased, said they had more control over consumption and believe that they changed their attitude towards consumption, regardless of the project;
- 6 of the 9 respondents believe that they will implement additional behavioural changes in the coming years and found that electricity bills were lower after the intervention;
- 4 of the respondents believe that other factors have not contributed to the reduction of these invoices;
- 4 of the respondents consider that gas bills have decreased significantly due to the intervention, while 5 of the respondents consider that there are no other factors that have contributed to the reduction of gas bills.

As for the topics investigated, here below the main outcomes:

- regarding energy consumption after rehabilitation work, as an overall estimation provided by the participants, the level of expenditures decreased with 20-50% compared to the period before rehabilitation; before rehabilitation natural gas consumption was higher, because people used it for heating; in some buildings individual heat distributors are not more used, as it looks that people using these devices are paying more than people not using them.
- as for changes in using the electrical and heating energy, a reduction in the use of Air conditioning was mentioned, the use of stop valves on the heating pipes instead of heat distributors was mentioned as being more efficient for heat control. It must be noticed that this was the key question originally planned to verify the existence of a "rebound effect" in the household behaviour after the intervention. This effect has not been confirmed during the FG;
- with regard to the changes initiated by the beneficiaries prior to the implementation of the ROP project, some administrators declared that they had taken measures just before the project (e.g. replaced the heating pipes, replaced the bulbs) and that they are still trying to find solutions to reduce the costs with energy; retired people are more keen to control the level of energy consumption, not to be willing to spend money on this;
- about making other decisions with positive impact on the environment, one remark was made at the buildings level, stating that associations are using a selective waste collection method, but the service company makes no difference in collection.
- another element arising from the discussion was that lack of co-financing is often a problem for owners' associations when deciding to participate in projects. Also the complex nature of the application process, and the need to ensure future maintenance for at least 5 years after the project completion may have hampered participation to IP 3.1A.

Online survey on beneficiaries and direct interviews

On the basis of a clear structured methodology in 7 stages[8], the online survey (which took place between 11.01.2019 and 01.02.2019) aimed at obtaining quantitative and qualitative additional information on:

- needs underpinned by the interventions of ROP 2014-2020;
- difficulties encountered in the contracting and running of project activities;
- the prospect of reaching the estimated results of the projects;
- factors influencing the achievement of results;
- measures that can lead to increased sustainability of project results.

The survey was addressed to all beneficiaries of IP 3.1.A and 3.1.B (135). Thus, formal **invitations** to participate were sent, and 62 valid responses were received. The distribution of respondents by development regions is presented in table 11 in Annex 1. The questionnaire used is presented in Annex 9.

The data collected were later analysed. Here below are listed some of the main issues identified:

- Respondents confirm the timeliness of program-identified needs - increase of energy efficiency in the building sector (92% from respondents), improvement of the thermal insulation of buildings (89%) and reduction of greenhouse gas emissions together with the modernization of the heat distribution system and heating system (74%) have been mentioned as being the most relevant;
- The Project implementation stage is incipient, less than 5% of respondents have contracted the works and more than 40% are in the process of elaborating public procurement documentation;
- More than 70% of respondents use external consultants to develop the funding application;
- The preparation of technical documents within the application is the most difficult activity during the preparation of the application (about 51% of the respondents), one of the comments made indicating also the difficulties with the energy auditors, due to differences in the understanding of the requirements of the guide;
- More than 65% are confident that targets will be met for the indicators.

Annex 10 to this report presents the synthesis of the answers to the online survey.

The strategy with which we selected the interviewed stakeholders was driven by three main goals:

- to have a stratification of stakeholders (e.g. municipalities, RDAs);
- to interview them in different regions of the country
- to interview stakeholders involved in all of the axis IPs.

[8] (elaboration of the survey questionnaire in accordance with the objectives of the evaluation, validation of the questionnaire, preparation of the database with the contact addresses of the 135 beneficiaries of the financing under pi 3.1.A and 3.1.B, the survey and the link to complete the questionnaire, collecting and aggregating data using the Microsoft Excel worksheets, data processing (verification, preparation for analysis), data interpretation and analysis)

Annex 2 to the report presents the guides for interviews, the list of the interviewed persons is presented in Annex 3 and Annex 4 to this report presents the synthesis of the interviews.

The main problems that arose from the implementation, concerning the overall project life cycle, can be summarised as follows:

- preparing technical documents for the application (for example, calculating the indicators);
- pre-filing activities;
- clarity and stability of guides;
- cadastral issues related to the establishment / proving of property;
- the long period of time for obtaining permits/authorizations (and a short period of validity);
- better alignment between national and EU rules on public transport service (IP 3.2);
- national rules affecting the public procurement procedures;
- the quality of the works and the requirements related to the tenders;
- insufficient level of experience and qualification of human resources at the level of beneficiaries and contractors of services and works;
- insufficient stakeholder engagement on the environment.

Focus groups with Experts and Case studies

As far as the Focus Groups with experts were concerned, they targeted specific objectives, such as:

- validation of the interview results (survey + direct);
- exploring the possible long-term impacts of the interventions;

The description of the steps for organizing and deploying focus groups (including agendas) can be found in the Annexes 7 and 8 to this report.

The first of the two Focus Groups aimed to present the results of data collection and the case study selection modality and was structured in the following way:

- Presentation of preliminary results on the analysis of PA3 implementation, results coming from the analysis of data collected from various direct and indirect sources (e.g. study and survey analysis, interviews, official reports, etc.), discussing them with experts and identifying possible conclusions.
- Presentation of a short list of 9 case study proposals, presentation of the criteria used for their selection, collection of experts' opinions on the identification of additional criteria supporting the choice of 4 case studies for analysis and integration in the final report. On the basis of the proposed methodology, the four case studies were chosen. The selection was based on a multi-criteria analysis, in which the criteria were classified as follows: 5 points were allocated to the "partnership between the City Halls and the owners' associations", this criterion being applied only on 3.1a; 4 points were allocated to the "justification" criterion, 3 points were allocated to "horizontal themes", 2 points for "sustainability" and 1 point for "consistency with strategies and policies".

- Discussion in the Expert Group of potentially important issues regarding the implementation of future projects, collecting professional opinions on issues related to the small number of project proposals in some regions, project promotion methods, needs identified on the field by the experts and barriers in implementation, etc.

Based on the methodology proposed in the Initial Report and used during the meetings with the experts, the selection was based on three steps:

- The first step was to check all projects related to all the IPs based on parameters such as geo-location and absorption;
- The second step was the prioritization of 5 criteria, by the experts during the February the 12th Focus Group (partnership, justification, horizontal themes, sustainability and complementarity with other types of interventions) during the Focus group on February 12;
- Finally, the third step, based on the previous ones, was the final selection of the case studies to be further investigated through in-depth interviews, based on the information from the application forms.

As to the third step, the evaluator analysed through a multicriterial analysis already presented in the Report to the Methodological Section. The following formula was applied:

$$\sum_{i=5} x_n^i w_n^i$$

Legend:

- i is the number of criteria applied for the selection;
- n is the sample of the examined projects;
- x is the value attributed to each criterion on a scale between 1 and 3 (where 1 is low and 3 is high);
- w is the weight assigned to each key criterion by the experts group, i.e. partnership with other bodies for the implementation of the project = 5; justification meaning the reasons behind the implementation of the project = 4; horizontal themes meaning how the project deals with equal gender opportunities and environmental issues = 3; durability in terms of financial, environmental and technical sustainability= 2 and complementarity with other interventions/actions/plans = 1.

In addition, in order to ensure full representation for the entire axis, projects were grouped into 4 clusters, one for each IP. The Annex 5 to the Report presents the methodology for choosing the case studies, which presents the real (multi-criteria) exercise and the obtained results.
Therefore, the four final projects selected as Case Studies were:

Table 5 List of selected projects as case studies

Beneficiary	***Project Title***	**Final Score**
SMIS 118019 (3.1.a) / RDA West Beneficiary - Petrila City	The thermal efficiency of residential buildings in Petrila - stage iii	**32**
SMIS 111721 (3.1.b) / RDA South-East Beneficiary Galati City Hall	Rehabilitation of the unit of education-the gimnazial school n. 3 strada Dunărea n. 60 Galati	**30**

Beneficiary	*Project Title*	Final Score
SMIS 121471 (3.1.c) / RDA North-West-Beneficiary Territorial Administrative Unit Carei	Improving and modernizing the public lighting system of Carei	**32**
SMIS 118092 (3.2) / RDA North-West-Beneficiary Turda Town Hall	Modernization of the urban mobility corridor integrated in the industrial area of Turda	**32**

To finalize these cases, an in-depth interview with the beneficiary of each project was conducted. In this respect, the questions used were addressed in an open format and referred to:

- how the community was informed/ involved in the project;
- if all the identified needs are covered by the intervention;
- any obstacles in the implementation of the project (legal, financial, procedural);
- the main expected medium/ long-term effects (and others from the funding application forms);
- the way in which horizontal themes are actually addressed in practice;
- the way in which (financial, technical and environmental) sustainability will be practically guaranteed;
- the lessons learned from the project (including the transferability elements).

The questionnaire used for interviews is presented in Table 12 of the Annex 1 to the Report.

The case study in Galati was carried out on the 08.03.2019, the one in Turda on the 12.03.2019, the one in Carei on the 13.03.2019, and in Petrila on 20.03.2019. Please remind that with the exception of the project on 3.1.A from Petrila, no project had overcome 25% of its expected duration (e.g. works had started at maximum 9 months before, while the project was going to last for a total of 36 months) when we carried out these case studies.

The 2nd Focus Group with Experts took place on the 07.03.2019, and was structured in two main section:

- the first part aimed to achieve a ranking of different scenarios according to their likelihood;
- the second part followed the key steps to achieve an optimal stage of the scenarios.

As far as the 1st session is concerned, the following key outcomes may be drawn:

- The first scenario ("Realist") received the highest score (16/18), followed by the "pessimistic" scenario (11/18). The discussion that followed the classification exercise showed that the budget reallocation between IP could increase the implementation rate of the ROP. Several problems have affected PI 3.1.A: in particular, the need to obtain a 100% agreement among tenants belonging to the Owners' Association; associations do not work properly and there is a lack of participation; lack of funds to ensure co-financing by owners' associations; the need to carry out a preliminary audit of the situation before submitting the project.
- In addition, the issue of checking / inadequate control of energy efficiency work has been highlighted; this has resulted in poor insulation quality. Potential reasons included: lack

of adequate materials, lack of skills of the workforce, poor monitoring by beneficiaries. This latter aspect confirms that we need to invest in increasing the quality of internal human resources, as well as the external consultant employed to monitor the work. Finally, there was criticism that the ROP should pay more attention to small towns.

2nd session: after the outline of what could be considered an "optimal" scenario by dec.2021, the participants discussed what measures could be taken in order to achieve it ("backcasting" exercise).

What emerged from the discussion was the need for improving the level of competence/specialisation in staff and experts, especially for carrying out energy audits. More clear responsibilities by every player of the ROP process was also seen as very important. Budget reallocation was confirmed as an option on the table. However, it was also underlined that the more the rules already applied to the ROP implementation change, the more the risk of "disturbing" the overall process. Awareness of final users is crucial. However, it was acknowledged the good communication/consultation line between beneficiaries and the MA so far.

The final discussion focused on three more specific issues presented by the Facilitator:

1) LACKING PROPOSALS. No clear explanations (apart from the many difficulties in presenting proposals already outlined in the outcomes of the direct interviews) of this phenomenon were provided. Among the listed countermeasure to handle this problem were: re-allocation of budget (e.g. from 3.1A to the other IPs), but also the importance of not downplaying IP 3.1A. The relative success of sect.3 in Bucharest for presenting proposals depended also on the experience in preparing proposals matured in the previous programming period (2007-2013). Also, the presence of a very pro-active team can make the difference.

2) BENEFICIARY BEHAVIOUR. No clear explanation of the contradictory results so far found in the completed projects was provided by the participants. A general agreement for devoting more resources to improve Householders awareness was mentioned.

3) URBAN MOBILITY. There is a big complementarity issue about this theme, because the ROP investments intended by a municipality need to be framed in a previously developed SUMP (Sustainable urban mobility plan). The municipality must therefore invest on a mix of measures relating to the axis 3 interventions to make it fully operational (e. new traffic lights, ecologic buses, devoted tram lines, closing central areas to traffic, new parking lots, etc.); as a consequence, the final outcome of 3.2 measure depends not only on the successful implementation of all these interventions but also on the overall quality of the SUMP.

Local authorities are seen, in general ready to push for these objectives, although they are quite challenging.

B. RESULTS OF THE ANALYSIS

B1 ANALYSIS OF THE INDICATORS

The analysis of the set of indicators refers to the analysis of typologies of funded interventions, their location and their value. The existence of indicators common to Priority Axis 4 of the ROP has been analysed in order to delimit the effects, the criterion used being the type of beneficiary (AP3 does not address the county resident municipalities that can benefit from AP4 investment). Table 13 of Annex 1 to the Report presents the correlation between the program indicators and the evaluation questions mentioned in the ROP and additionally proposed by the Evaluator.

The main **indicators of IP 3.1** and their targets are:

Result indicators:

- 1S5 Final energy consumption in public buildings, reduction from 0.19 Mtoe in 2012 to 0.12 Mtoe in 2023;
- 1S6 Final energy consumption in the residential sector, reduction from 0.96 Mtoe in 2012 to 0.47 Mtoe in 2023;
- 1S7 Final energy consumption in public lighting, reduction from 669 GWh in 2012 to 446 GWh in 2023.

Indicators of achievement, distinctively defined for less developed and developed regions:

- CO31 Energy efficiency: Number of households with better energy consumption classification, number of households; the target value for 2023 is 60,591 households in less developed regions and 18,186 households in the more developed region;
- CO32 Energy efficiency: Decrease in annual primary energy consumption of public buildings, kWh/ year; the target value for 2023 is 28,567,324 kWh/year in less developed regions and 2,777,305 kWh / year in the more developed region;
- CO33 Energy efficiency: Number of additional energy users connected to smart grids - only for less developed regions; the target value for 2023 is 23,000 users;
- CO34 Greenhouse gas reduction: Estimated annual decrease of greenhouse gas emission, CO2 tones equivalents; the target value for 2023 is 184,883 tonnes of CO2 equivalent in less developed regions and 12,843 tonnes of CO2 equivalent in the more developed region;
- 1S8 Decrease of annual primary energy consumption in public lighting, Kwh/ year; the target value for 2023 is 9,864,716 kWh / year in less developed regions and 501,262 kWh / year in the more developed region.

The indicators set at investment priority level 3.2 and their target values are:

Result indicators:

- 1S10 GHG emissions from road transport, 17,750.44 Tonnes CO2 equivalents per year in 2023 compared to 14,211.38 Tonnes CO2 equivalents / year in 2012;
- 1S9 Passengers transported in urban public transport in Romania, increasing from 970 million passengers in 2012 to 1,100 million passengers in 2023 - in less developed regions and rising from 930 million passengers in 2012 to 1,030 million passengers in 2023 – in the more developed region;

Output indicators, distinctively defined for less developed and developed regions:

- 1S11 Operations implemented for public and non-motorized transport; the target value for 2023 is 25 operations in less developed regions and 3 operations in the more developed region;
- 1S12 Operations implemented to reduce CO2 emissions (other than public and non-motorized); the target value for 2023 is 20 operations in less developed regions and 1 operation in the more developed region;
- CO15 Urban transport: The total length of newly constructed tramways or metro lines - only for the more developed region; the target value for 2023 is 10 km.

Tables 14 in Appendix 1 to the report present the conclusions of the analysis on the availability of AP3 indicators in SMIS. **The main identified issues are:**

- The complicated structure of the SMIS database makes it difficult to filter the operations and indicators for analysis;
- Lack of contracted projects and values of the indicators in the extracted reports (either not introduced by the beneficiaries in MySMIS, or not taken over by SMIS);
- Controversial values that might be the result of the use of different units of measure by those who entered the data.

It is necessary to take into account the fact that it was impossible to accurately calculate the value for some indicators due to the early stage of axis implementation, particularly with regard to investment priorities 3.1.C and 3.2. In practice, taking into account that only a few projects were finalized for PI 3.1.A, whereas in all the other PIs only the approved project proposals were available, it was only possible to produce the following data.

RESULT INDICATORS

Investment Priority 3.1A

We used data on primary energy savings from 18 projects completed in Bucharest - Sector 3 (expressed in Kwh / year). To estimate the outcome of the ongoing implementation of all the projects approved in this axis until 31.12.2018, we calculated the ratio between the value of this energy and the total eligible budget of the 18 projects involved; this gave the average ratio between the budget and the expected reduction in primary energy. The value of this average was 0.3024 kwh/year/lei (see table 15 from Annex 1). Then we applied this conversion factor to the total eligible budget of all projects approved so far and the result was 436.4 million Kwh/year. Using the conversion factor between GWh/ year and Mtep (0.00086 - indicated by the International Energy Agency), we reached the final result (expected) of 0.037 Mtep. To find the required value for final energy consumption, we used a conversion factor of 1.1 (for thermal energy, as

recommended in the MA document on calculation methods for setting the benchmark values of indicators), and **the final value is 0.0336 Mtoe expected to reduce final use by the residential sector**.

By comparing these values with those covered by the ROP, this means that the planned reduction for the final energy consumption in the residential sector from 0.96 to 0.47 Mtoe by 2023 is still very far. It should be noted that the values found in SMIS are very different and probably not reliable, as they already exceed the objectives set by 2023, relying on only 123 projects.

Investment Priority 3.1B

In this case, the final energy consumption data was available in the 18 applications that the evaluation team had available for analysis (of the total of 242 contracted projects). We basically followed the same procedure previously described to convert the initial values expressed in KWh/year to the final ones expressed in Mtep (see table 16 from Annex 1). We found an estimated total reduction of 237.9 million Kwh, i.e. 238 GWh, which can be converted to 0.02 Mtoe. **The ROP foresees a decrease from 0.19 Mtoe to 0.12 by 2023. So far, under the contracted projects, a reduction of 0.02 Mtoe is possible. Therefore, the value of national consumption could range from 0.19 to 0.17 (which corresponds to a positive change of 10.5%).**

Figures that can be found in SMIS are again very high, already surpassing the expected ROP targets, therefore there are serious doubts about their reliability.

Investment Priority 3.1.C

The analysed proposals (3 contracted projects at 31.12.2018) represent only a small part of all the projects to be implemented (there are currently 104 proposals in the evaluation stage and 9 in the contracting stage). We nevertheless used these data to develop performance indicators and cost-effectiveness comparison (see section B4).

Investment Priority 3.2

Beneficiaries are not required to indicate targets for the result indicators at project level and consequently SMIS does not contains values to be used for calculations. Moreover, because the projects contracted under this IP are yet in their initial stage there are no objective indications regarding their real contribution to the reduction of carbon emissions. However, estimations on GHG emissions from road transport and number of passengers transported in urban public transport were available for all the 21 contracted projects (19 in less developed regions and 2 in the more developed region, Bucharest Ilfov), being provided by the beneficiaries within their proposal.

During our analysis of the proposals it turned out that only 14 from the 19 projects in less developed regions contains clear and consistent data on GHG emissions. Data on the number of

passengers could not be used for calculations because are not complete and some of the projects seems to use another measuring unit which is not indicated. (see table 24 from Annex 1).

For the analysed projects we calculated an estimated reduction of 6.851 tonne CO2 equivalent which represent a contribution of 9.4% to the improvement of C02 emissions, value which is comparable with targets established at European level.

OUTPUT INDICATORS:

Compared to the low levels of progress so far recorded for what concerns the Result indicators, the Output ones show usually more positive figures in terms of the ratio between program-level targets and the targets assumed by projects contracted up to the assessment date (see also table 14b from Annex 1).

- IP 3.1.A: in this case the SMIS signals that the contracted project until 31.12.2018 already represents approximately 15% of the final ROP target for the less developed regions, which seems a reasonable figure, and 269% of the target assumed for the more developed region; the completed projects bring a contribution of 84 households to the less developed regions (0.14% of the target) and 16.259 households in the Bucharest-Ilfov region (89.4% of the target);
- IP3.1.B - On the other hand, the total value regarding the decrease of annual energy consumption in public buildings recorded in SMIS for the less developed regions is not realistic: it is already showing a value which is nearly 8 times higher than the national target set for 2023 (219 M KWh/years versus 28,5). in the case of the more developed region, the value registered in SMIS for the assumed target is 4.0 MWh/year compared to the ROP objective of 2.8 MWh/year; no concluded projects until the reference date;
- IP 3.1.C: the registered value in SMIS regarding the reduction of annual primary energy consumption of public lighting (1S8) is 640.899,35 kWh/year for less developed regions (6,5% from target value) and for the more developed region there was any contracted project until the reference date; any finalised project until the reference date.
- IP 3.2: regarding the number of operations implemented for public and non-**motorised transport**, the data recorded in SMIS summed up a target value of 16 operations out of 25 assumed for the less developed regions and 2 operations out of 3 planned for the more developed region. In this case, the target may have been originally set too low, considering that there were still 44 projects in the evaluation; no concluded projects until the reference date.

- when considering the annual aggregate reduction of greenhouse gas emissions, (CO 34, aggregated at the level of PI 3.1 A+B+C), it can be seen that in SMIS the target value recorded for the less developed regions (870.410,06 tone CO2 ech.) represents 470% of what was initially planned (184.883.00 tone CO2 ech.). This confirms that the SMIS data on the indicators requires a careful check, and that they currently cannot be considered fully reliable. For the more developed region, the target value registered in SMIS regarding contracted projects until 31.12.2018 represents about 30% of the assumed

target(3.928,32 tone CO2 ech. comparing with 12.843,00 tone CO2 ech.); no concluded projects until the reference date;

For the other output indicators it proved impossible to obtain sufficient data from the SMIS and/ or from the proposals analysed.

B2 ANSWERS TO THE EVALUATION QUESTIONS

The seven key evaluation questions (EQs) address all the strategic aspects of the implementation and management of the axis. However, our assessment did not focus exclusively on this task. We contacted a wide range of stakeholders and program beneficiaries, both to better support our findings and to make our recommendations useful in practice (at the design and general axis management). In this sense, we consider that the effectiveness and potential of the transferability of the evaluation results are greatly improved.

Table 4 of Appendix 1 to the Report outlines the correspondence between the evaluation questions and the methodology proposed in the initial report.

EQ1	**To what extent are POR objectives justified in relation to socio-economic needs?** POR objectives remain justified in relation to the country socio-economic needs. The majority of the contacted stakeholders mentioned, among their key needs, the goals targeted by the activated interventions within the axis implementation.

Context data

Increasing energy efficiency, reducing greenhouse gas emissions and increasing the share of energy produced from renewable sources in gross final energy consumption are Romania's priorities for the implementation at national level of EU2020 targets on Energy and Climate Change.

The provisons of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency were transposed in Ramanian Law no. 121/2014 on energy efficiency, amended and supplemented by Law no. 160/2016.

Romania has set as its national indicative objective the achievement of a primary energy economy of 10 million toe by 2020, that represents a 19% reduction of the forecasted primary energy consumption (52.99 million. tep) through the PRIMES 2007 model for the realistic scenario. The achievement of this target means that in 2020 the primary energy consumption will be 42.99 million toe, and the final energy consumption will be 30.32 million toe.

The needs identified in the ROP 2014-2020 cover the following main issues:

- reducing energy consumption in the building sector, both residential and public;
- reduction of the electricity consumption whitin the public lighting service;
- reducing the level of greenhouse gas emmisions and pollution generated by road transport in

According to the data presented by ANRE, the primary energy consumption and the final energy consumption increased in 2017 with respect to the previous year by 5.7% and 4.2% respectively. urban areas. However, these growth rates were lower than the rate of economic development, with GDP increasing by 7.0% (compared to 2.0% of the EU average). It is evident that this increase in energy consumption was determined by the economic development at national level and was achieved under the conditions of increasing energy efficiency.

The final energy consumption in households also has the highest share in 2016, covering 34% of the final energy consumption at national level. In this sector, as a result of the decrease in purchases, the increase in energy prices and the implementation of measures to improve energy efficiency, the total energy consumption decreased steadily between 2012 and 2015 with an average rate of about 2% per year, the year 2016 indicating however a slight increase from the previous year (3.5%). For 2017, PNAEE has set a target of reducing energy consumption in the residential sector(through the thermal rehabilitation of housing blocks) of 87,000 toe, ANRE reporting a realized value of 49,260 toe. There is no data available to reduce energy consumption in the field of public buildings.

The final consumption of electricity for public lighting decreased by 13.1% in the period 2015-2018, from 601 GWh to 522.4 GWh. In the Country Report of 27.02.2019 on Romania, the European Commission estimates that Romania is in the graph and will reach the target set for 2020 of energy efficiency, which is 43 Mtoe, expressed in primary energy consumption (30,3 Mtoe expressed in consumption final energy). However, both primary and final energy consumption increased in 2017 and, therefore, continuous efforts are needed to limit energy consumption in the context of economic growth. Regarding the transport sector, ANRE appreciates that the developments in this sector after 2000 were influenced by two factors:

- eliminating administrative restrictions against the purchase of fuel and the purchase of means of transport;
- aligning fuel prices with prices on the international market.

The intensity of CO2 emissions in the transport sector decreased by 5.5% in the period 2012-2016, but remains above the European average by 65.8%. Existing data indicate that much of the city-level pollution and increased CO2 content are due to motorized traffic inside them, both individual cars and freight vehicles, as well as outdated public transport. The number of users in urban public transport is steadily decreasing at the city level, concurrently with the intensive increase in the number of personal vehicles (INS) with effects on pollution, increasing traffic congestion and high energy consumption. As a conclusion on the context data, as ANRE notes, “Romania must continue its efforts to respect the national and European commitments in force. A series of efforts will be needed to achieve the "3 x 20" objective, to achieve a 19% reduction in energy consumption and a 20% reduction in CO2 emissions. "

The positive answer to the 1st EQ finds its key justification in the outcome of several evaluation tools. Among these we can mention:

- the 80,8% rate of final users that in the survey stated their strong willingness to take into account a wider range of environmental issues (e.g. waste management) in the future

(see Annex 11 - replies to question n.4, sum of ranking 4 and 5). This indirectly confirms that the environmental objectives that were at the base of the POR goals retain an utmost importance.

- another tool supporting this conclusion derives from the answers provided by the respondents to the online survey among project beneficiaries (Annex 10). In this case we may notice that at Q11 and Q13 the majority of beneficiaries replied that they were both motivated to ask for POR funding and that they still consider currently relevant reasons such as the improvement of energy efficiency in buildings, and the reduction of GHGs.
- a final reason for supporting this type of answer to EQ1 is given by one of the outcomes of the FG with administrators/households. Here the answers to several questions/issues discussed converge to show that these stakeholders are investing in further improvements towards energy saving (e.g. purchasing better electronic devices, new lamps, etc.). This confirms that the ultimate goals of improved quality life thanks to more sustainable energy building efficiency are clearly and positively perceived by the stakeholders.

EQ2	**To what extent are the objectives / progress made in implementing the program?** The reply to this EQ was severely limited by the lack of reliable data, except for IP 3.1A. In short, the program is proceeding according to its plan, recording a large amount of submitted proposals, and setting the conditions for achieving its long-term objectives (both from a social, economic and environmental point of view), but the early stage of progress does not yet allow to express a clear assessment. While the rate of actual progress in project implementation is very low (less than 5% of the budget has been so far spent), the overall amount of funds already committed to approved projects by the end of 2018 appears sufficient (at 38.7% from the financial allocation on AP3 it copes with European rates) and is quickly increasing, considering the number of projects in the contracting (283) and evaluation (427) process. Taking into account that 5 more years remain available for contracting and spending the funds, calculations performed by the evaluation team lead to the conclusion an absorption level of at least 80% of the allocation is likely to be reached (see also table 17 from Annex 1). The achievement in terms of improved infrastructures is progressing mainly for what concerns buildings (e.g. residential ones), while the interventions on sustainable urban mobility and street lightning are still much delayed. An improvement of MySMIS, and an extension of its use represent a priority, because the system does not currently allow to gather complete and consistent data regarding most result and outcome indicators.

The answer to this EQ is necessarily complex. The overall context in which the evaluation team was running had significant limits to the possibility of finding reliable data to respond to this evaluation question. SMIS (as better emphasized in the response to the next EV) does not always provide relevant and reliable data for most indicators. Only a small part of the contracted projects within the axis were completed, so we could access the data from a single IP (3.1A). For all the other IPs, we could only review the funding requests for contracted projects where

the data we were looking for was not always available and/or consistent. Therefore, extreme caution is needed when a precise assessment of figures is desired due to the above-mentioned limitations.

From the data recorded in SMIS we get, at the same time, a picture of high delay in the overall implementation of the axis (especially for IPs 3.1C and 3.2), but also some comforting figures for what concerns the potential for recovering such delay. As a matter of fact, after two years of delay before the start of the first Calls for Proposals, their issue has become more regular and frequent. As seen in table 18 and Graph 2 in Annex 1, the dynamic of submitted proposals tends to accelerate, since the 2nd quarter of 2017, at a fast pace, almost for every IP. The fact that this high rate of application (confirmed by the fact that each Call receives far more applications compared to its available budget) does not transfer into a corresponding, high spending rate implies, apart from the selection procedure, that a long time passes before contracts are actually signed, and project started (with their planned quarterly payments of funding).

The intermediate targets set for 2018 through the ROP performance framework have been far exceeded in the more developed regions (Bucharest-Ilfov): 16,259 households with a better energy consumption classification compared to 1,000 scheduled, 441.4 million lei expenditures eligible programs compared to scheduled 94.8 million lei, 2 contracted operations for public transport and non-motorized compared to 1 scheduled. In the case of less developed regions, only the indicator for contracted public and non-motorized transport operations was achieved (19 operations compared to 10 scheduled), while only 84 households with a better front-end energy consumption ranking of the 5,600 programmed and eligible eligible expenditures were of only 31.1 million lei compared to the programmed 396.9 million lei (see Table 2 in Annex 1 of the report).

There is also a significant portfolio of applications approved after the evaluation and which were on 31.12.2018 contracting (117 on 3.1.A, 117 on 3.1.B, 9 on 3.1.C and 40 on 3.2) whose the total non-reimbursable budget amounts to about 2,646.9 million lei (Table 20 in Annex 1).

Other issues seem to affect the whole life cycle of the project, which we analyse in detail for each of its distinct phases.

PREPARING THE FINANCING APPLICATION

This is the dimension of the project life cycle that we could analyse in a more extensive way, due to the fact that all of the IPs has reached it. This is also the phase where most barriers to a successful implementation of the POR seem to stand. As a matter of fact, all of the data collection and evaluation tools we used point at the same outcome: potential beneficiaries have been hampered by lack of clarity and stability in the guidelines attached to the Calls (in some cases revised and/or updated 6 times), by the difficulty in finding and calculating the requested technical indicators, by the poor quality of their internal human resources (and by that of external consultant, that are usually hired in most cases- see the reply to Q14 of the online survey), by the excessive amount of documentation requested when presenting the proposal, by a slow rate of reply in providing clarifications by the key public officers, by the lack of a unitary approach by the evaluators, and by the excessively long time needed for the public authorities to evaluate it (often lasting more than 1 year-see result of case studies). The lack of clear

cadastral documentation often adds to this list. The notion that, notwithstanding all of these problems, the number of applications keeps outnumbering the available budget looks like a positive element. We also noticed that it is very important for local authorities to dispose of a good project pipeline, from where to select the best proposals to be actually presented. This was confirmed in the case study of Galati, and indirectly in Bucharest, a city that had already been engaged in presenting many applications for energy efficiency in buildings in the previous POR 2007-2013.

CONTRACT OF THE PROJECT

It should be noted that, according to case studies (e.g. Galati) and on-line survey results (e.g. answers to Q16 and Q17), and this is one of the project phases that creates more problems for beneficiaries, slowing down the cycle life of the project and adding further delays. It may take up to 8 months from the approval of the grant application and until the contract is signed, for various reasons: the need to send subsequent versions of the documents already sent with the grant applications, documents that have expired; the need to receive on-site visits from ADR representatives; the need to allow the Local Council to approve the final version of the project (even if the changes have led to better technical results compared to the original version).

Other types of problems are usually encountered when implementing contracting procedures: in the case of blocks, some public authorities involved in the contracting process may consider them as unique entities and may require detailed technical and financial documentation for each of them, giving them further tasks of the Beneficiary; a long period of time may be required to obtain all required authorizations from different authorities; national contracting rules are considered by most beneficiaries (depending on the outcome of most direct interviews and case studies) too complex and need to be simplified; setting quality standards for the planned works can also be difficult, partly due to inadequate level of qualification of the majority of companies, partly because of the national rules governing this issue. Finally, one case study (Turda) highlighted the fact that the current norms ruling the public procurement processes do not always allow selecting the best cost/benefit offer from firms, those offering the lowest price being advantaged.

IMPLEMENTATION OF THE PROJECT

Compared to the two previous steps, implementation appears to be easier for most beneficiaries. This is supported by the results of case studies and most direct interviews as well as the results of the online survey (see annexes). In the latter case, for example, it can be observed that at Q19, the vast majority of respondents agree and consider that the planned activities were carried out according to the planned timetable (74.6%) and that they respected the initial estimated costs 88.1%). When assessing these figures, please note that they refer in particular to energy efficiency projects PI 3.1.A and 3.1.B (urban mobility projects may prove to be more complex and less predictable). The main problems raised by beneficiaries refers to the delays determined by the public procurement procedures, the low quality of human resources to monitor project work and the poor quality of the resulting work (in some cases). We will deal with this in detail when responding to EQ3 and EQS3.

REPORTING AND IMPACT OF THE PROJECT

Several difficulties have been reported in this phase, which stems mainly from case studies (e.g. Galati) and from direct interviews. For example, we mention that, apparently, the formats of the various quarterly reporting modules on technical and financial progress differ from the approved proposals; this means that the beneficiary has to spend a lot of time completing these modules accordingly. Similarly, different Public Authorities require a different arrangement of the project categories (both financial and technical) throughout the life cycle of the project. Moreover, the amount of different documents required to request repayment every three months is very high - up to 65, of which four distinct documents relate to VAT. Most of these documents have already been uploaded to MySMIS when the project proposal was submitted and could be extracted from the system (without printing them on paper). Improving the MySMIS system and extending its use to ensure the transfer of documents between public authorities seems to be a priority.

Even small differences in budget figures can lead to significant reporting problems: a beneficiary has faced a minor potential problem with rounding digits into an Excel file and MySMIS files. It had to change the documents (and the program) because the two tools for summarizing the financial structure of the project have used (and still use) different rounding methods.

In a long-term perspective, this phase may be affected by other issues. The sustainability of the work done may be jeopardized by lack of planned maintenance actions or due to poor coordination between different public authorities intervening on the same resource; or the improved environmental awareness level the project has promoted cannot be translated into real changes due to lack of incentives and / or other actions.

EQ3	**To what extent did the interventions and tools used to produce expected effects until the time of this report?** Only some interventions regarding energy efficiency interventions in residential buildings (IP 3.1.A) had been completed by the time of this report, and could be fully assessed through various tools, providing a mixed outcome. Investments on street lightning and urban mobility could be analysed only in their approved proposals. The outcome of our Evaluation is that the interventions have not yet delivered the foreseen and potential effects (that can be quite high, both in term of energy use savings and of reduction of GHGs emissions). This may be caused by a wide array of reasons (including poor actual quality of undertaken works), but for sure it suggests that a stronger action for increasing awareness and motivating change among the final energy users is advisable. The tools set and used by the public authorities involved in the axis implementation appear in broad terms justified from a logical point of view, but they need to be simplified, improved and made more result-oriented (see also previous reply to EQ2).

The answer to this EQ depends on two clear reasons: the strong delay so far recorded in the overall project implementation of the axis, and the lower than expected results shown by the group of final users after projects had been completed.

We have already described the first type of issue, that, as of 31.12.2018 had led to the signature of 142 project contracts for IP 3.1.A), 241 for IP 3.1.B, 3 contracts for IP 3.1.C, and 21 contracts for IP 3.2 (see table 19 in Annex 1) and to a total amount of only 287.2 mil. lei paid to beneficiaries (almost entirely for projects concerning IP 3.1.A, located in Bucharest-sector 3 - see table 21 in Annex 1).

We can now concentrate on the second reason affecting the achievement of effective results in the realm of the activities funded by axis 3. Taking into account that only projects centred on improving energy efficiency in buildings had been implemented so far, the assessment of actual effects deriving from this type of investments was planned according to four major data collection tools: a FG with administrators and households, the analysis of the energy performance certificates of buildings after the investments, and the analysis of actual energy use after the project implementation. Thanks to the support of the Bucharest City Hall, we added an extensive survey on administrators and households to this lot. From the case study analysis for PI 3.1 A were arised the following conclusions: the need to improve the communication with citizens, with owners associations in order to achieve the objectives and the targets related with energy efficiency that were fixed in local strategic documents; involvment of all technical departments of local authorities in order to support the activities of project team in order to meet the deadlines; there is needed to create complementarities of PI 3.1 A local interventions with other local projects that aim to improve the environmental conditions and, in general, welfare of the citizens.

The results of this set of evaluation instruments are as follows:

- the overall perception of administrators and households owners about the impact of the implemented interventions for improving energy efficiency is a positive one. 88.5% of the respondents stated their high satisfaction with the outcome of the carried out works in their buildings (see replies to Q2 of the survey among HHs, that involved 496 people, in Annex 11), and this element was confirmed also during the FG with administrators and householders.
- Comparing the differences between the ex-ante and the ex-post situation, we found that, for the 818,419 sqm surface area affected by the ROP investments, an average improvement of 40% was achieved regarding the structure of the building in reference to the potential use of energy. This percentage is comparable to European standards and can be considered as a positive result. Moreover, it also confirmed by another elaboration of data, that we carried out on a narrow set of the same projects by using the data available from the final reports of the concluded projects. In this case the expected improvement in terms of primary energy use is of 49.5%.

These data are relevant to the EQ as they confirm that the corresponding objectives as regards energy efficiency (EQ3) and potential energy savings (EQ2) were achieved through IP 3.1A. As a result, a corresponding, appropriate positive impact on the reduction of carbon dioxide (SEQ2)

emissions can be achieved. However, this always depends on how end users change their energy consumption behaviour.

When coming to the analysis of the data gathered about the actual energy use by final users, the picture looks different from the above expectations. In the Table 22 in Annex 1 an outline of the overall analysis is presented**. Its results indicate an average, limited growth of the energy consumption (3.6%) when comparing the 2018 data with the previous year, but a decrease of 10% when comparing them with the average values of the three previous years (2015 to 2017)**.

As an explanation, this may indeed suggest the presence of a "rebound effect" in the behaviour of households affected by the IP 3.1.A (see the literature review chapter in IR-pag.18). In fact, people may have perceived that they will automatically save energy after the works done, and did not worry about adjusting their fixed temperature to actual weather or climate conditions or believed that, under the new circumstances, they could slightly increase the temperature without incurring an increase in the related costs. In this way they were adjusting to the new context improving the comfort of their homes, possibly after years when it had been constrained. The trend indicated by the table is even more remarkable if we consider that in October the unitary heating cost was increased by the company.

However, with a closer look (for example, the analysis of monthly variations), two aspects can be observed:

- in four months out of seven, we are experiencing a drop in energy consumption;
- after the full completion of projects, in three months out of five, we note a decrease in energy consumption. These elements make us believe that end-users need some time to concretely adapt to the improved conditions of their homes and learn how to manage their temperature in their homes, taking full advantage of the interventions.

Another reason for explaining these data may be due to the existence of losses in the building insulation caused by poor quality of the carried out works. This potential problem was highlighted, for instance, during the final FG with experts, where a participant underlined that it had proved difficult, for public officers, to properly monitor and eventually intervene for correcting it. Although sector 3 in Bucharest has a long experience for implementing this type of projects, this explanation cannot be underestimated.

One final aspect that could be taken into account is represented by overall energy distribution losses affecting the system. However, we did not consider them relevant for our analysis for two reasons:

- RADET does not transfer these costs to households;
- we could not check if such losses changed in the 4 year period at stake.

In overall terms, for what concerns the various tools used to implement the axis (e.g. budget allocation among IPs, preparation of Calls for Proposals-incl. selection criteria and framing according to integrated strategies, monitoring and reporting procedures, etc.), our analysis show that they are logically consistent, with a clear allocation of responsibilities, but their operative arrangement and management produce severe delays and often limits the achievement of the expected effects (this was particularly clear in all of the four case studies).

SEQ1	**To what extent does the POR 3 Axis contribute to the reduction of energy consumption at the level of residential buildings, public buildings and financed public lighting systems?** In synthesis, all of the three investment priorities of 3.1 are achieving the potential reduction of energy consumption according to most data sources (e.g. energy classification certificates, SMIS, project proposals). Yet, due to the fact that only 3.1A has so far recorded completed data, the actual energy consumption by families show a lower decrease (10%) in our tested sample. This may be due to various reasons, including the need for improving the skills of all the human resources playing a role in the project life cycle: from officers writing the Calls text and guidelines, to the firms hired to carry out the works; from the external consultants advising the beneficiaries when preparing their proposals, to the final users of the investments.

The answer to the first part of this EQ has already been provided in detail in EQ 3.

In the case of IPs 3.1C (street lighting) and 3.2 (sustainable urban mobility), we could rely only on the approved projects' proposals, extracting from them the respective, planned targets in terms of energy and of GHGs reduction; such data are included in the main list of Indicators that we presented in table 14 of Annex 1.

What appears important to highlight here is the following: Axis 3 is contributing to the reduction of energy consumption in all of the three sectors outlined in this EQ, because it creates the conditions for achieving the targets set in the projects' proposals. In particular, as we have already seen for the previous EQ3, the funded interventions are able to improve by a significant extent the thermal insulation of affected buildings (at an average 40 to 50% rate in the case of 3.1A projects- this corresponds to standard results of similar interventions throughout Europe).

When taking a more aggregated view of the axis progress, and we look at the indicators' values (that we extrapolated mainly on the basis of approved proposals), we notice that the results so far achieved in terms of reduction of final energy consumption are coherent with the data deriving from the overall implementation process for what concerns IP 3.1A (with a 15% of the ROP target already achieved in terms of the number of HHs with an improved energy consumption). Yet they look inconsistent for what concerns public buildings (with an expected reduction of final energy consumption already nearly equal to 10 times the ROP target set for 2023- 219 Mil versus 28.5 Mil KWh/year).

For what concerns IP 3.1B the data we could elaborate from a sample of 18 project proposals point at an unusually high energy reduction potential of 71% (see table 16 from Annex 1). This may be due to:

- before the rehabilitation buildings are often in a very poor state (usually they are schools, hospitals) - no or old isolation and old heating systems;
- use of renewable energy after the project implementation is compulsory (it should account for at least 10% of building consumption).

To complete the picture, interventions funded in IP 3.1.C appear able to lead to an average 50% of reduction of energy consumption compared to the existing lighting systems, but in this case we need to remind that we could analyse only the three approved proposals.

To sum up, as displayed in table 23 in Annex 1, the data deriving from all the approved projects in all of the IPs point at an aggregated value of 881,189 C02 ton equivalents (this include a value of apx. 6,851 CO2 ton equivalent resulted from our own calculations based on the approved applications within PI 3.2). These values are of course very small compared to the ROP targets set in terms of output indicators at national scale, given the limited number of projects we could analyse.

As a final remark, in all of the abovementioned areas, the actual impact on the final consumption of energy will depend, to a large extent, on the behaviour of the respective final users, exception given for the street lightning sector, where the activity is strictly planned at municipal level. Therefore, in order to ensure that the targeted levels of improvement included in every project proposal will be achieved, it appears of vital importance to support actions leading to life styles able to fully exploit the carried out improvements.

SEQ 2	**To what extent has the POR contributed to date and will contribute in the future to the reduction of carbon emissions in urban areas where sustainable urban mobility plans are implemented?** For the reasons explained before we could not properly assess the contribution to date of the projects concerning IP 3.2. Regarding the future contribution of this type of projects to the reduction of CO2 emissions we must underline that the checked proposals do not always state clear and duly justified targets. The ones that offer these data show an average targeted decrease of approx. 9.4% in CO2 emissions (after the project completion) – see table 24 from Annex 1.

Due to the delayed implementation of projects in IP 3.2 we could not assess their actual contribution to the reduction of carbon emissions in urban areas where they are being implemented.

That is why we concentrated on the analysis of the approved proposals, and found that the 14 projects offering consistent data have a total overall target of a 6,851 reduction in Co2 t equivalents (see table 24 in Annex1). One must note that this means that the interventions have the potential for improving CO2 emissions by an average rate of 9.4% (according to the data retrieved from the 14 projects where complete and consistent data could be assessed).

This can be presumably due to the different models used for estimating actual savings in terms of energy use can be quite complex, strongly dependent on the initial assumptions concerning the trends in overall transport use, and the characteristics of different fuels being replaced by the new mobility infrastructure, and by the expected “replacement effect” of the new public transport system compared to private transport tools. The complexity of this estimation process may have led to an underestimation of the actual potential of the IP interventions. This

represents an issue at stake for the final evaluation, when some projects would have been completed and the first actual data on transport use will be available.

Another element that must be take into account when assessing the potential of this IP to reduce GHG s emissions is the fact these investments must be framed within an Integrated transport investment strategy. In other words: they are not "stand alone" projects like a renovated building or a new street lighting investment, but they need to be implemented within a more complex set of measures. As a consequence, only a carefully designed and implemented urban transport strategy (SUMP) can ensure that the targets for CO2 reduction will be met, and possibly increased (e.g. traffic management and speed optimization tools can further cut CO2 emissions, apart from the benefits deriving from more passengers using public transport). Therefore a periodical monitoring and selection of the best quality examples of integrated urban mobility strategies approved and implemented (once the first projects would have been completed) should help to improve the overall ROP implementation and outcome.

SEQ 3	**What types of interventions are evaluated to be more effective and which ones have met the most significant obstacles to date?** In overall terms, interventions under IP 3.1B are the ones where more proposals have been presented, suggesting that this is the IP that potential beneficiaries find easier to approach. IP 3.1A tended to suffer from the problem of positively involving the owners' associations (this issue varies at large extent between different areas), while for 3.1C it is too early to express an assessment. IP 3.2, which is more complex in terms of proposal preparation, shows a rate of application that looks quite positive at this stage of the axis development. Due to the delayed implementation of the axis and to the limited availability of reliable data we choose to focus on the relative efficiency of the different interventions to produce the expected environmental benefits. Our evaluation shows that improving the energy efficiency of buildings remain the most effective cost/benefit investment in order to achieve CO2 reductions (with an average cost of just 2,938 € and of 11,956€/C02 ton equivalent, for residential and for public buildings). Moreover, the set of improvements has already reached a high level of standardization, so works proceed fairly smoothly without any major delay or problem. Street lighting ad Urban mobility interventions, on the other hand, show a much higher unitary cost for abating C02 emissions. IP 3.1C has the additional advantage of not needing to rely on specific actions to involve the final users for achieving its foreseen benefits, showing also a high energy efficiency potential. **What are the key characteristics of the mechanisms contributing to the effect / impact obtained (e.g. benchmarking on the expected cost, analysis of procedures and disciplines of a nature to influence investments, analysis of presentation / implementation / coordination modalities that facilitated project progress)?**

	Our work indicates that clear text of the Calls for Proposals, clear and stable guidelines (e.g. not needing to be revised many times), and swift assistance for clarifying doubts to potential beneficiaries remain of utmost importance for fostering the presentation of a high number of good projects. Simplification of existing national rules for contracting and a reduced burden for what concerns reimbursement procedures would greatly help the beneficiaries. Improvement of internal and of external human resources and stronger efforts for improving the behaviour of the final users of the investments are two key, horizontal priorities for the ROP success.

PART 1- Taking into account the delayed advancement of the works, the answer to the 1st EQ is mainly based on the analysis of the unitary costs needed to produce a positive environmental impact. We could estimate this cost thanks to the data deriving from the completed projects in 3.1A, and from the approved proposals for all of the other IPs. The results of this analysis are outlined in the table included in ch.B4, concerning Efficiency and Efficacy issues). They clearly point at the interventions on improving the energy efficiency of buildings as the most efficient measure to achieve reductions in GHGs emissions. We must take this result with caution, because in three of the four investment categories it is based only on expected results, so it may change after the actual completion of works. Moreover, the proponents may have made mistakes in calculating the precise impact deriving from their projects. However, the relative difference at stake is quite high, and it is supposed to stay, even after taking into account these factors.

The other element that affects the answer to this EQ is the different nature of the four IPs. Here it appears a stark difference between IP 3.1 as a whole, that relies on quite standardised operations and procedures (that have been already carried out for many years), and IP 3.2, that is focused on a far more complex type of projects, and whose final results depend on a wider series of aspects (including other ancillary measures for supporting a more sustainable urban mobility, as the last FG with experts confirmed). As a result, also the expected outcome of IP 3.2 projects is more uncertain.

Other elements that must be taken into due account for assessing the effectiveness of interventions is the barrier for presenting proposals. IP 3.1A is a case in point, as the last FG with experts confirmed. Until a few months ago, national rules established that in order to present an energy efficiency project the administrator needed to have 100% of the households supporting it. This was clearly a strong hurdle for promoting these projects. This threshold has been recently moved to 51% of the households living in a given building, and this should foster the presentation of proposals. Yet what emerged from the last FG with experts was also that the households' associations do not always work properly, so dealing with them can prove demanding In addition, although the reduced threshold may ease the presentation of proposals, in order to render the project fully sustainable a higher percentage ought to be reached. In such way, even if some households will leave the project at a later stage, the co-financing rate will not be severely curtailed.

This type of considerations may indeed prove beneficial for the MA in order to decide on the re-allocation of funds for the future.

PART 2- The answer to the 2nd part of SEQ3 is necessarily more complex, although it is also linked to the outcome of the 1st part. When replying to EQ2 we already outlined what the most relevant difficulties faced by the beneficiaries are when dealing with the key phases of the project cycle. When we reflect on these issues we come to the conclusion that an improved quality and use of human resources probably represents the main factor for overcoming those difficulties, and for ensuring a positive impact from the planned projects. This element was confirmed by several data collection tools:

- by the last FG with experts, where it was outlined that proper control of the carried out works ought to be improved in order to avoid lower than expected outcomes; and when it was stated that investing on the awareness of the final users would have helped to achieve the planned results;
- by the online survey on beneficiaries, when the respondents at Q16 and Q17 ranked as more important areas where they needed to improve their skills the preparation of technical and of administrative documents, the management of the contracting phase, and communication with other public authorities involved in the project life cycle;
- by the direct interviews (e.g. Zalău) and the case studies (e.g. Galati), where the average poor quality of firms and entrepreneurs was highlighted.

In practice, this means that in all cases where human resources were of good quality and engaged in a proactive manner, the implementation of the axis measures proved easier and more efficient. Examples of this approach from our data collection include a web platform to help the beneficiaries (mentioned in the Northwest RDA direct interview) and a more user-friendly approach to end-users of energy efficiency investments to improve their awareness and participation in projects (mentioned in the last Focus Group that took place with the experts).

SEQ4	**What is the level of sustainability of the actions promoted by the ROP in the field of energy efficiency, described as the investment capacity to achieve a long-term impact and to change the behaviour of the actors involved?** In order to ensure an adequate sustainability of the ROP actions it appears extremely useful to invest on two directions: -ensuring proper technical sustainability (providing due maintenance to the carried out investments, and ensuring that qualified workforce is available and properly monitored); -improving social sustainability by increasing the awareness of the final users (single households for residential buildings, and administrators of public ones). While for the 1st theme it is very important to have enough qualified workforce trained in the specific sector of interventions, the involvement of final users needs to be carefully devised and implemented with different tools, because different people tend to be sensitive to different stimuli. The same approach applies to the urban mobility sector that relies on a rather big increase of the number of passengers using public transport (as seen in the IP 3.2 proposals). If this expected change in the behaviour of stakeholders fails to materialise, then also the original, limited gains in terms of CO2 reductions may prove too optimistic.

The issue at stake in this EQ is one of the more complex. It can be analysed from several points of view, as follows:

- placing the axis investments within a well prepared and wider strategy for a transition to a Low Carbon economy and/or a urban development strategy surely helps to frame all of the barriers to the successful deployment of funds, and to prioritize which projects to start with (this remark came out of the direct interview in Carei and from the case study in Galati). We may call this the initial, "strategic" pre-condition for the long-term sustainability of all interventions;
- having already carried out similar investments in the past, and having tested the problems linked to their implementation, maturing a proper experience appears to be another major factor for ensuring a positive preparation of proposal and their regular implementation (this was the case of Bucharest-sector 3, and of the municipality of Galati). This represents what we can call the "technical "precondition for a long-term sustainability of interventions. When this previous experience does not exist it is advisable to invest on the improvement of human resources. Another aspect affecting the "technical dimension" of Sustainability emerged from the case study carried out in Turda. Here the beneficiary highlighted the fact that a proper maintenance of the investment will be provided by the firms involved in the work implementation, and that this can be a critical factor for selecting them;
- a third positive element, already mentioned in the previous answers to many EQs, is the capacity to positively work on the behaviour of the final users of every project in this axis. This is the ultimate resource that needs to be activated, and we may call this the "cultural" dimension of the long term sustainability of project success. To this regard, most of the data collection tools that we used provide interesting lessons: -according to 37.3% of the respondents to the online survey (see Q23) the carried out projects on energy efficiency had fostered a more responsible behaviour of citizens towards several environmental issues. This is not a particularly high rate, but it represents a good base to work on, and it can be matched by the 80% rate of replies to the survey on households in Bucharest stating their interest for improving their general behaviour towards environmental issues. Also the direct interviews held in Turda and Carei stressed the importance to accompany the implementation of the axis projects with a series of adequate initiatives to promote the involvement of stakeholders. In short, after having managed to create the physical conditions for achieving the planned improvement in energy use, the management of the axis ought to pay more attention to these issues, in order to turn what appears a sufficient potential level of sustainability into a more resilient one.

To conclude this chapter, we can now link the key outcomes of every EQ to the series of conclusions that derive from them, using the following summary scheme:

Table 6 Link between the key outcomes of the evaluation questions and the conclusions

EQ	EQ key outcome	Conclusion
EQ1	■ POR interventions and objectives remain justified by the contacted stakeholders	**1) The axis retains its strength and**

EQ	EQ key outcome	Conclusion
EQ2	■ the total amount of funds allocated to approved proposals is sufficient	**potential benefits**
EQ3	■ interventions in IP 3.1A are achieving the expected results in terms of improved energy efficiency of buildings (40 to 50%)	
EQ2	■ the total amount of disbursed funds (3.6%) is very low ■ only three proposals approved under 3.1.C and 21 under IP 3.2 ■ previous experience in similar projects and a good project pipeline help to present good proposals	**2) Overall progress is limited, and cost effectiveness of different IPs needs to be taken into account**
SEQ2	■ interventions under IP 3.2 appear quite complex to be presented, and need a set of accompanying tools to achieve their full success.	
SEQ3	■ the previous rules for having 100% of building owners agreeing on the investment hampered the success of IP 3.1A. ■ interventions of distinct IPs show very different cost/benefit ratios (with IP 3.1 as a whole being more advantageous)	
EQ2 and SEQ3	■ The large majority of the carried out case studies and direct interviews highlighted specific and relevant examples of bottlenecks and/or problems in the adopted procedures for most project phases. This, as a consequence, delays the axis implementation.	**3) Project proposal, contracting and reporting phases face severe problems that slow the POR progress (technical and financial)**
SEQ3	■ delays do not usually affect the implementation phase of projects (although we could limit this assessment mostly to the energy efficiency of buildings)	
EQ2	■ MySMIS does not currently include data that is needed to calculate result indicators (e.g. final energy consumption in residential and public buildings) ■ MySMIS is not 100% used to transfer data from beneficiaries to MA in an electronic manner, relying instead on paper documents	**4) SMIS does not enable to properly monitor key aspects of the project life cycle**
SEQ1	■ data regarding the decrease of primary energy use in public buildings do not look consistent (too high compared to the recorded progress so far)	
SEQ3	■ data regarding output indicators (e.g. reduction of GHGs) are often missing	
EQ2	■ beneficiaries appear overburden by several, inefficient administrative procedure implemented to present, monitor and report the axis projects	**5) Beneficiaries need to focus on the more value-adding operations and learn about best practices**
SEQ3	■ practical improvements to the existing procedure appear feasible, also following some best practices being tested at regional and local level	
EQ3	■ thermal energy data from RADET company show that in Bucharest the energy use in the year after the projects' completion actually increased compared to the previous year (2017), but decreased when compared to the average values of the 2015-2017 period	**6) Final users need to be more involved in the strategy consultation and in the project cycle**
SEQ1	■ all of the stakeholders (e.g.. building administrators, households) can be more involved for playing a better role in achieving the expected axis' objectives	
SEQ2	■ the success of IP 3.2 projects will greatly depend on the final users'	

EQ	EQ key outcome	Conclusion
	behaviour towards the new transport infrastructures	
SE3 and SEQ4	■ the final FG with experts and some direct interviews highlighted that finding enough qualified workforce could be a serious threat in the short term, when more axis projects will need to be implemented ■ while all of the case studies state that financial sustainability will not be a problem, some of them highlight the importance of the technical sustainability aspect (e.g. having qualified firms to carry out proper maintenance operations).	**7) The technical dimension for sustainability needs to be supported**

B3 ANALYSIS OF REGIONAL IMPACTS

In order to assess relevant differences in the way distinct regions are progressing in the implementation of the axis, we focused on the following main data sources:

- the analysis of project applications (as from SMIS);
- the analysis of approved and contracted projects;
- the analysis of the planned environmental targets in the projects so far approved;
- direct interviews with stakeholders.

In synthesis, the combined assessment of these three tools enable the evaluation team to state that three southern regions and the ITI and SUERD areas are the ones partially lagging behind all of the others, in terms of contracting process, while Bucharest Ilfov and the North-West regions are those where more proposals have been approved so far. This conclusion applies, in particular, to IP 3.2 (urban mobility), where one must take into account that presenting proposals required a higher degree of complexity compared to the other IPs (for several reasons, including the requirement for the project to be based on a set of measures included within the Sustainable Urban Mobility Plan, the complexity of calculating the required technical indicators etc.). The fact that the public authorities of the capital city already had a stronger experience with the issues concerning urban mobility surely played a role in explaining why they were among the first to apply for this IP.

Also, the fact that the Northwest region is the only one where LPA authorities have applied for funding and have approved projects on all investment priorities can be influenced by factors such as:

- the level of economic development;
- they already had a good pipeline of project proposals from the previous period;
- some specific municipalities (e.g. Baia Mare, Zalău, Oradea, Bistrița etc.) are better equipped in terms of internal staff with a better experience with European funded projects).
- the existence of an opinion poll at the level of LPA within the region, which is extremely favourable to the use of European funds for solving the local development needs, developed on the basis of the positive experiences recorded during the previous programming period;

- constant and pro-active support provided to beneficiaries by Northwest RDA staff.

The delay in the evaluation and contracting of SUERD projects is caused by the decision to prioritize applications for funding submitted in 2018 in the framework of calls for unfinished projects.

In detail, with regard to the access and contracting rate at each IP level (detailed situation at regional level is shown in tables 26-29 from Annex 1):

Results for IP 3.1. A:

- until the reference date, 74 localities from 32 counties (including Bucharest) have sent 369 applications for financing under IP 31A; 142 projects have been contracted, from which 80 are in Bucharest; only 34 projects were concluded, 33 in Sector 3 of Bucharest and 1 in Petrila;
- the overall rate of access (the share of the total non-reimbursable budget requested through the financial requests from the total allocated non-reimbursable budget) for the IP 31A is 75,4%, with low values being registered in the North-East (2,3%), South-East (8.1%), ITI (1.5%), SUERD (13.5%); higher values are recorded only in the West region (102%) and Bucharest Ilfov region (263%); several reasons for this discrepancies between regions have been identified during the interviews:
  - differences between the capacity of tenants associations to act as a partner of the municipality;
  - low capacity to support co-financing and non-eligible costs in North East region (which is one of the poorest areas in Europe) and also in other regions;
  - negative experiences in the previous programming period and/or other financing program which resulted in unfinished projects;
  - insufficient awareness of the final beneficiaries on the full set of benefits which derive from the building rehabilitation projects.
- the contracting rate (the share of the total contracted non-reimbursable budget from the total allocated non-reimbursable budget) is reduced in all the less developed regions (below 5%, with the exception of the South-West Oltenia – 21.2%, West- 13.6%, North-West-21.4%), only in the Bucharest-Ilfov region being supraunitary (159.3%); this is reflecting not only the low capacity of some of the beneficiaries to answer in due time to the request of clarifications but also the difficulties that RDAs are facing in contracting the evaluators and in finding the qualified technical experts.
- the level of payments made until the reference date (31.12.2018) is low (95% of the payments were directed to Bucharest Sector 3); for the most of the contracted projects the public procurement process of design and/or work contracts is not finished;
- until 31.12.2018 no projects were contracted in the ITI DD and SUERD areas, the evaluation process being still ongoing:
- spending of the funds between regions is not balanced and will certainly require a reallocation.

Results for IP 3.1.B:

- There is a great interest for this priority of investments as the overall access rate is supra-unitary (192%), only in the ITI DD region being sub-unitary; 5 from the 8 regions record an access rate greater than 200%;
- until the reference date, 211 localities from 42 counties (including Bucharest) have sent 686 applications for financing under IP 31B; 242 projects have been contracted, distributed in 110 localities; no projects are concluded;
- the access rate could be even higher, but some of the buildings which need rehabilitation are or registered as historical monuments or not in use due to the advanced degradation;
- the overall contracting rate is sub-unitary - 65.7%, the lowest values being recorded in the South-Muntenia region (22.9%) and Bucharest Ilfov (16.3%); In the North-West region the contracting rate is of 148.2%; same reasons as for 31A apply also here.
- the level of payments made until the evaluation is very low, due to the fact that a large majority of the beneficiaries are yet in the public procurement process for the work contracts;
- until 31.12.2018 no projects were contracted in the ITI DD and SUERD areas, the evaluation process being still ongoing.

Results for IP 3.1.C.:

- IP 31C records the highest rate of access from all the IPs - 301%, mainly due to the fact that it has the lowest allocation of all PIs (5.7% from axis allocation);
- until the reference date, 110 localities from 39 counties (including Bucharest) have sent 124 applications for financing under IP 31C; only 3 projects have been contracted, so far, distributed in 3 localities, all in the North West region; no projects are concluded;
- all the regions records access rate higher than 200% but West and North West region are in top with a rate of access higher than 400%;
- the contracting rate is the smallest of all investment priorities, 14%, contracts being so far (31.12.2018) concluded, only in the North-West region; this is a normal situation considering that there was only one call which has been closed in October 2018; 104 projects from all the regions were in the evaluation and 9 in the contracting process;
- no payments were made until the evaluation;
- until 31.12.2018 no projects were contracted in the ITI DD area, all applications being in different stages of evaluation.

Results for IP 3.2:

- the access rate for IP 3.2 is also supra-unitary (128.4%), the lowest values being recorded in the ITI and SUERD areas;
- until the reference date, 61 localities from 32 counties (including Bucharest) have sent 107 applications for financing under IP 3.2; only 21 projects have been contracted, so far, distributed in 10 localities – Bucharest and 9 other cities in the North West region; no projects are concluded;
- the contracting rate is sub-unitary - 24.5%, contracts being signed only in Bucharest Ilfov (23.7%) and North West (236%); 44 projects from all the regions were in the evaluation and 40 in the contracting process.
- no payments were made until the evaluation;

- until 31.12.2018 no projects were contracted in the ITI DD and SUERD areas, the evaluation process being still ongoing.

As a final remark, we can notice that applications have been presented and/or are being presented in all regions on various IPs, although there is the priority to implement the recommendations listed in the last chapter starting from the southern regions of the country.

B4 EFFICIENCY and EFFICACITY ISSUES

It proved very difficult to assess this part of the axis implementation, due to the delayed implementation of most IPs, and to the fact that these issues can be better appreciated only after the projects' completion.

We nevertheless worked at what we consider an important table based on available project and proposals data. In practice, it serves to outline the relative efficiency in energy reduction for the first three IPs, and to compare the average cost to obtain a unitary reduction of C02 tons equivalent (budget and C02 impacts were among the few information available for every IP projects). The number of projects tested is limited in some cases (e.g. 3.1.C), but the table is a valuable tool to assess the difference in energy efficiency and the effectiveness of each IPs in achieving environmental impacts.

Increasing the number of projects monitored will in the future contribute to a better decision on total budget allocation (together with other relevant considerations).

Table 7 AXIS 3-cost/benefit outline of each IP (unitary cost for reducing CO2 t equivalent emissions and relative energy efficiency of distinct IPs)*

IP	Type of intervention	No. of projects**	Efficiency	Efficacy	Cost Index (CO2 - 3.1.A as reference)
			% reduction of Primary energy consumption	€/Co2 t eq.***	
3.1A	Energy efficiency	5	50	2,938.70	1
3.1B	Energy efficiency	18	71	11,956.00	4
3.1C	Street lightning	3	50	67,742.00	23
3.2	Urban mobility	16	N/A	177,358.00	60

Notes:
*=calculated on total eligible costs for each project
**=projects and approved proposals checked for this estimation
***= exchange rate €/Lei= 4.6531 inforeuro December 2018

B5 LATENT DEMAND FOR PROPOSALS

During the evaluation work the MA asked the evaluation team to pay attention to the issue of "latent demand" for project proposals. By this we mean the possibility that some potential applicants did not actually applied to the different IPs due to various reasons. We addressed this issue as follows:

- we asked the participants to the two FGs with Experts to comment on the existence and relevance of this issue. They basically answered that this may have been a problem, but were not sure of its extent, nor had a clear explanation of its causes, apart from the objective complexity of the application procedure.
- we carried out two in-depth interviews with the municipalities of Isaccea and of Călărași, that were suggested to us by RDA South Muntenia and RDA South East as examples of public authorities that had not been involved in the axis work. It actually turned out that both had already applied for at least one of the IPs (the 2nd municipality for three different IPs). This confirms an opinion the evaluation team had already reached by looking at the geographical distribution of the approved proposals: the large majority of the regions and of provinces have already applied for at least one IP, and are aware of the axis goals and potential.

What the two interviews mentioned above highlight (similarly to what the other direct interviews that we carried out with project beneficiaries) are some barriers to presenting proposals that have been described in more detail while answering to EQ2. In particular, the two in-depth interviews underlined that:

- the number of documents required to present the application is extremely high, and they include several ones that must be provided by different public authorities, that need a long time to do it. This hampers the overall presentation process, therefore selecting the most relevant documents could represent an improvement to the current state of the procedure;
- IP 3.1A presents specific problems, both because involving households and tenants associations usually requires a long time, and because for some buildings there exists the preliminary need to update their technical certificates (or to recover them in case they went lost).

In conclusion, it does not appear that a real issue of "missing proposals" exists, and that the reasons currently hampering the presentation of project proposals are already outlined under the answers to the relevant EQs.

B6 RECOMMENDATIONS FOR THE FINAL EVALUATION PHASE

The evaluation team highlights, for the final evaluation of the axis, to pay particular attention to the following issues:

- the collection of real data on the actual use of energy (thermal and electrical) in the buildings of intervention through PI 3.1A and 3.1B;

- assessment of the existence/weight of a rebound effect among the final users of the same IPs;
- check of the final results of projects completed in IP 3.2;
- evaluation of the simplification/rationalization of the internal procedure for the management of the axis (especially for the phases of the proposal presentation and the project reporting by the beneficiaries).

All of the above mentioned topics are at the centre of our evaluation conclusions (see next chapter).

5. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

From its start it was clear that the main factor affecting this evaluation would have been the delayed implementation of the axis and, as a consequence, a severe limitation in the full assessment of the impact of its actions and results. This happens often when an interim evaluation is made, because the Policies, the Program and the Evaluation Cycle show a different progress.

In practice, while the Policy area is already starting to plan the next ROP for the programming period 2021-2027, the program is still at a start-up stage and our assessment can mainly document progress to date and provide evidence of results. However, the importance and the potential benefits of this evaluation should not be underestimated: this may lead to a mid-term correction, for example, to improve the management of the axis in general, to encourage the technical and financial progress of the operations, as well as to other useful adjustments in terms of selected objectives, priorities and eligible activities.

That is why our final recommendations are presented bearing in mind two key perspectives (project life cycle and an impact-based theory of change) that we consider among the most powerful tools in order to intervene on the improvement of the current implementation of this axis and the ROP.

The role of the seven key evaluation questions (EQs) is very important because they address all the strategic aspects in the implementation and management of the axis. However, our assessment did not focus exclusively on this task. The evaluation team decided to contact a wide range of stakeholders and program beneficiaries, both to better support our findings and to make our recommendations useful in practice (on the design and management scale), and not only at a general level of policies. In this way the effectiveness and the potential of the transferability of the evaluation results should be considered by MA ROP.

It is appropriate to recall here one of the key outcomes of the final FG with the panel of experts organized in March 2019. The 1st scenario for the likely outcome of the axis implementation by the end of 2021 (the so-called “Realistic” one) received the highest mark (16/18), followed by the “pessimistic” scenario (11/18). The 1st scenario included a 75% rate of the available total budget allocated, a few disparities between the regions in terms of its allocation, limited level of awareness by the final users of interventions, and limited impacts on energy use and GHGs emissions. This implies that the 1st scenario is indeed very close to the reality, and that the ROP is expected to follow the ongoing implementation trend, both in quantity and in quality. Having voted the pessimistic scenario more than the optimistic one (11/18) probably means that the experts saw several pending problems still affecting the ROP implementation, that could hamper its full success.

The following conclusions and recommendations aim at moving from this “realistic” scenario to a more optimistic one.

Our work leads to a series of key conclusions, which can be grouped into three major clusters (or intervention areas), each based on a series of answers to the Evaluation Questions provided in the previous chapter. A summary of the link between EQs, conclusions and areas of interventions

can be found in Table 31 of Annex 1, while here below the logical link between areas of interventions, conclusions and recommendations is presented.

Table 8 Logical link between areas of interventions, conclusions and recommendations

CLUSTERS	CONCLUSIONS	RECOMMENDATIONS
Overall ROP Management	1. The axis retains some valuable strengths and potential 2. There is a need to accelerate the overall progress of the axis	1. Maintain and improve synergy with other ROP axis and amongst all administrative tier 2. Shorten the duration of the evaluation and of the contracting phases will ease projects' start and will increase the axis spending. 3. Maintain a flexible re-allocation between regions and IPs, and improve monitoring and assessment of the cost-effectiveness of every major investment
Simplification and rationalisation of the procedures for managing the project life cycle	3. There is a strategic need to simplify the procedures affecting some project phases 4. SMIS does not enable to properly monitor key aspects of the project life cycle 5. Beneficiaries should focus on value-added operations and to learn about best practices	4. A set of key recommendations for managing the projects' preparation, contracting and reporting phases 5. Improving SMIS capacity by paying attention to data quality and increasing its use to obtain reporting documents. 6. Support training, updating knowledge and exchanging best practice amongst axis staff.
Supporting the long-term impact and sustainability of interventions	6. Final users need to be more involved in the project cycle 7. The technical dimension of sustainability must be properly supported	7. Implement better awareness raising initiatives on potential beneficiaries of all IPs (except 3.1.C). 8. Cooperate with the ESF and other national funds to undertake initiatives to ensure the provision of qualified workforce.

CLUSTER "Overall ROP and axis management"

Conclusion 1: The axis retains valuable strengths and potential: The Axis is closely linked with its underlying social needs, there is a good balance in the allocation of funds, a strong interest towards the calls, and limited problems in the implementation of its various interventions.

The first EQ enabled to appreciate some positive aspects of the current axis development: energy savings and improvement of urban mobility are felt by stakeholders as valuable assets for their quality of life. SEQ1 shows that the results that are being achieved by the four IPs in terms of potential energy reduction are comparable to European standards. As a consequence, in

overall terms, all of these elements point at a strong potential of the axis for delivering its expected results, in terms of socio-economic and environmental impacts.

Conclusion 2: There is a need to accelerate the overall progress of the axis: global progress in the start and implementation of projects is limited and the cost effectiveness of different IPs needs to be taken into account in more detail.

Even taking into account the effect of the initial delay in launching the first calls (which has happened in most EU countries during the current programming period), the current delay in implementing the axis could become extremely worrying. In this respect, a level of expenditure control by the end of 2019 can provide a much better estimate of future progress. If the pace of spending will not accelerate, the MA should make decisions about redistributing funds to other IPs. Each of them has distinct problems (see SEQ1 and SEQ2), but we noticed several horizontal ones that could be solved by amending the current procedures for managing the project life cycle.

Recommendation 1: Maintain and improve synergy with other ROP axis and amongst all administrative tiers.

The evaluation has shown where the most critical and specific barriers to the full development of the axis actions stand. From a higher hierarchical level, paying more attention to the potential synergies with some POR axis (e.g. PA 2-SMEs competitiveness, PA 4-sustainable urban development) can prove highly beneficial for axis 3. If axis 2 implementation is successful, the availability of workforce in the areas where axis 3 intervene can be enriched; if valuable projects are presented under axis 4, this can provide pilot cases and useful lessons also for new proposals within axis 3.

Closely next to this advice stands a recommendation for improving the existing communication channels amongst all the (many) administrative tiers, especially between the MA and RDAs and between the latter and the beneficiaries. The evaluation indicates that when this element is present, things run much better. A timely reply to a clarification request can greatly support the success of a project proposal, or of a project's implementation.

Recommendation 2: Shortening the duration of the evaluation and of the contracting phases will ease projects' start and increase axis spending.

The evaluation work noticed long periods needed to undertake the evaluation and the contracting phase for all the four IPs. This may often entail more than one year for the two phases. As a result, most of documentation already sent need to be updated or revised, and the overall spending record of the axis is limited. In the following recommendations we outline a series of options for solving these problems.

Recommendation 3: Maintain a flexible re-allocation between regions and IPs, and improve monitoring and assessment of the cost-effectiveness of every major investment

The picture of the regions that are lagging behind in presenting and/or getting their proposals approved is quite similar to the one emerging from the record of applications for energy

efficiency investments in buildings for measure 1.2 of the previous POR, with the three southern regions situation in a more difficult state, and Bucharest proving more active. This suggests that more long-term and wide oriented action is needed to address this imbalance. In terms of distinct IPs, each one of them shows some specific problems and potential benefits, so the assessment is more difficult. To this regard we consider that the MA should maintain a high level of flexibility for managing and eventually reallocating the budget, taking into account what will derive from the monitoring of application rates and the evolution of cost effectiveness in each main IP intervention.

Additional Recommendation for the +2021 period (4): although the delayed implementation of the axis makes this type of recommendation rather anticipated, we can state that the experience accumulated in the first two years (2017 and 2018) of the axis work will prove beneficial especially for IPs 3.1C and 3.2. These are also the areas where technological and organizational innovations are more quickly evolving, so the next calls could foster the presentation of more innovative proposals by raising their quality selection criteria.

In overall terms these types of interventions could be at the centre of the focus for next programming period, jointly with investments related to the current IP 31.B, where demand is still very strong. On the other hand interventions for energy saving in residential buildings might be the focus of the current national programme for energy performance of Housing Buildings, with procedural and implementation norms made easier compared to the current ROP ones. This may help to support the presentation of proposals in what remains another relevant area of needed intervention.

Cluster "Simplification and rationalisation of the procedures for managing the project life cycle"

Please note that the following conclusions and recommendations could greatly help the forthcoming implementation of the axis, and also the approach to the next programming period. Due to the delayed implementation of the axis so far (e.g. none of the case studies could be carried at more than 25% of the duration of the projects' implementation, except IP 3.1.A), they are more focused on the first project phases, but their impact undoubtedly affects the whole project's life cycle.

Conclusion 3: There is a strategic need to simplify the procedure affecting some project phases to accelerate their progress: the project submission, contracting and reporting phases face obstacles that slow the progress of the axis - in technical and financial terms. The Implementation phase does not cause significant problems according to most beneficiaries.

Many EQs (in particular EQ2) highlight the major problems faced by a large proportion of beneficiaries when managing a project funded under this axis. Some respondents to direct interviews and / or case studies even stated that the situation worsened compared to the previous programming period (2007-2013).

Examples of how seemingly small problems turn into a great loss of valuable time are numerous. An image of these issues is provided in the Figure 2 for each key phase of the project.

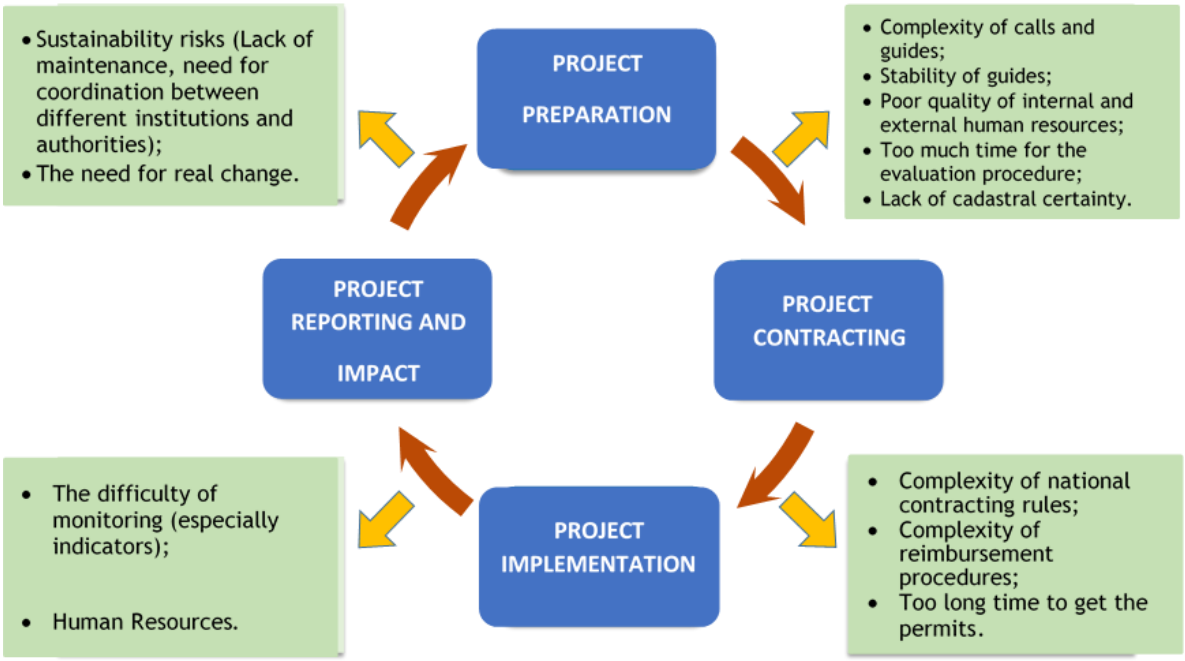

Figure 2 Main problems which affects each main stage of the project cycle

RECOMMENDATION 5 - Proposal preparation and approval phase (technical and financial)
One of the issues with a negative impact on implementation has been identified as the repeated revision of the documents for calls after their opening - guides, the list of eligible expenses, etc. This has led to confusion and has forced applicants to review their project proposals. Although this type of problem can often arise in the initial phase of implementation of an axis, great care should be taken to avoid them for future calls.

Another innovation that could stimulate the submission of new proposals, while reducing the time needed for their evaluation, is the introduction of a two-tier selection system, as other EU-funded programs already do (e.g. the LIFE program). This requires the initial presentation of a conceptual technical note (max 5-6 pages), accompanied by a minimum set of financial data. Only those conceptual notes that are classified as the best can continue to submit the full version of the project proposal. This change seems particularly good for PI 3.2 (and partly for 3.1.C), where the complexity of preparing proposals seems to be greater. This innovation will considerably reduce the burden for prospective beneficiaries to present all the documentation.

Shortening the duration of the proposal Evaluation phase is another priority: at the end of 2018 the ratio between the number of pending/ approved applications was 170%. This entails hiring more evaluators, ensuring that they follow a unitary approach when working, and regularly

checking the outcome of their work in order to possibly improve it. This effort will prove beneficial in the near future, in order to manage the large number of funding applications that will increase.

Recommendation 6: project contracting phase

We already highlighted that the axis financial progress is quite delayed. The option to raise the level of pre-financing (currently set at 10% of the eligible project value) is complex (due to the need to amend the current law - GEO 40/2015), but it will have two clear benefits:-it will provide a stronger support to beneficiaries at the beginning of the project implementation; to accelerate the overall financial progress of operations. We recall that the EU Structural Funds allow for a higher payment for pre-financing to beneficiaries (up to 30%).

Another option would be to avoid the need for re-approving the projects by the municipality councils if the modifications do not substantially alter the original approach and structure, and if energy results are improved compared to it. A third option would be reducing the need for carrying out more than one site visits to project sites before proceeding to the signature of contracts with the MA.

Recommendation 7: reporting and reimbursement phase

This phase (as better outlined in replying to EQ2) is facing several and severe problems. The simplest suggestion that resulted from our work was an overall simplification of reimbursement procedures: either by reducing the amount of necessary documents and / or by reducing the frequency of the reimbursement request (for example, from 3 to 4 months: while maintaining the same amount of disbursed funds per year, it would reduce the administrative burden on beneficiaries by 25%).

Another important issue emerging from most cases studies is the need to harmonize the format of the modules that are used to monitor the projects' progress. The current difference in terms and formats used is the cause of a significant burden for preparing and sending the documentation for reimbursement. The set-up of an interdisciplinary task force for solving these problems might prove able to come up with operational solutions in a reasonably short time.

Conclusion 4: SMIS does not allow for proper monitoring of the key aspects of the project's life cycle

SMIS seems more targeted to meet reporting requirements for the EU than to provide useful information on each key aspect of the project's life cycle. We found a different number of projects between the reports produced through MySMIS, while it should be the same. In many cases, missing data on target indicators or indicators and / or the quality of data that can be found in the system does not seem appropriate. In addition, there is currently no information available on the time actually needed to achieve certain stages (e.g. the evaluated proposal, contracted with the MA, the project has begun to start, etc.). MA should receive a clear "alert" signal when it is advisable to intervene to remove the blockage within the project's overall cycle (for example, when a longer time to implement a procedure occurs).

Recommendation 8: Improving SMIS capacity by paying attention to data quality and increasing its use to obtain reporting documents.

SMIS has the potential to assist the MA in properly monitoring the entire life cycle of the project. But the interface with MySMIS and its structure need improvement, and there is a risk that, with the increase in the number of projects and related data, it will become less reliable in its operations. Simple improvements to the introduction of multiple control points to ensure data reliability, the calculation of progress and indirect indicators (and their unit costs) and greater reporting flexibility can greatly contribute to global axis management. The other change, which would certainly help most recipients, would be the ability to upload reporting documents through MySMIS, without having to send them every three months on paper. Although this is already feasible, it is not yet transformed into a standard practice.

Moreover, a simplification of the current workflow, in which two parallel systems are used to monitor the progress of projects (one through the records kept by ADR - which send weekly updates to the AM and another with traceable data on SMIS) can be very useful.

Conclusion 5: Beneficiaries should focus on value-added operations and to learn about best practices. From the previous recommendations it becomes clear that beneficiaries risk to spend more time to solve procedural problems than to properly monitor project implementation, to develop new proposals, and/or to contact end-users to improve the projects' effects and their durability. Once it becomes possible to rebalance operations, it will be easier to involve the beneficiaries in a much needed effort to improve their skills and competencies, especially for monitoring and supervising the implementation and reporting of interventions.

Recommendation 9: Support training, updating knowledge and exchanging best practice amongst axis staff.

Due to delayed record in implementing projects (apart from IP 3.1.A) finding best practices through our evaluation work proved rather difficult. We can mention two cases in the NW region:

- the set-up of a web platform by the RDA to assist beneficiaries in presenting and monitoring their proposals.
- the organization of a wide and consistent set of awareness-raising and participatory activities in the case study about 3.2 project implementation in Turda.

There are chances that many other examples are actually present and ongoing in the country. However, there is no database for these pilot examples and no apparent incentive / system to detect and test these good examples. Therefore, it is advisable to start a program to identify and highlight them in an appropriate manner. This will also facilitate a Peer to Peer program for sharing experiences (and solutions) between the more advanced and the least developed regions and beneficiaries.

For example, the provision of more result-oriented training and update to staff of public authorities that will request this service (or that look lagging behind in terms of capacity for presenting applications) can also considered.

Cluster "supporting the long-term impact and sustainability of interventions"

Conclusion 6: End users need to be more involved in the project cycle

The actual impact of each Axis 3-funded investment depends to a large extent on the actual behaviour of end-users. However, the attention paid to these stakeholders has been so far limited. It cannot be assumed that the tenants will certainly change their habits in terms of energy consumption or that they will go to use the new urban transport tools as soon as they become available. In order to achieve these objectives, it is necessary to carefully assess their awareness and availability to join the new Axis 3 projects. This is particularly important for all IPs except for 3.1.C, whose final outcome does not depend on final users' behaviour.

Recommendation 10: Implementing better awareness / awareness initiatives for potential beneficiaries of all IPs.

Contact and involvement of end-users of Axis 3 projects can take place in several stages. The first contact can be during the consultation to define the strategy and planning of services that affect the neighbourhood and/or the city where they live. Or they may be involved at a later stage before deciding which technology can be used to implement the renovation of the energy efficiency of their buildings; and so on. The essential aspect is to understand how sensitive they are to the projects that are affected by the projects and how willing they can be to improve their "environmental footprint". The experience of other EU countries shows that usually a positive experience reinforces another: if they find an easier way to throw away their garbage, I am more willing to consider using a green space in a more responsible way, etc. The key issue for the success of the Axis is to increase end-user awareness of the potential benefits of its implementation, by continuing to monitor actual energy consumption and eventually introducing some corrections into its pay system. There are many EU examples of campaigns and other awareness-raising tools which have proven to be effective in achieving this change in end-user behaviour.

In practice, this means to organize more tailored activities addressing both building administrators and households that appear to be sensitive enough to a growing, overall concern for several environmental themes (see the outcome of all the implemented surveys).

Conclusion 7 - The technical dimension of Sustainability must be properly supported

Some evaluation steps (e.g. case study in Turda, the last Focus Group of Experts) have shown us the danger that, in the near future, there will be a shortage of skilled labour for the implementation of Axis projects. Due to the strong migration of the country's population, this is already happening in some areas and sectors (including tourism). This potential problem becomes even more serious, given that this axis focuses on the use of solutions and technologies that may be, in some cases, relatively new for SMEs in the country. In addition, we must also take into account the fact that a large number of new projects will be funded over the next 2-3 years. Also providing proper maintenance of all the carried out interventions will be of critical importance. And also in this case the availability of a qualified workforce is needed.

Recommendation 11: Cooperate with the FSE and other national funds to undertake initiatives to ensure the provision of qualified workforce.

The ability to improve the average quality of the workforce employed on this axis is the third pillar of its successful implementation, alongside the improvement of internal staff quality and greater awareness of end-users.

It has also become an instrument to improve the average social conditions in areas where most projects are being carried out. Knowing this is to act in agreement with the Ministry of European Funds that manages the European Social Fund (ESF) to plan training and updating skills appropriate to the needs required within the Axis. In a similar approach, all other programs that are funded at national level and which operate on similar topics should be contacted and activated. Otherwise, the risks of not having enough human resources to complete the funded work will become real. At a different level, when contracting firms for the implementation of works, beneficiaries should pay more attention to their capacity for providing also proper maintenance services after their completion. This can be an additional condition to be always included in the tenders. In conclusion, the evaluation team has a scheme that highlights most of the recommendations we have listed so far, based on the change theory we introduced in the Initial Report. It implies a flow between the ORIGINAL NEEDS / OBJECTIVES (top), THE FOLLOWING AND EXPECTED CHANGES, THE DERIVED ACTIONS / ACTIVITIES performed and the FAVOURABLE FACTORS STATUS (at the bottom). This top-down approach can lead to positive ascending growth shown on the right side of the scheme.

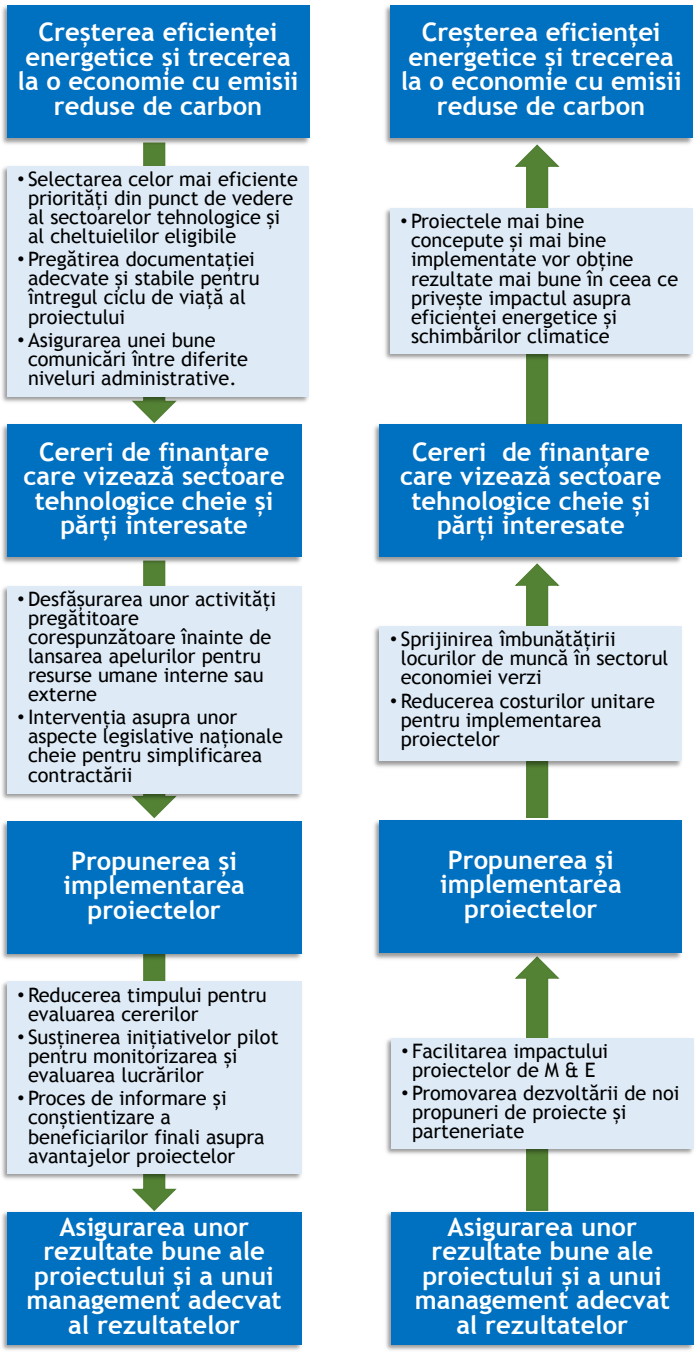

Figure 3 Theory of change