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REPORT

Independent Evaluation

SECO's Activities in the Area of Energy- Efficient Cities

Quality and Resources Section



Independent Evaluation

SECO's Activities in the Area of Energy-Efficient Cities

Commissioned by the Quality and Resources Section (WEQA)

Economic Cooperation and Development Division at the State Secretariat for Economic Affairs (SECO)

Bern, September 2019

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Foreword

The Economic Cooperation and Development Division at the State Secretariat for Economic Affairs (SECO) undertakes regular and systematic evaluations of on-going and/or completed projects, programs or policies for learning and accountability. Evaluators assess the relevance, the development effectiveness and the efficiency, the impact and the sustainability of interventions in partner countries. Based on credible and useful information, evaluations should identify results and lessons and thus inform the decision-making process of both recipients and donors, in order to foster continuous improvements of development support.

At the Economic Cooperation and Development Division, three different types of evaluations are carried out: 1. internal reviews; 2 external evaluations; and 3. independent evaluations. While internal reviews and external evaluations are under the direct responsibility of the operational units, independent evaluations are commissioned and managed by the Evaluation Function – an independent unit from the operations – and are submitted for discussion to an external Committee on Evaluation, composed of 5 members external to SECO. Independent evaluations focus on assessment of sectors, programs, strategies, instruments, country assistance strategies, cross-cutting issues or themes and impact evaluations. On average, the Evaluation Function commissions one to two independent evaluations per year, which can be undertaken jointly with other donors or partner organizations, in line with our commitment to the Paris Declaration. SECO expects evaluations of its development interventions to adhere to the DAC/OECD standards and to the Swiss Evaluation Society (SEVAL) standards.

This report presents the results of the independent evaluation of WE's Energy-Efficient Cities program. The evaluation assessed the development effectiveness of the program along the OECD/DAC evaluation criteria and covers the period of 2011 until 2017. It is based on desk reviews and semi-structured interviews with stakeholders and beneficiaries of projects commissioned by SECO's Infrastructure Section (WEIN). To underpin findings from a country program and project perspective but also from a multilateral and a thematic perspective, country case studies were undertaken in Colombia and in the Ukraine, but also on REPIC and the European Energy Award EEA.

The purpose of the evaluation was twofold: On the one hand, it aimed at generating lessons and recommendations on how to improve WEIN's strategic orientation and the effectiveness of its current and future interventions regarding its Energy-Efficient Cities program. On the other hand, it aimed at accounting for results achieved under the Message on Switzerland's International Cooperation 2017-2020.

The evaluation report was used as a reference for the formulation of SECO's management response. The results, the recommendations of the report, as well as SECO's management response were first presented to and discussed with the Evaluation Committee, who then formulated its position. The management response and the position of the Evaluation Committee are published jointly with the final evaluators' report on SECO's website and on the DAC/OECD Evaluation network.

Process:

Conducting of the evaluation and elaboration of the report: March - November 2018

Management Response: January 2019

Discussion of the report with the Evaluation Committee: March 2019

Position of the Evaluation Committee: May 2019



Management Response

To the SECO Independent Evaluation on Energy-Efficient Cities

(conducted by Technopolis Group Paris in cooperation with
E4Tech Lausanne and the Fraunhofer Institute Stuttgart)

January 2019

1) Introduction

An essential part of the Economic Cooperation and Development Division's (WE) evaluation policy is to ensure an impartial assessment of its interventions. Independent thematic evaluations are therefore regularly conducted on WE's priority themes for accountability, as well as learning purposes. As part of this policy, an independent evaluation was mandated to analyze SECO's interventions in the area of Energy-Efficient Cities.

The evaluation covers 14 operations in the area of Energy-Efficient Cities of the WE Infrastructure Section (WEIN) with a budget amounting to approximately 120 million Swiss Francs, namely in energy governance, municipal energy efficiency, renewable energy for district heating (biomass), energy efficiency in buildings and energy-efficient street lighting.

The consultancy company Technopolis Group (Paris), together with E4Tech (Lausanne) and Fraunhofer Institut (Stuttgart), was awarded the contract for this evaluation. The experts conducted the evaluation according to the OECD DAC evaluation criteria and elaborated corresponding recommendations based on their findings. The consultants used several standard methodological tools including literature review as well as interviews with SECO staff, project beneficiaries and other stakeholders. They also conducted two field visits to the countries selected for the case studies (Colombia and Ukraine).

2) Main Findings

The evaluation acknowledged that SECO WEIN's approach in the field of Energy-Efficient Cities is relevant and its portfolio achieves good results. Its projects and their related objectives are in line with the strategic objectives of SECO as a whole and with the Dispatch on Switzerland's International Cooperation. The storyline is coherent and relevant. Partners and beneficiaries see SECO as an important international player in the field of energy-efficient cities. Through its projects, SECO has managed to leverage significant resources, knowledge and expertise across a range of international organizations, as well as with local strategic partners. According to the evaluation, SECO has carved out a unique position in the international donor landscape as reliable "enabler" catalysing broader processes and changes to take place with comparably low levels of financial investments. SECO has thus planted seeds for energy-related innovations and transformations. Therefore, SECO has contributed to improve Switzerland's visibility abroad, including through Swiss expertise and know-how, particularly in the field of urban energy management.

The evaluation assessed SECO's overall performance in the selected portfolio along the four DAC criteria relevance, effectiveness, efficiency and sustainability as good (DAC equivalent: satisfactory). The report did not disaggregate the rating according to the DAC criteria and their scaling. However, it provided detailed and sound analysis for the presented case studies with valuable observations and recommendations at project level, helping to further develop the

“energy-city” portfolio in the specific context. Main findings presented in the report can be summarized as follows:

- **Relevance:** Projects are well aligned with the objectives in the Dispatch to Parliament as well as with policies, strategies and priorities of partner countries. Projects are also considered as fully relevant in respect of the Target Outcome IV “Low emission and climate resilient cities” and of the two associated business lines “Integrated Urban Development” and “Sustainable Energy Supply”. Moreover, the evaluation underlined that SECO projects are fully relevant in respect of issues and challenges identified at the country and regional level and that there is a high coherence between SECO interventions and local policy and regulatory frameworks. This observation confirms the systemic value of those projects. SECO was found to hold important niches in the field of energy-efficiency where it can have an added value compared to other donors, particularly for bilateral projects where SECO can have most direct influence. The European Energy Award (EEA) / Energy city approach was assessed as very relevant by the evaluators, namely its benefit for the implementation of energy and climate management as well as quality assurance processes at municipal level.

Position of SECO: SECO fully shares these findings and is particularly pleased to note that the fostering of the EEA methodology was highly appreciated by the evaluators. These very satisfactory findings give SECO confidence that the “energy city” portfolio has a high strategic value in the current Dispatch, being an important building block for the next Dispatch and contributing to the climate change strategy.

The methodological and technical approaches adopted in SECO projects are found to be very relevant and well aligned with project objectives. However, the evaluators pointed out that SECO should conduct a more in-depth description and assessment of the selected approaches in the project design and formulation phase, including social, environmental and economic advantages.

Position of SECO: SECO agrees with this finding and will assess if the credit proposal template and guidelines should be amended in this regard.

- **Effectiveness:** SECO activities within the energy-efficient cities portfolio have significantly helped cities to better plan, manage and monitor their energy supply. These features are particularly present where the EEA approach has been introduced. The intended results of energy-efficient cities projects on a portfolio level have been achieved or are likely to be achieved soon (10 out of 14 evaluated projects). For the projects still under implementation, there are no indications that results will not be achieved.

The report underlined the importance to increase the capacity of municipal and public utility experts to achieve the impact “more sustainable energy management at the municipal level” and to develop measures on the demand-side to achieve “clean and sustainable solutions to address climate change”, while highlighting the good financial leverage effect for downstream large investments. According to the evaluators, the participation in global initiatives provides SECO with a precious opportunity to steer important international efforts related to energy-efficiency and is of good value given the relatively small size of SECO shares. SECO’s visibility in global initiatives is equally high as in bilateral projects (e.g. in Ukraine, Serbia, Colombia and South Africa), making SECO a major international player in the field of energy-efficient cities.

Moreover, the evaluators pointed out that the evaluated portfolio contributes to integrated urban development especially through the introduction of the EEA. They identified EEA as the main aspect of Swissness within the evaluated portfolio. The evaluators also stated that the effectiveness of the EEA is very positive. The introduction of clear structures and quality management tools contribute to leverage financing for follow-up projects. The evaluators

identified good project preparation, adequate project design, sufficient funding and supporting legal framework conditions as success factors of EEA. They also highlighted the importance of knowledge transfer and involvement of decision-makers.

Best practices were illustrated within the EEA case study: the evaluators described the introduction of EEA in Chile as a success story, because the government strongly promoted the replication of the approach beyond the pilot municipalities and mobilized follow-up funding. The evaluators also pointed out various positive "side effects" of EEA, such as the promotion of the local economy. Indeed, improvements in urban mobility and urban planning can generate increasing demand for the local construction industry and local manufacturers, which in turn has a positive impact on the labour market. In the case study on Ukraine, the evaluators highlighted that EEA has triggered a cultural shift in the pilot municipalities and beyond, not only regarding energy efficiency, but also as an entry point to promote stakeholder participation in the municipal agenda. The development of the wood chips supply chain was another spillover of the energy-efficiency projects in Ukraine.

However, in some cases, project implementation was rated as suboptimal by the evaluators due to lack of political or administrative continuity in municipalities, sub-optimal policy context, and lack of communication between different stakeholders.

Position of SECO: SECO fully shares this analysis and particularly appreciates the enabling value and spillover effect of the EEA approach supporting municipalities in their urban and economic development, as illustrated above in the cases of Chile and Ukraine. However, it notes that such success requires supporting factors, for instance political will, structured public authorities and economic drivers. SECO is committed to further use its acknowledged genuine added value as financier and the EEA approach to enhance its leverage to support the partner countries in a sustainable way. SECO can thus sharpen its portfolio beyond the current Dispatch, putting an emphasis on the selection of adequate local partners. However, policy and political risks can never be entirely excluded and are therefore reflected in the projects' standard risk management of SECO.

Finally, the report mentions that higher-level outcomes are only achieved once the projects are completed. The resulting time lag makes it difficult to measure quantitative results for the population and greenhouse gas emissions.

Position of SECO: The challenge of measuring quantitative results is acknowledged. Please refer to the recommendation section.

- **Efficiency:** According to the report, management and oversight by SECO is robust and consistent. For several projects, the timeline was extended due to delays namely in the initial implementation phase (e.g. for project agreement negotiations).

The evaluators considered that costs for overheads across the portfolio are reasonable. They added that only for REPIC, the management costs for the Secretariat are higher compared to other international programs. The evaluators acknowledged that a large number of small projects require more coordination and monitoring than a limited number of larger projects. Furthermore, the level of assistance and support provided by the REPIC Secretariat appear to go beyond what can be found in other international development programs, especially at the project design stage.

Position of SECO: SECO agrees with these findings and acknowledges that the management of a large number of small projects generates higher costs than a small number of large projects. In addition, SECO underlines that REPIC is providing close coaching and monitoring to Swiss entities, which justifies higher costs. It is important to note that REPIC plays a key role for SECO in terms of technology transfer, innovation

and Swiss expertise. These elements are important aspects of Swissness that will continue to play a role in the next Dispatch. To ensure that the funds provided to the REPIC Secretariat are used efficiently, SECO assesses the cost/benefit ratio on a regular basis and monitors costs tightly.

According to the evaluation, all projects use a logframe with performance indicators, but the depth of monitoring and evaluation systems as well as alignment with key performance indicators defined in the Dispatch vary between projects. The evaluators also stated that there are no quantitative indicators at impact level.

Position of SECO: SECO is committed to enhance monitoring and evaluation systems in its energy-efficient cities portfolio in accordance with the storyline and indicators of the Dispatch, while keeping a balance between the aggregated indicators and the operational project/portfolio specific ones. SECO does not measure indicators at impact level, because of, among other reasons, the difficulty to actually and reliably measure them. The SECO quality and monitoring team follows the international debate on this subject in view of the next Dispatch and possible adaptations to the current system.

- **Sustainability:** As several projects are still under implementation, the evaluators did not assess sustainability per se, but rather the likelihood of sustainability based on the nature of outputs and outcomes, as well as the project dynamics.

According to the evaluation, a high likelihood of sustainability is expected only for those projects that require limited maintenance and/or for which the beneficiaries secured the necessary long-term funding for maintenance. The evaluators found that for the time being, only a limited number of projects were reported as replicated, noting that some projects are still at an early stage.

Position of SECO: SECO does not entirely agree with this finding, since sustainability does not only rely on financing, but also on political commitment as well as technical, financial and management-capacities, as previously identified. SECO believes that policy dialogue and capacity building/corporate development are key to enhance sustainability of projects, including a discussion to foster the operation and maintenance cost recovery. In that sense, SECO shares the view of the evaluation consultants stating that main success factors for replication include a strong commitment from authorities, a compelling business case (e.g. environmental, economic and/or social benefits), a favourable regulatory or policy context and optimized processes to reduce the administrative burden.

WEIN was fully aware of conducting an evaluation of this portfolio at a rather early stage. It was expecting a review of its strategic positioning and is in that sense satisfied with the evaluation's outcomes, which will support its positioning in the next Dispatch. The evaluation indeed helped WEIN to identify lessons learned, good practices and success factors to be taken into account directly in its portfolio development. Finally, SECO agrees that it might be too early to assess the potential for replication.

In the specific case of EEA, the evaluators underlined that the streamlined structure and the consistent conformity process are enhancing the sustainability of projects. The report highlighted the challenge of the establishment of national funding schemes and commitment in partner countries.

Position of SECO: SECO agrees with these findings.

Based on the above analysis, the evaluation concluded that WEIN's "energy cities" portfolio is well positioned to enable SECO to deliver substantial and targeted contributions to the sustainable energy management and supply in cities. The portfolio also encompasses a high

potential of Swissness. Moreover, it has a strategic value for achieving the set outcomes defined in the current and future Dispatch.

3) Report Structure and Evaluation Process

The methodology and process were defined in SECO's approach paper for the independent evaluation. Regarding the methodology, the evaluators conducted a desk study followed by field visits in two selected countries (Colombia and Ukraine). The evaluators conducted semi-structured interviews with representatives at SECO WE headquarters and field offices, national and local partners, project beneficiaries, implementing consultants and other selected stakeholders. Regarding the process, the evaluation team and the evaluators discussed and agreed upon the key questions and methods as proposed in the evaluation's inception report. Thereafter, the consultants proceeded with in depth data collection and analysis and elaborated the evaluation report. The evaluation consultants conducted the evaluation in a professional way according to the agreed process and methodology.

The report is structured along the four OECD DAC evaluation criteria, namely relevance, effectiveness, efficiency and sustainability. Based on the assessment of these criteria, the experts draw a general conclusion and made specific recommendations for the SECO WEIN energy-efficiency portfolio. Conclusions and recommendations are to some extent too generic, reflecting the difficulties of the evaluation experts to aggregate observations and concluding statements in a quite heterogeneous portfolio in terms of modalities and countries contexts. The evaluators acknowledged this challenge. However, case studies annexed to the report have great value in terms of specific analysis and recommendations (namely Ukraine, Colombia, EEA and REPIC).

4) Specific Recommendations

For WEIN, the recommendations on the strategic and operational level are useful, but most recommendations reflect subjects and challenges that WEIN is aware of and is largely implementing already. Thus, the evaluation has confirmed the relevance of SECO's strategy and approach, inter alia the EEA.

The most important recommendations in SECO's view include:

- *Links between projects and high-level objectives stated in the Dispatch should be more explicitly mentioned in project proposals. In addition, key performance indicators of the Dispatch should be used more systematically and consistently in project logframes.*
SECO agrees with this recommendation while advocating for a sound balance between Dispatch level aggregated indicators and operational indicators at country and portfolio level. SECO WE closely follows the debates on the monitoring and evaluation approach and on climate projects. There is no clear consensus to date, particularly for projects and programmes mainly composed of technical assistance and capacity building. The main challenges are the attribution and the large time lag to achieve quantifiable results (e.g. CO₂/CH₄ emissions, energy savings). Conclusions of these discussions shall be incorporated in SECO's results framework.
- *A more in-depth assessment of the selected technological and methodological approaches, including their comparative advantage, should be included in the project design and formulation phase, namely in scoping and feasibility studies as well as project proposals.*
SECO agrees with the benefit of such a comparative analysis in order to make its operational and strategic decisions better informed and more explicit. This analysis should take into account social, environmental and economic advantages (or disadvantages) vis-à-vis alternative solutions. It should also foster a harmonized and complementary approach with development partners. SECO will assess to integrate

this approach systematically in its project cycle, i.e. if the credit proposal template and guidelines should be amended in order to better reflect the analysis of alternative solutions / reasons for the selected approach in a specific chapter.

- *SECO's energy cities projects should more systematically strengthen demand side measures, including a proper and accurate energy metering and billing and prioritization of energy efficiency investments (e.g. insulation of buildings) with the support of the private sector against energy supply investments.*

SECO partially agrees with this recommendation. In fact, SECO agrees that demand side measures should be strengthened, but at the same time, energy supply investments are also important. SECO believes that the sequencing of demand- versus supply-side investments depends on the policy framework conditions of each country. Investments in renewable energies and decentralized storage can indeed provide immediate benefits in terms of climate change, network reliability and catalytic demonstration effect. Since the energy pricing is critical, SECO is ready to support its national and sub-national partners from ministry of finance to municipalities, including the private sector. Upon request, it can provide support through various operational divisions: The macro-economic support division (WEMU) addressing among other things the state budget and subventions, the private sector development division (WEIF) seeking to mobilize the private sector for green investments, as well as the infrastructure financing division (WEIN) addressing the issue through the public sector (e.g. ministries, municipalities and utilities), supporting capacity building, technical assistance and targeted catalytic investments.

- *SECO should strengthen already deployed efforts regarding the sustainability of projects, namely financial sustainability, for example the creating of long-term financing mechanisms for EEA.*

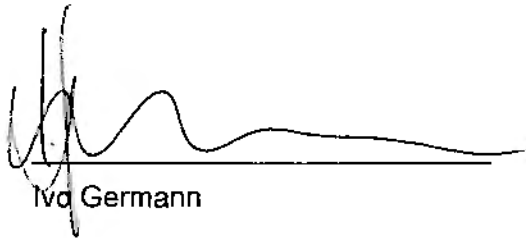
SECO agrees with this recommendation sharing the view that the long-term financing and the covering of recurrent costs is critical for the sustainability of projects. SECO is convinced that this is best achieved with a conjunction of policy dialogue, political and management commitment from the partners, the identification of qualified people and appropriate capacity building as well as choice of suitable customized approaches fitted to the need of the partner. All these ingredients are embedded in the design of the projects. Nevertheless, some remaining risk factors could impede sustainability to some extent. These factors are addressed in the risk analysis supporting the project design, and factors contributing to sustainability are actively supported. Moreover, SECO is fully aware of the high relevance of policy dialogue and its role in policy reforms. SECO usually teams up with other IFIs to have a better leverage in the dialogue with governments. It is interesting to point out that SECO is also involved in key knowledge platforms, such as the Energy Sector Management Assistance Program (ESMAP), administered by the World Bank.

- *SECO should better take into account the identified success factors for EEA projects (financial resources/financing mechanism, national organisation, education and training).*

SECO agrees with the mentioned success factors and is implementing these where feasible. According to SECO, education and training, respectively capacity building, are an integral part of each EEA project. Where feasible and appropriate, SECO also contributes to establishing a national organisation and related national financing mechanisms. However, this is not possible in each country from the beginning as it strongly depends on the political commitment of the relevant authorities. Therefore, in some countries, the EEA approach will be tested in selected pilot municipalities before creating a national organisation and related financing mechanisms. In its projects, SECO aims at exploring how to go beyond the pilot phase towards an institutionalisation of EEA at national level to ensure sustainability.

Thus, SECO agrees with most recommendations and is committed to consider them in project identification, planning and implementation, wherever feasible.

For specific recommendations, please refer to the table in the Annex.

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the end.

Ivo Germann

Head of Operations

A handwritten signature in blue ink, featuring a large circular loop at the top and a series of diagonal strokes below.

Raymund Furrer

Head of Economic Cooperation
and Development

Annex 1: Specific Recommendations and Management Response

RECOMMENDATIONS	MANAGEMENT RESPONSE	RESPONSIBILITY	TIMING	PRIORITY
Theme: Theory of Change				
1) Develop a more detailed and comprehensive Theory of Change to drive further and help steer SECO interventions in the field of energy-efficient cities.	SECO partially agrees with this recommendation. The strategic approach guiding the SECO interventions in the field of energy-efficient cities is described in the Energy Approach Paper, which presents the strategy and operational approach of SECO WEIN in the energy sector, within the frame of the Dispatch on Switzerland's International Cooperation 2017-2020. It introduces SECO WEIN's priorities, main fields of activities and instruments in the energy sector. It also shows how SECO WEIN's energy projects are linked to the Dispatch and contribute to Business Lines and Target Outcomes. Since the theory of change is usually customized for each operation (either by co-financier or because of the context) and considering the small size of the portfolio, SECO questions the relevance to develop a detailed theory of change for EE city portfolio at this stage. However, SECO agrees to include the intervention logic for energy-efficient cities elaborated by the evaluators in collaboration with the SECO evaluation reference group as an annex to the Approach Paper. This will namely help to refine the guiding principles for developing the portfolio and feeding the discussion on the drafting of the business lines of the upcoming frame credit.	WEIN FP Energy	1 Q 2019	3

Theme: Monitoring and evaluation (M&E) framework				
2) Ensure full consistency between projects and SECO global strategic priorities and Key Performance Indicators, and means of monitoring achievements.	SECO agrees with this recommendation. The links between projects and high-level objectives stated in the Dispatch should be explicit in project proposals. In addition, KPIs of the Dispatch should be used more systematically and consistently in project logframes. In order to raise awareness of the WEIN project managers on the issue, the Focal Point Energy together with WEQA will organize a refresher on the SECO WEIN Energy Approach Paper, links between energy projects and high-level objectives as well as KPIs for the energy thematic group. Challenges and ways to more systematically apply these principles shall be discussed within this frame.	Overall: WEIN Refresher: FP Energy WEIN with WEQA	Ongoing 1Q 2019	1
3) Promote the development and implementation of a consistent monitoring and evaluation (M&E) framework across SECO-funded projects.	SECO partially agrees with this recommendation. SECO agrees that a consistent M&E framework is important across SECO-funded projects. SECO WEIN uses respective indicators and targets. SECO logframes, including the ones of SECO WEIN, include qualitative and quantitative indicators, including KPIs of the Dispatch. For the new Dispatch 2021-2024, the overall results framework for projects and KPIs, including for energy-efficient cities activities, will be reviewed and possibly adapted. Possibilities for ex-post monitoring and ex-post evaluation are currently being assessed. Together with WEQA, WEIN will therefore work on a more systematic, quantitative and consistent monitoring and evaluation framework. The proposed energy and water consumption indicators are usually measured as outcome indicators in projects targeting utilities. At that level, it is already a challenge to obtain reliable data and it requires substantial effort in corporate development support. This being said,	Refresher: FP Energy WEIN with WEQA Overall results framework for new Dispatch: WEQA with WE	Ongoing 2Q 2020	2

	in energy efficient cities projects and programmes, the same indicators and the measure of CO₂/CH₄ emissions are to be considered to be impact indicators, for which the success of the project can only be measured years after its end, assuming a rigorous monitoring. This challenge and the one of the accounting methodologies are well acknowledged by the international community. The evaluation correctly identified the associated scarcity of quantitative data. In this context, SECO WE closely follows the debates on the M&E approach and on climate financing and projects, to which belong the energy-efficient cities programmes. There is no clear consensus to date, particularly for projects and programmes mainly composed of Technical Assistance and Capacity Building Measures, the main challenges being the attribution and the large time lag to achieve quantifiable results (e.g. CO₂/CH₄ emissions, energy savings). Conclusions of these discussions shall be incorporated in SECO WEIN results framework. Currently, according to its guidelines, SECO WE does not measure indicators at impact level. Indeed SECO's results-based management is focused on desired outcomes. As mentioned under Recommendation 2, the Energy Focal Point together with WEQA, will organize a refresher Energy Approach Paper, links between energy projects and high-level objectives as well as KPIs for the energy thematic group in order to operationalize the latest developments regarding M&E.			
Theme: Project design				
4) Strengthen relevance of methodological and technological solutions promoted by SECO, by further analysing their added-value as	SECO agrees with this recommendation. A more in-depth assessment of the selected technological and methodological approaches, including their comparative advantage, should be included in the project design and formulation phase, namely in scoping and feasibility studies as well as project proposals.	Overall: WEIN Possible amendment of credit proposal: WEQA	Ongoing 2Q 2019	2

compared to incumbents or alternative solutions.	As mentioned in the recommendation, the analysis should take into account social, environmental and economic advantages (or disadvantages) vis-à-vis alternative solutions. Such elements will be integrated in ToRs of feasibility studies, project proposals, project design and inception reports, wherever deemed appropriate. The added value of the promotion of innovative, cost-efficient technologies and know-how transfer, as part of the objectives of SECO WEIN, shall also be analysed in the beforehand mentioned studies. SECO will assess if the credit proposal template and guidelines should be amended in order to better reflect the analysis of alternative solutions / reasons for selected approach in a specific chapter.			
5) Strengthen demand-side measures in a systematic manner.	SECO partially agrees with this recommendation. SECO agrees that demand-side measures are important. Indeed, the majority of ongoing and new bilateral and co-financed SECO energy projects are in the field of energy efficiency. However, if the sequencing of energy efficient measures before energy supply investment makes perfectly sense, it is not always understood by the SECO WEIN partner countries and it implies an appropriate energy pricing (a.o. no fossil fuel energy subsidies), which is seldom the case. Simultaneous energy supply investments are fully relevant when the target is to switch to renewable energies or more efficient energy generation equipment, without mentioning the visible demonstration effect of it. SECO WEIN should therefore better integrate the overall approach of SECO WE targeting the support of a sustainable economic development in its energy and climate dimensions: green credit lines for the private sector (WEIF), support to homeowners' association in the field of energy efficiency (WEIF) fossil fuel subsidy reform, climate bond initiative etc. In this overall energy and climate landscape, the energy supply investment shall be considered as an integral part of	WEIN	Ongoing	3

	a more global strategy. IFC sustainable cities platform, that is supported by WEIN, is an illustration of such a current and future approach. SECO WEIN and WEIF should foresee an exchange on their respective energy efficiency projects in order to share lessons learnt, create synergies and increase impact where feasible. Regarding the support of homeowners associations as well as the rehabilitation of complete buildings, this could be relevant in some, but not necessarily in all countries. On the one hand, homeowners associations do not exist in all SECO partner countries. On the other hand, rehabilitation of complete buildings might have a strong demonstration effect, but might not in all cases be the most cost-efficient and effective approach or solution. Therefore, SECO will consider this recommendation, but evaluate its relevance case-by-case. Finally, SECO WEIN focuses on countries' needs and priorities and does engage in relevant projects where it can have an added-value, this can be on the demand- and/or supply-side.			
6) Further strengthen capacity-building through partnerships, adapting to local context and using local resources.	SECO agrees with this recommendation. Capacity-building is indeed important and should be an integral part of the overall project taking well into account the local context. As mentioned in its Energy Approach Paper, SECO WEIN applies different approaches to contribute to its thematic priorities, namely policy dialogue, corporate development, capacity building, financing mechanisms (e.g. mobilisation) and demonstration projects. Experience has shown that best results can be achieved through a combination of different approaches. In most cases, SECO deploys "soft components" such as capacity building and corporate development along with "hard components" such as demonstration projects or quick wins serving as catalytic triggers. Thus, partners can directly and rapidly apply and enhance skills and knowledge acquired through capacity building in concrete operational projects and quick wins. Thus, while preparing a project, meaning- and impactful	WEIN	Ongoing	2

	capacity building measures should be identified. The absolute share of capacity building in projects does not necessarily need to be increased. SECO agrees that consultancy services in general and particularly capacity building should be deployed by international as well as local consultants. This is already the case for most projects. SECO also agrees that peer-to-peer capacity building should be strengthened as for instance between municipalities participating in a program inspired by the European Energy Award (EEA). This can be integrated in the ToR of the implementation consultant where appropriate.			
Theme: Policy framework in countries of operation				
7) Further enhance SECO's role as a driver for policy reforms.	SECO agrees with this recommendation. A comprehensive, appropriate policy framework is a precondition for successful, sustainable projects and more broadly for a sustainable urban development and energy sector. SECO therefore engages in policy dialogue with partners at local, regional and national level, usually teaming up with other relevant development partners. During project preparation, namely in scoping and feasibility studies, SECO usually assesses the sector policy context and necessary policy reforms. SECO could certainly do this assessment more systematically and on that basis take an informed decision to integrate or not to integrate policy dialogue components in project design. In general, SECO often finances the "soft components", e.g. capacity building and corporate development that feed into and support related policy dialogue. SECO seeks to enhance its leverage in policy reforms using various channels: • First of all, SECO is committed to create more synergies between its departments and adopt an integrated approach	WEIN	Ongoing	2

	to complex policy challenges. For example, regarding fossil fuel subsidy reforms, SECO uses synergies between macroeconomic and fiscal aspects (WEMU) and the infrastructure, sustainable energy and climate aspects (WEIN). SECO agrees that more synergies and leverage could be sought with WEIF private sector promotion funding (green credit lines and building codes) in the energy sector in general, including policy dialogue. • Furthermore, SECO engages proactively in policy discussions in donors' roundtables and coordination meetings to create synergies and achieve leverage. • Finally, SECO also achieves further leverage in policy dialogue through its multilateral projects, for instance through ESMAP on energy subsidy reforms.			
Theme: European Energy Award				
8) Deploy EEA early in the project stages.	SECO partially agrees with this recommendation. In principle, SECO agrees with the sequencing of the EEA approach and the investment phase, creating both an incentive to implement EEA and to use it as a "proof" of readiness for investment. However, one should not forget the importance for the political authorities to show quick visible results and progress. Therefore "quick-win investments" are usually part of the package and implemented as early as possible in the project lifecycle. Thus, in practice, the sequencing gets blurred/overlapping. In the majority of EEA projects, capacity-building is deployed throughout the whole project, starting at an early phase in project implementation. The investment measures are usually deployed later in the project implementation, but there is an overlap of capacity-building and investment. In our experience, it is fruitful to deploy capacity building and investment in parallel, as the acquired	WEIN	Ongoing	2

	capacities can be used for concrete investment implementation, whereby capacities can be further strengthened. Experience has shown that the combination of "soft" and "hard" project components is the most relevant and impactful. In many projects, the "hard" components are predominantly financed by co-financing partners, e.g. development banks, whereas the "soft" components are predominantly financed by SECO. While preparing the new Dispatch to Parliament 2021-2024, SECO is re-assessing its approach regarding the financing of "soft vs. hard".	WEIN	2Q 2019	2
9) Sufficient financial resources must be available for implementing measures. A national organisation should be established to achieve sustainability of EEA. Education and training of local consultants must be strengthened.	SECO agrees with this recommendation. SECO is fully aware of the mentioned success factors for EEA projects (financial resources/financing mechanism, national organisation, education and training). It is part of SECO strategy to implement these components where feasible. Indeed, education and training, respectively capacity building, is an integral part of each EEA project. Where feasible and appropriate, SECO also contributes to establishing a national organisation and related national financing mechanisms. However, this is not feasible in each country from the beginning as it strongly depends on the political commitments of the relevant authorities. Therefore, in some countries, the EEA approach will be tested in selected pilot municipalities before creating a national organisation and related financing mechanisms. In its projects, SECO aims at exploring how to go beyond the pilot phase towards an institutionalisation of EEA at national level, including establishing a national organization and related financing mechanisms to ensure the sustainability of the project and its impact.	WEIN	Ongoing	2
10) The flexibility of the EEA must be maintained.	SECO agrees with this recommendation. In all SECO financed projects, EEA measures and instruments are adapted to local conditions in close coordination with project beneficiaries. Thus, SECO does not see a need for further action.	WEIN	Ongoing	2

11) Optimise coordination with other donors and initiatives (Covenant of Mayors and COMASS).	SECO agrees with this recommendation. EEA is not only complementary to the Covenant of Mayors, but has even been recognised as an 'excellent implementation tool' for the Covenant of Mayors' Sustainable Energy Action Plan since 2009. The Association EEA is currently also implementing a project in order to harmonize reporting requirements and optimize synergies between EEA and the Covenant of Mayors (in the framework of Horizon 2020). SECO is taking into account these synergies (where applicable) in designing its EEA programmes, involving experts that have an in depth knowledge of these tools and their benefits. SECO will also take into account the findings of the Horizon 2020 project as lessons learnt, once these findings are available. Beyond EEA and Covenant of Mayors, SECO pays a lot of attention to coordinate its EEA projects with other energy efficiency initiatives in order to enhance impact and to seek synergies. These tasks are usually also reflected in the implementation consultant's Terms of reference. Moreover, SECO actively seeks the dialogue with international finance institutions supporting similar tools.	WEIN	Ongoing	2
12) Funded projects should have a lighthouse character and achieve short-term successes.	SECO agrees with this recommendation. All SECO funded EEA projects (Romania, Ukraine, Colombia, Serbia, Tunisia) do combine the introduction of EEA approach with the funding of investments or so-called quick win measures. These measures are identified based on different selection criteria, including municipal priority, ownership, cost-efficiency, counterpart contribution, visibility and replication potential. SECO agrees that the "lighthouse character" should be one of these criteria, e.g. that projects are visible, have a short-term tangible effect, target the largest relevant group of citizens and have a potential for replication.	WEIN	Ongoing	2

Theme: Efficiency				
13) Integrate direct contributions of local SECO staff to projects in project costs.	SECO does not agree with this recommendation. We agree that the contribution of SECO staff to project is essential for the success of projects and has a positive impact on sustainability and replicability of projects. If extra support of SECO staff (beyond the usual project support) is necessary, this should be mentioned in the project proposal. However, from an institutional perspective, we do not include costs related to SECO staff in project costs and currently there is no plan to modify this practice.	-	-	-
Theme: Sustainability and replicability of projects. Knowledge capitalisation				
14) Increase participation and endorsement by local/national authorities including in the case of EEA.	SECO agrees with this recommendation. The commitment, engagement and participation from national/local authorities and partners is key for the success of projects. SECO does assess the commitment of its partners in detail in project preparation and design, including at the early stage, e.g. in scoping and feasibility studies. However, during the implementation of projects, partners themselves and/or their political priorities and related commitment may change. SECO should therefore carefully monitor the institutional landscape, adopt a participatory approach and maintain constant dialogue with partners in order to get all stakeholders on board and to ensure broad-based support for the project. SECO believes that capacity building of local partners, including by local consultants, is crucial. To enhance sustainability of projects, SECO WEIN is already taking into account the specific recommendations (bullet points) mentioned by the consultant. SECO WEIN suggests integrating these	Overall: WEIN Integration of mentioned recommendations into the WEIN energy approach paper: WEIN FP Energy	Ongoing 1 Q 2019	1

	recommendations into its energy approach paper, in order to underline their relevance.			
15) Secure early buy-in from follow-up financiers.	SECO agrees with this recommendation. For global funds and facilities, it is important to identify other donors to co-finance follow-up activities and subsequent investments. This is already the case for the project preparation facility Cities Development Initiative for Asia (CDIA) co-financed by SECO. CDIA involves the most promising financing sources for an infrastructure investment project in defining the scope and focus of pre-feasibility studies so as to serve the latter's specific requirements and thereby increase the probability of downstream financing. SECO always highlights the importance and advocates to develop a fundraising strategy, diversify donors and secure financing early on for follow-up activities. This is an ongoing activity that shall be actively continued.	WEIN	Ongoing	2

Position of the External Committee on Evaluation
on the
Independent Evaluation on Energy Efficient Cities
and
SECO/WE Management Response

1. Members of the External Committee on Evaluation (the Committee) discussed on 27 March 2019 the Public Report by Technopolis / E4tech / Fraunhofer “SECO WE Independent Evaluation of Energy-Efficient Cities” dated 15 November 2018 (the Report) as well as the Response by SECO WE’s Management to its main findings and recommendations (the Response).

2. The objective of the Report was to perform a thematic assessment of SECO WE’s intervention in the field of energy-efficient cities. A portfolio of fourteen (14) projects for a total funding amount of CHF 120 million were identified as falling in the evaluated theme, which includes diverse subtopics such as energy governance, renewable energy for district heating, energy efficiency in buildings, energy-efficient street lighting, etc. Half of the projects in the portfolio are bilateral projects (either co-funded or non-co-funded) and half are contributions to global funds / facilities. In terms of funding, around 62% of the total funding amount are channeled to bilateral projects. In terms of geographic distribution, six (6) projects are in the region of intervention East, seven (7) in the region of intervention South, and one (1) is a global project in Asia.

The Report provides an analysis that follows the DAC¹ Criteria for Evaluating Development Assistance: Relevance, Effectiveness, Efficiency and Sustainability. The Evaluation team used several methodological tools, including literature review, interviews with SECO WE staff, with project beneficiaries, and with other stakeholders, as well as field visits.

3. The Committee is satisfied with the overall quality and thoroughness of the Report, even though Members pointed out that because of its length and of the sometimes inhomogeneous terminology used, it is not a very easy read. However, the Committee praises the solid and widely positive evaluation of SECO WE’s approach to the theme Energy-Efficient Cities, which is thereby confirmed and strengthened, and will therefore be further developed in the forthcoming Message to Parliament 2021-2024. The Committee nevertheless regrets that the Report’s recommendations remain general and strategic, and somewhat uncritical, but acknowledges that the diversity of the portfolio of projects reviewed, and the fact that most projects were evaluated at an early stage of implementation, made it difficult for the Evaluation team to be more concrete in their assessment.

4. The Committee highly welcomes the Report’s overall assessment that SECO WE’s portfolio of projects, in particular the bilateral ones, are in line with the organization’s strategic objectives, and consistent with the beneficiary countries’ policies and regulatory frameworks. Committee Members questioned the lasting **relevance** of some of the long standing bilateral projects evaluated (some financed by SECO WE for more than 15 years), but were reassured by the widely positive assessment provided. The Committee also welcomes examples provided by SECO/WE Management where several operational divisions contributed in a coordinated fashion to the energy-efficient development (e.g. reduction of subsidies).

¹ Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD)

5. The Report rates **effectiveness** of SECO/WE activities as good, noting that most of the projects have achieved their intended results without leading to negative unintended results, and that this area of activity makes SECO/WE a major international and particularly visible player in the field of Energy-Efficient cities. The Report however also points out that the impact of the portfolio on economic development is limited and mostly anecdotal.
6. The Report rates **efficiency** of SECO/WE activities as generally good, noting that overhead costs of evaluated projects are mostly within reasonable range, and that management and oversight by SECO/WE is robust and consistent, in particular thanks to the dedication and rigor of the local staff. The Evaluation team was however not able to come up with a thorough assessment of the project portfolio's impact on the reduction of greenhouse gases (GHG) emissions in the beneficiary countries, due to the absence of quantitative indicators clearly defined at project design stage. The Committee regrets that the Evaluation team did not attempt to estimate such reduction, and recommends that in the medium term clear indicators to this end be defined in SECO/WE projects.
7. The Report's view on the **sustainability** of SECO/WE activities is mixed and the Evaluators could not make a definitive assessment as most projects were evaluated at an early stage of implementation. For a limited number of SECO-funded projects, the Report however rates sustainability as highly likely. The Committee points out that timing of Evaluations should generally be carefully chosen so that lessons can also be learnt on sustainability of the evaluated portfolio.
8. The Committee welcomes and shares the main directions of SECO/WE's Management Response, which is exhaustive and generally endorses the Report's recommendations. As mentioned above, the Committee notes that the high-level, mainly strategic thrust of the Report's recommendations does not present a particularly challenging situation for SECO/WE's Management. The Committee is of the opinion that independent, critical and well substantiated views by Evaluators generally provide a healthy source of reflection and improvement of SECO/WE's projects and programs.
9. Looking at the future of SECO/WE activities in the area of Energy-Efficient cities, the Committee believes that the Report provides a strong basis for the continuation of a similar intervention logic in the frame of the forthcoming Message to Parliament 2021-2024.
10. In conclusion, the Committee recommends disclosure of the Report "SECO WE Independent Evaluation of Energy-Efficient Cities" as well as SECO/WE's Management Response and the Position of the External Committee on Evaluation on SECO's internet website.

The External Committee on Evaluation:

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Members:

Katharina Michaelowa

Tiana Moser

Bruno Stöckli

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15 November, 2018

SECO WE Independent Evaluation of Energy-Efficient Cities

Evaluation report



SECO WE Independent Evaluation of Energy-Efficient Cities

Evaluation report

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2018

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The evaluation team would also like to thank all members of the evaluation steering committee at SECO for their support and guidance; as well as all of those who contributed to the evaluation by sharing their thoughts and time with the evaluation team as part of the multiple interviews and field visits conducted.

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3 List of abbreviations

ADB: Asian Development Bank

AFD: Agence Française de Développement (French Development Agency)

CDIA: Cities Development Initiative for Asia

CA: Cities Alliance

CHP: Combined Heat and Power

CICLIA: Cities and Climate Change in Africa

E5P: Eastern Europe Energy Efficiency and Environment Partnership

EEA: European Energy Award

EBRD: European Bank for Reconstruction and Development

ED: Energy Districts

EE: energy efficiency

ESCI: Emerging Sustainable Cities Initiative

ESMAP: Energy Sector Management Assistance Program

FINDETER: Development Bank of Colombia

FOEN: (Swiss) Federal Office for the Environment

GHG: Greenhouse Gas

GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)

KfW: Kreditanstalt für Wiederaufbau (German Bank for Reconstruction)

KPI: Key Performance Indicators

M&E: Monitoring and Evaluation

NDC: Nationally Determined Contributions

ODS: Ozone Depleting Substance

REPIC: Renewable Energy, Energy & Resource Efficiency, Promotion in International Cooperation

SC: Steering Committee

SDC: Swiss Agency for Development and Cooperation

SECO: Secrétariat d'Etat à l'économie (State Secretariat for Economic Affairs)

SECO WE: SECO Economic Cooperation and Development Division

SECO WEIN: SECO WE Infrastructure Section

SECO WEIF: Private Sector Development

SFOE: Swiss Federal Office of Energy

WEIN: SECO WE Infrastructure Financing Section

UNDP: United Nations Development Programme

1 Executive summary

1.1 Purpose and objectives

1.1.1 Objectives of the evaluation

The evaluation was undertaken in order to obtain an external, impartial opinion of the activities of SECO Economic Cooperation and Development Division's (WE) projects in the area of energy efficient cities. Its results are aimed at feeding into the reporting on the implementation of and accountability on the Message on International Cooperation 2017 – 2020. The evaluation is also undertaken in order to further improve SECO's accountability towards various stakeholders and to trigger a process of internal learning. As such, the evaluation assessed the coherence and storyline of SECO WE's intervention logic and validity of SECO WE Standard Indicators. It also assessed the validity of approaches and instruments and their coherence within SECO WEIN's portfolio, within other sections, and also the coherence with other international processes and actors active in this field.

1.1.2 Scope of the evaluation

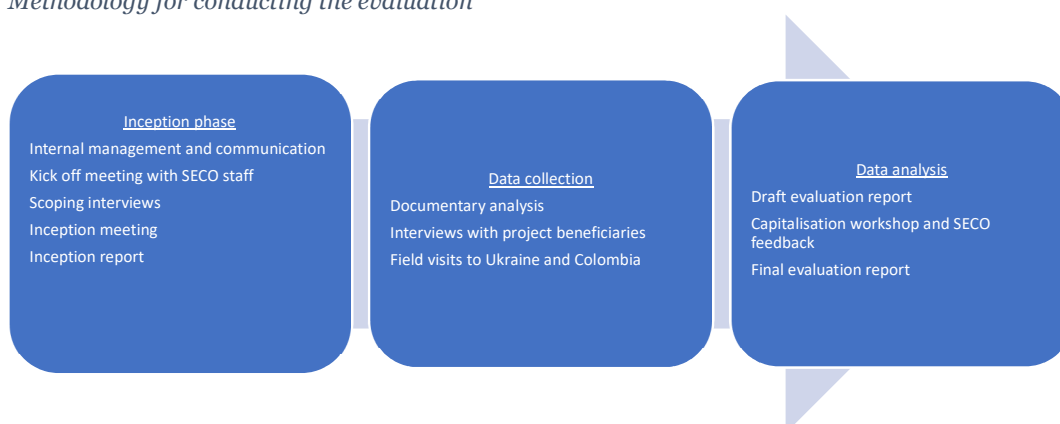
The Approach paper 'SECO WE Independent Evaluation on Energy-Efficient Cities' served as a Terms of Reference and was taken as a starting point. The scope of the evaluation is reflected in the evaluation questions used as a basis for the interview questions and the final report.

Concretely, within the wide topic of energy efficiency, the projects funded by SECO cover the following subtopics: energy governance; renewable energy for district heating (biomass use); energy efficiency in buildings; energy-efficient street lighting; municipal energy efficiency; Sustainable Energy Action Plans. The geographical focus of the evaluation is Eastern Europe (Serbia and Ukraine), Latin America (Colombia), North Africa, Sub-Saharan Africa and South Africa.

1.2 Methodological approach and process

The team used several standard methodological tools including literature review; interviews with SECO staff; interviews with project beneficiaries and other stakeholders, and field visits to the countries selected for the case studies (Colombia and the Ukraine).

Methodology for conducting the evaluation



Key methodological challenges included: measuring the attribution of the programme; capturing the influence of capacity-building; assessing sustainability for projects which have recently started; lack of

quantitative data in some cases; and defining the share of the projects and project components which are of direct relevance to energy-efficient cities goals and ambitions.

Presentation of SECO's portfolio of actions in the field of energy efficiency

As mentioned in the previous section of the report regarding the scope of the evaluation, it looked at SECO's portfolio of projects which are directly linked to the field of energy-efficient cities. The distinction between a portfolio of projects and a stand-alone programme is key to understanding the nature of SECO's intervention in this particular field, as well as the results of the evaluation. The group of projects analysed as part of this evaluation do not share a common pre-defined overall logical frame, rationale, governance and steering structure, or programming process; as would be the case with a standard policy or programme. Instead, the portfolio is a mix of individual projects sharing the same overarching ambition to improve energy efficiency at the city level and implemented under the supervision of SECO WEIN; but which vary in terms of their specific ambitions and scope, geographical focus, management and implementation structure, and size and level of funding. This diversity within the portfolio of projects makes it particularly challenging to conduct a global assessment and develop findings and analysis which is applicable to all projects.

Given the objective of the evaluation to perform a thematic assessment of SECO WEIN's intervention in the field of energy-efficient cities, a common framework has been developed to serve as the baseline against for the assessment of the portfolio. This has taken the form of an intervention logic for SECO's intervention in the field of Energy-Efficient Cities. A total of 14 projects have been identified by SECO as falling within the scope of the energy-efficient cities thematic.

There are three categories of projects supported by SECO in this particular field, each of which corresponds to a different rationale. Each type of project is also implemented and managed differently, mainly from the standpoint of SECO involvement.

The **bilateral projects** focus on implementing activities in a single country (i.e. single country focus), rather than in multiple countries. There are two types of bilateral projects. Co-financed projects are implemented and financed in collaboration with a third-party donor. Non-co-financed (unilateral) projects are projects in which SECO is the only international donor present and providing financial support. The **global projects** are usually funds/facilities which are either global or regional in scope, to which SECO contributes a share of the overall contributions. Therefore, the control which SECO exerts over different elements of project design, individual project selection and implementation is limited.

Half of the projects in the SECO EE cities portfolio are bilateral, while the remaining half are global funds or facilities. In terms of funding, about 62% of the 120 million CHF are channelled to bilateral projects and the rest – to global ones. From a geographical perspective, six out of 14 projects are in the East area, 7 are in the South and one is a global project in Asia.

1.3 Main evaluation findings and conclusion

The analysis is structured along the DAC Criteria for Evaluating Development Assistance: Relevance, Effectiveness, Efficiency and Sustainability. **Relevance** is to be understood as the measure to which the projects are suited to the needs and priorities of the beneficiaries as well as the priorities of the funding institution (SECO). **Effectiveness** is the measure to which the intervention reaches or is likely to reach its objectives. This criterion also explores the major factors interfering with the achievement or non-achievement of objectives. The **efficiency** analysis investigates the relation between qualitative and quantitative outputs and the resources used to achieve them (financial and non-financial), as well as the timeliness of the intervention and project management. **Sustainability** covers the likelihood of activities continuing after the end of the project and the factors associated with it.

1.3.1 *Relevance of the SECO energy-efficient cities project portfolio*

The SECO portfolio of projects and their related objectives are in line with the Strategic Objectives of SECO as a whole, particularly those identified in the current and previous Message to Parliament. There is also a satisfactory alignment between projects and SECO country priorities as defined in the national country strategies. Direct relevance vis-à-vis SECO strategic objectives is more easily ensured through bilateral projects, where SECO has more influence over project design, than through global funds and facilities.

SECO projects are deemed fully relevant in light of the issues and challenges identified at the country and regional level. There also appears to be high consistency between SECO interventions and local policy and regulatory frameworks.

SECO appears to be filling a unique intervention niche compared to other international donors active in the field of energy-efficient cities. This is especially reflected in the bilateral projects it supports. SECO interventions are complementary to the work conducted by other major actors in the field of energy efficiency.

The approaches adopted in the framework of SECO projects, whether methodological or technical in nature, are found to be relevant and well aligned with the objectives the projects. This applies to the use of the Energy Efficiency Award which is a frequently used methodological approach, and one of the hallmarks of SECO intervention in the field. Further work could be done to justify the selection of the methodological and technological choices made by projects, and enhance understanding of key social, environmental and economic advantages/disadvantages linked to these choices.

1.3.2 *Effectiveness of SECO energy-efficient cities project portfolio*

Overall, on a portfolio level, the intended results of energy-efficient cities projects have been achieved. Evidence shows that seven projects have fully achieved the results or are very close to achieving them. For three projects, sufficient indirect evidence of success is available. The rest of the projects are at an early stage of implementation but there are no indications that results will not be achieved.

Overall, the portfolio projects have improved the reliability of basic public services due to infrastructure investments but also due to capacity-building for municipal and public utility staff. Low-emission and climate-resilient economies is mainly achieved through energy-efficiency measures and through the introduction of renewable energy sources. The outcome 'Effective institutions and services' has been reached through the capacity-building components of the projects. This impact is mainly related to the supply-side aspects of the projects. This leads to increased consumer benefits and well-being because of the improved urban infrastructure and subsequent security of supply.

Projects have also addressed the demand-side of sustainable energy through energy-efficiency measures catering for the achievement of the high-level impact 'Clean and sustainable energy solutions to improve the global climate situation'. On a portfolio level, the impact 'more sustainable energy management at the municipal level' has been achieved to a large extent through increased capacity of municipal and public utility experts.

Because of the time lag, it is difficult to provide a judgement on the impact of SECO projects to improved living conditions for populations in targeted countries and regions. The full benefits of improved energy infrastructure are only visible after the project completion. However, there is a high likelihood that this will be the case in the case of infrastructure projects leading to security of supply of heating and electricity.

The evidence indicating SECO projects are contributing to economic development is limited, and mostly anecdotal. Given that economic development ambitions are not explicitly mentioned in the majority of SECO projects, such results are not being monitored and accounted by projects. The SECO EE city project portfolio's contribution to economic development thus remain mostly unaccounted for.

Although on a portfolio level the intended project results have been achieved to a large extent in some cases project implementation has been sub-optimal due to a number of reasons. These include: lack of political continuity in municipalities as well as lack of administrative continuity; sub-optimal policy context; and lack of communication between different stakeholders.

The financial leverage effects of SECO energy-efficient cities portfolio is relatively high. The leverage effect varies across projects also as a function of their design: certain projects are expected to lead to follow-up loans (mainly funds/facilities ones) while for other projects (bilateral and multilateral ones) leveraging additional funds is not a primary objective. Nevertheless, some of the latter projects have also led to follow-up financing.

Based on the analysis of individual projects, on a portfolio level, we consider that SECO is a major international player in the field of Energy-Efficient cities. SECO is particularly visible by stakeholders in countries where there are bilateral and multilateral projects such as Ukraine, Serbia, Colombia and South Africa.

In the case of funds and facilities covered in this evaluation SECO's visibility is smaller and this is due to the multitude of other donors and the almost absent element of Swissness. However, the participation in global initiatives provides SECO with a precious opportunity to steer important international energy-efficient efforts and is a good value given the relatively small size of SECO shares.

On a portfolio level, the evaluation team did not identify any negative unintended results and a number of positive ones have been detected. We have classified these into several groups: impulses to develop and strengthen renewable energy supply markets, increased momentum for holistic policy reform; and positive spill-over effects into other development areas (local contexts or related thematic areas).

Overall, the levels of harmonisation of SECO projects with other projects and initiatives is good. Interviewees have not been able to identify instances of significant overlaps or duplications. Harmonisation and coordination are necessary for passing enabling policy reforms but also for increasing the Swissness aspect within global funds and facilities and for synchronizing capacity-building efforts.

The Energy-Efficient Cities portfolio contributes to integrated urban development especially through the introduction of the European Energy Award (EEA). It also contributes to improved sustainable energy supply mainly in those projects where new renewable energy infrastructure has been constructed.

The introduction of EEA approach and certification is the main aspect of Swissness within the studied projects. Swissness is also perceived as the transfer of Swiss know-how, technology and working culture.

The effectiveness of the EEA is very high. In addition to the introduction of clear structures and the development of strategic planning, the recurrent quality control through internal and external audits is particularly worth mentioning. With these positive elements, the EEA can be very helpful in persuading future donors to finance future projects.

In summary, we can say that SECO's energy efficient cities projects have been generally effective and most of them achieved the intended results without leading to negative unintended results. Many of the projects leveraged significant additional funding. The success of the projects and the good cooperation and coordination with other donors and International Financial Institutions turned SECO into a visible and respected international actor in energy efficiency in cities.

...

Table 1 Achievement of results

Fully achieved or very close to fully achieving the expected results Projects without sufficient reliable data but with enough evidence that outcomes and outputs will be achieved. Significant modifications of initial outputs. New ones achieved. Relatively early stage of implementation with no or minor issues Early stage of implementation which had some issues at the start	
Projects	Achievement of results
Vinnitsia Zhytomyr District heating Serbia REPIC CDIA Cities Alliance E5P	Fully achieved or very close to fully achieving the expected results Projects are at an advanced stage of implementation and all conditions and factors concur to reach the objectives. Although some outputs might not be a fact yet, there is sufficient evidence that the majority of outcomes and even high-level impacts are either already achieved or will be achieved in the near future. Because of the high relevance of these projects to SECO energy-efficient cities objectives we can conclude that the achievement of project objectives contributes significantly to SECO Energy-efficient Cities ambitions.
Colombia District Cooling ESCI ESMAP	No sufficient quantitative evidence available but enough indirect evidence of results, outputs and outcomes being achieved These are projects towards the end of implementation period but there is little evidence for quantitative assessment of achievement of outcomes and impacts. Nevertheless, the evaluation has revealed that the great majority of results have been achieved. Some questions remain however regarding the project outcomes and impacts given lack of reliable and updated data.
Padinska Skela CHP project	Significant modifications have been made due to problems. New, modified objectives achieved. The project faced different issues at the start (design, budgetary, administrative, technical) and important decisions needed to be taken for subsequent implementation. Caveats in the stage of feasibility study and design were compensated with good and adaptive redesigning and management. The objectives of the project were modified, and the analysis of the impact has been made in line with the new objectives.
CICLIA	Relatively early stage of implementation with no or minor issues. Improvements needed. There are improvements to be made but they are relatively minor. Nevertheless, these are factors for the success of the project and should be taken seriously if outcomes and impacts are to be achieved.
South Africa EE Lighting MEEMP	Projects at a relatively early stage of implementation or with big delays and issues at the start For these projects it could not be judged yet if they will achieve their intended results. However, due to the fact that at the start of the projects they faced different issues, problems and modifications utmost attention will be needed during project implementation to achieve the intended outcomes and high-level impact.

1.3.3 Efficiency of SECO energy-efficient cities project portfolio

Cost-efficiency of SECO-funded projects is generally good. Overhead costs are mostly within reasonable range. The staff in charge of managing projects and their partners are considered efficient and they generally work under the supervision of a steering committee, which monitors, among other things, that resources are used efficiently. Several projects obtained an extension in timeline due to initial delays.

Efficiency is generally comparable to other Swiss development programs (SDC). Management and oversight by SECO is robust and consistent, in spite of a few limited issues with other donors.

All projects use a logframe with performance indicators somewhat aligned with SECO KPIs, but a great diversity of situation exists with regards to the depth of the monitoring & evaluation systems implemented.

Project outputs and outcomes are consistently monitored and reported, and most projects achieve the expected direct results within the expected budget and relatively on time (with a few exceptions). In other words, a high level of efficiency exists at project management level, notably due to the dedication and rigor of local SECO staff. This evaluation did not yield any reason to suggest significant changes in the oversight, coordination and involvement of SECO staff in beneficiary projects, besides trying to comprehensively account for the time spent by local SECO staff in support of local partners.

At the level of impacts, however, the inconsistent use of quantitative indicators prevents any accurate evaluation of the cost efficiency of SECO projects. Should GHG emissions be significantly reduced by the implementation of SECO-funded projects, their cost-efficiency would be considered high as far as the Swiss contribution to climate change mitigation in partner countries. There is, however, a risk that some of the technologies supported or the specific context of projects do not bring about such environmental benefits, in which case the efficiency of SECO WE strategy would be limited.

Consequently, the systematic use of quantitative and consistent impact indicators and related methodologies (e.g. for GHG accounting) constitutes an important area of improvement for the evaluation of efficiency of SECO-funded projects.

1.3.4 Sustainability of SECO energy-efficiency cities project portfolio

Project sustainability was extrapolated based on the nature of outputs and outcomes, as well as the project dynamics (e.g. partner, context).

A high likelihood of sustainability is expected over a limited number of SECO-funded projects only, for which outputs/outcomes require limited maintenance (e.g. energy efficiency in buildings) and/or because grantees ensured a viable source of income over time (other than alternative international donors).

In spite of an alignment between project focuses and existing local/national strategies, sustainability could be enhanced by supporting grantees regarding the engagement of local and national authorities in the endorsement of the project, its financing and the development of a favourable policy context. The EEA framework could constitute a solution, given its streamlined structure and consistent conformity process, but the need to develop a national funding scheme may turn out to be a limiting factors in several countries.

Additional success factors for sustainability include the creation of a dedicated national body to oversee RE and EE development projects, reduced red tape and streamlining of processes, and better transmission of skills among beneficiaries with high staff turnover. Alternative approaches such as corporate development were not evaluated and could also be explored to enhance the sustainability and replicability of projects.

In spite of replicability being part of the criteria used for project selection, only a limited number of projects were reported as replicated for the time being. Success factors include a strong commitment from authorities, a compelling business case (e.g. environmental, economic or social benefits), a favourable regulatory or policy context and optimised processes to reduce the administrative burden.

1.4 Recommendations

Theme: Theory of Change.

Recommendation 1: Develop a more detailed and comprehensive Theory of Change to drive further and help steer SECO interventions in the field of energy-efficient cities.

The evaluation has demonstrated that SECO's intervention when it comes to supporting EE cities is extremely rich and diverse in terms of types of projects supported, partnerships developed, technologies promoted, and types of results being accomplished or sought to be accomplished. This is the result of the many 'explicit' and 'implicit' objectives driving the design of individual projects. The full picture of how SECO is promoting EE cities globally is not currently fully captured in a holistic intervention logic or strategy document. In the absence of any formal strategic vision adopted the future, formally recognising and describing the SECO Theory of Change when it comes to supporting EE cities, it is likely that the effectiveness and quality of its intervention in this field may decrease. Adopting such a strategy will ensure that, moving forward, the strength of SECO intervention does not dwell only in the sum of its individual projects, but rather in a coordinated effort to intelligently invest its limited resources in a high potential and balanced set of projects. This will also ensure developing a more explicit vision of how some of its current hallmark tools and approaches (e.g. the EEA) are meant to further contribute to its efforts in this field.

A more detailed and complex Theory of Change should be developed which adequately reflects both the implicit and explicit objectives of SECO's interventions in the field of Energy-efficient Cities. This theory of change should not only be operational in nature, but also include guiding strategic principles (e.g. who to partner with, when, and why?). This could also include a list of central outcome and output-level KPIs, in addition to the ones defined in the Message to Parliament; as well as strategic KPIs.

Theme: Monitoring and evaluation (M&E) framework

Recommendation 2: Ensure full consistency between projects and SECO global strategic priorities and Key Performance Indicators, and means of monitoring achievements.

The evaluation has demonstrated that while there is a high level of relevance of SECO projects vis-à-vis global SECO strategic priorities, the links between projects and high-level objectives stated in the Message to Parliament (previous and ongoing) are not always explicitly formulated in project proposals. In addition to this, the evaluation found a lack of more systematic and consistent use of Message to Parliament KPIs in project performance frameworks. It is thus recommended that moving forward, project designers pay careful consideration to ensuring and describing the direct link between project ambitions and high-level SECO ambitions and take on board centrally-defined KPIs.

Recommendation 3: Promote the development and implementation of a consistent monitoring and evaluation (M&E) framework across SECO-funded projects.

The present evaluation has demonstrated that the body of evidence illustrating the effectiveness and efficiency of SECO-funded projects is limited. Recent evaluations are scarce due to early implementation stages, but those which do exist do not provide a full picture of programme performance on the basis of DAC evaluation criteria, due to the lack of quantitative impact indicators demonstrating concrete environmental, social and/or economic benefits. This makes it extremely challenging to assess the cost-efficiency of SECO investments with regards to energy efficiency, climate change mitigations and other socio-environmental benefits, beyond some of the anecdotal evidence provided by SECO and its partners.

Given the strong role played by environmental protection, climate change mitigation and improved livelihood in SECO strategy, the evaluators recommend a more systematic, quantitative and consistent framework for monitoring and measuring project impacts by grantees, especially to evaluate GHG reductions brought about by SECO projects. A fit-for-purpose GHG accounting methodology could be developed or selected among existing approaches to evaluate all SECO projects consistently, which would also allow comparing them in terms of climate change impacts, as an additional instrument for selection and steering of projects. Such methodology could be implemented at the project design stage, based on the project description and expected results, as well as during the project and upon completion to measure actual GHG savings.

Other environmental and social quantitative indicators should be added to the logframe and consistently implemented to further improve the evaluation of benefits of SECO projects, including but not limited to:

- Energy consumption;
- Water consumption;
- Air quality;
- Job creation;

Using quantitative indicators will be particularly beneficial to ascertain the benefits of certain energy efficiency or renewable energy technologies against the baseline, which is an important prerequisite for the replication stage. Their use, however, does require partners to be properly trained and supported, especially for GHG accounting methodologies, which require specific technical skills. Additional project costs should therefore be anticipated for the training of staff and purchase of specific equipment (e.g. GHG calculation software).

Theme: Project design. EEA deployment and capacity building

Recommendation 4: Strengthen relevance of methodological and technological solutions promoted by SECO, by further analysing their added value as compared to incumbents or alternative solutions.

While the relevance of selected technological and methodological approaches is high, there is a level of uncertainty regarding their relevance vis-à-vis incumbent or alternative solutions. Conducting a more in-depth description and assessment of the selected technological and methodological approaches in the project design and formulation phase, including social, environmental and economic advantages (or disadvantages) vis-à-vis alternative solutions could greatly increase the level of understanding and certainty of why these are the right solutions to the problems being addressed and objectives being pursued. This may also contribute to revealing the existence of any positive or negative trade-offs or synergies, linked to the selected solutions, which require being addressed as part of project implementation in order to be mitigated.

Recommendation 5: Strengthen demand-side measures in a systematic manner.

Certain projects and project components have already addressed the demand-side of sustainable energy through energy-efficiency measures. They cater for the achievement of the SECO Energy-efficient Cities impact on clean and sustainable energy solutions to improve the global climate situation. However, it has been reiterated by different stakeholders that SECO should address demand-side measures (i.e. installing meters and determining weak points) in a systematic way and preferably well in advance of investing in supply-side measures. Against this backdrop, SECO should explore possibilities for supporting owners' associations and implement several rehabilitations of complete buildings with a

strong demonstration focus. This can be done in cooperation with other donors and can also go hand-in-hand with building the capacity of local actors how such rehabilitations could be financed.

Recommendation 6: Further strengthen capacity-building through partnerships, adapting to local context and using local resources.

Capacity-building has been highly appreciated within current projects and need to be continued at all cost and at an early stage. While it has to be adapted to local conditions (including using local trainers) its innovative character needs to be preserved and SECO should keep bringing in new technical and cultural approaches through capacity-building. Capacity-building should be strategically thought out and well-integrated into the overall project and the overall local situation. Its share of the overall projects could be increased. SECO could also help define the training needs of the municipalities. In addition, utmost attention should be paid to training more than one expert in a certain issue and think of the issue of knowledge continuity in advance. In the case of global projects strengthening capacity-building in the implementation stage (including a stronger emphasis on aspects of energy-efficient cities) is strongly recommended. Peer-to-peer capacity-building is also strongly recommended.

Theme: Policy framework in countries of operation

Recommendation 7: Further enhance SECO's role as a driver for policy reforms.

Comprehensive policy reform in the countries of operation is a factor for the optimal implementation of projects as well as their sustainability and replicability. This mainly concerns the financial independence of public utilities; the tariff structure reforms and removing heavy subsidies; regulations on energy efficiency in public and residential buildings, etc. Full benefits of technological and organisational solutions can only be achieved if the right policy context is in place. Additionally, local stakeholders often expect foreign donors to use their leverage and put stronger pressure over governments in order to trigger policy reform. SECO has already taken measures in this direction and has been participating in policy dialogue efforts in a number of different contexts. For example, in Ukraine SECO's contribution to E5P is key to moving the reforms forward.

Nevertheless, SECO could explore in a systematic way further possible leverage to be involved even more actively in policy reform efforts on a national or regional level. SECO also has the possibility to use WEIF private sector promotion funding for addressing the regulatory reform issue, i.e. with regards to energy-efficiency renovations. In these efforts, cooperation with other donors and implementing agencies for the sake of passing is key. In addition, earmarking funds for financing policy dialogue is also important.

Theme: European Energy Award

Recommendation 8 Deploying EEA early in the project stages.

One possibility for increasing the chances of success of a project is deploying EEA (where relevant) and capacity-building components earlier and continuing with hard components only when cities have sufficient capacities to implement the project. EEA implementation also increases the chances for leveraging future municipal own or borrowed funding which could be used to implement individual EEA measures. In this way, municipalities can be reached that do not yet recognise the opportunities of EEA and capacity-building, but primarily want to make use of the investment funds for the implementation of measures. A stronger link between funding commitments and the implementation progress of EEA and capacity-building could be an appropriate way to strengthen understanding

Recommendation 9: Sufficient financial resources must be available for implementing measures. A national organisation should be established to achieve sustainability of EEA. Education and training of local consultants must be strengthened.

The implementation of measures is an important element of the EEA. SECO should support the creation of national funding in the pilot countries. During the pilot phase, funding measures must be included in the projects.

The establishment of a national organisation significantly contributes to the sustainable success of the EEA and should be pursued by SECO after a successful pilot phase at the local level. An important issue here is the financing of the national organisation, but also the understanding of decision-makers at national level, who must support the implementation process. Funding activities should focus even more strongly on institutionalisation.

A pool of local consultants must be established so that external advice can function well. However, long-term financing of local EEA consultants is not possible without institutionalisation at national level, as the pilot projects do not provide sufficient contract volume.

Recommendation 10: The flexibility of the EEA must be maintained.

EEA measures and instruments must be adapted to local conditions. This process should start during the pilot phase and then be continued by the national organisation. The findings from the pilot cities are to be evaluated and adjustments are to be made to the measures in consultation with international experts. A good linkage of EEA approach to the national legislation and targets should always be pursued.

Recommendation 11: Optimise coordination with other donors and initiatives.

The Covenant of Mayors in general and COMASS in Africa are gaining speed and members. EEA and COM have been assessed as complementary hence there are no competition issues between them. The cooperation mode between SECO and COM/COMASS can provide synergies; direct SECO funding to more skilled cities; help avoid duplication of efforts. A closer cooperation with other initiatives and tools would also increase the dissemination of the EEA. SECO could also become more active as an advocate for the EEA in order to support the current efforts to link the EEA and the GCoM more closely in the context of Horizon 2020.

Recommendation 12: Funded projects should have a lighthouse character and achieve short-term successes.

Investment measures supported by the pilot projects must be well planned and implemented. Schools and kindergartens are particularly suitable as lighthouse projects due to their multiplication potential and their capacity to raise the awareness of tomorrow's decision-makers. The effects of the measures should be visible in the short term in order to increase motivation among the actors involved and raise the interest in the EEA among politicians and population.

Theme: Efficiency

Recommendation 13: Integrate direct contributions of local SECO staff to projects in project costs.

Extra efforts by SECO staff also proved valuable to the sustainability and replicability of projects, since they were instrumental in project successes and the strengthening of local networks. In order to improve the accountability around projects and avoid such efforts to increase overhead costs, SECO could consider including a more direct participation in project implementation in project costs. Activities may

include support to grantees in the management of project, communication and facilitation of networking. Related costs should no longer be considered as overheads, though, which would keep the relative overhead cost close to current levels.

Theme: Sustainability and replicability of projects. Knowledge capitalisation

Recommendation 14: Increase participation and endorsement by local/national authorities including in the case of EEA.

Project sustainability could be greatly improved by addressing some of the main threats described in Section 4.4, in particular the commitment and engagement from authorities appears as a key success factor. In most projects included in this evaluation, project developers manage to align with national, regional and local strategies, but this does not necessarily ensure strong support from authorities. SECO staff should support beneficiaries with the development and implementation of a proactive communication strategy to entice authorities towards the project and ensure a higher level of commitment and support. Limitations exist, however, due to the political context observed in some regions or countries, in which energy efficiency or renewable energy are not considered strategic. At least, attempts should be made in all projects to engage in a policy dialogue with authorities, with support from local SECO representatives.

In order to further enhance sustainability of projects, SECO could also encourage beneficiaries to:

- secure alternative funds and investments or a sustainable business model in the near future;
- establish a specific entity or body to deal with the project on a day-to-day basis;
- ensure continuity and transmission of key knowledges and competences when staff turnover is important;
- improve coordination and communication among partners, and;
- monitor project impacts in a slightly more systematic and quantitative fashion.

In the context of the EEA and for its successful anchoring, it is important to have strong, well-connected partners on the ground. SECO should attach even greater importance to the selection of local partners in the future. A pilot phase without involving local players is unfavourable for the sustainability of the implementation. Rather, great importance must be attached to local consultants being well trained and integrated into the EEA process during the pilot phase. Capacity-building is therefore a key element.

Recommendation 15: Secure early buy-in from follow-up financiers.

In the case of global projects with funds and facilities (CDIA, CICLIA, etc.) we would recommend keeping an approach where follow-up financiers are identified at a very early stage, even prior to approving the individual projects. This approach has demonstrated its success and has led to much higher success rate and leverage and hence - sustainability of the projects.

2 Introduction

2.1 Objectives of the evaluation

The evaluation was undertaken in order to obtain an external, impartial opinion of the relevance, effectiveness, efficiency and sustainability of SECO Economic Cooperation and Development Division's (WE) activities in the area of energy-efficient cities. Its results are aimed at improving SECO WE's approaches and projects as well as feeding into the reporting on the implementation of and accountability on the Message on International Cooperation 2017–2020. The evaluation is also undertaken in order to further improve SECO's accountability towards various stakeholders and to trigger a process of internal learning. The evaluation has a strategic aspect and intends to provide answers as to how to 'render sustainable energy-efficient solutions and policies more attractive to cities'. There is additionally a financial aspect to the evaluation, as SECO WEIN's investment in the energy-efficient cities portfolio amounts to 120 million CHF represents, a considerable figure of 23% of the overall WEIN portfolio and 45% of the investments in the Target Outcome 'Low-emission and climate-resilient economies'.

As such, the evaluation assessed the coherence and storyline of SECO WE's intervention logic and validity of SECO WE Standard Indicators. It also assessed the validity of approaches and instruments and their coherence within SECO WEIN's portfolio, within other sections, and also the coherence with other international processes and actors active in this field.

Additionally, SECO WE was interested in discerning the best modalities of intervention (i.e. bilateral versus funds; infrastructure investments versus capacity-building) to produce solutions to sustainable energy issues in urban areas. The recommendations stemming from the final report focus to a larger extent on content as opposed to project management.

2.2 Scope of the evaluation

The Approach paper 'SECO WE Independent Evaluation on Energy-Efficient Cities' served as a Terms of Reference and was taken as a starting point. We also took into consideration the Message on International Cooperation 2017–2020 and WEIN's strategic and conceptual papers, e.g. the SECO WEIN energy approach paper from 2017. One of the main conclusions from the paper is that SECO WEIN has started focusing on the energy demand side at the municipal level. The evaluation team attempted to tackle the governance perspective in the evaluation, a fact incorporated in the Intervention logic. The scope of the evaluation is reflected in the evaluation questions used as a basis for the interview questions and the final report.

In the context of this evaluation, energy efficiency was understood in a broad sense. On the one hand, it was understood as producing, transmitting and using energy in the most efficient, effective and sustainable way as taken up in international discussions within UN, OECD, Multilateral Development Banks, etc. Additionally, energy efficiency aspects were also analysed in projects which are not primarily labelled as such, including clean transport projects and municipal non-energy infrastructure projects. In these cases, we use the concept of mainstreaming energy efficiency into other projects.

We also observed that, more concretely, the projects funded by SECO cover the following subtopics: energy governance; renewable energy for district heating (biomass use); energy efficiency in buildings; energy-efficient street lighting; municipal energy efficiency; Sustainable Energy Action Plans. The geographical focus of the evaluation is Eastern Europe (Serbia and Ukraine), Latin America (Colombia), North Africa, Sub-Saharan Africa and South Africa.

2.3 Methodological approach

The methodology for the evaluation was developed in the proposal submitted to SECO and later adjusted at the kick-off meeting, the Inception report and the Inception meeting. The team used several standard methodological tools including literature review; interviews with SECO staff; interviews with project beneficiaries and other stakeholders, and field visits to the countries of the case studies. The collected

information was analysed and included in a draft final evaluation report excluding recommendations. This report was the basis for the preparation of a capitalisation workshop (Bern, 26 September 2018), where the evaluation team presented the conclusions and some principal recommendations, triggering a fruitful discussion with SECO staff. The result of the discussion enriched the final evaluation report. Details of the methodology are available in Appendix C.

Methodology for conducting the evaluation



2.4 Key methodological challenges

Throughout the project analysis the evaluation team has been faced with a number of challenges which we attempted to overcome.

Table 2 Methodological challenges and mitigation actions

Challenges	Mitigation actions
Measuring the attribution of the programme - which is an intervention of limited scale - to changes in macro-level results indicators	Interviews with different types of stakeholders helped in identifying specific results and impacts
Capturing the influence of capacity-building	
Assessing sustainability for projects which have recently started	We assessed the likelihood of sustainability in these cases
Lack of quantitative data in some cases	We relied on qualitative data and anecdotal evidence when quantitative data is not available
Defining the share of the projects and project components which are of direct relevance to energy-efficient cities goals and ambitions	Qualitative judgement
Interviewee bias: it is of interest for the interviewees to present the project as a success	For case studies: interview as many non-beneficiary stakeholders as possible
Diversity of portfolio	Developing a common Intervention Logic

3 Presentation of SECO's typology of actions in the field of energy efficiency

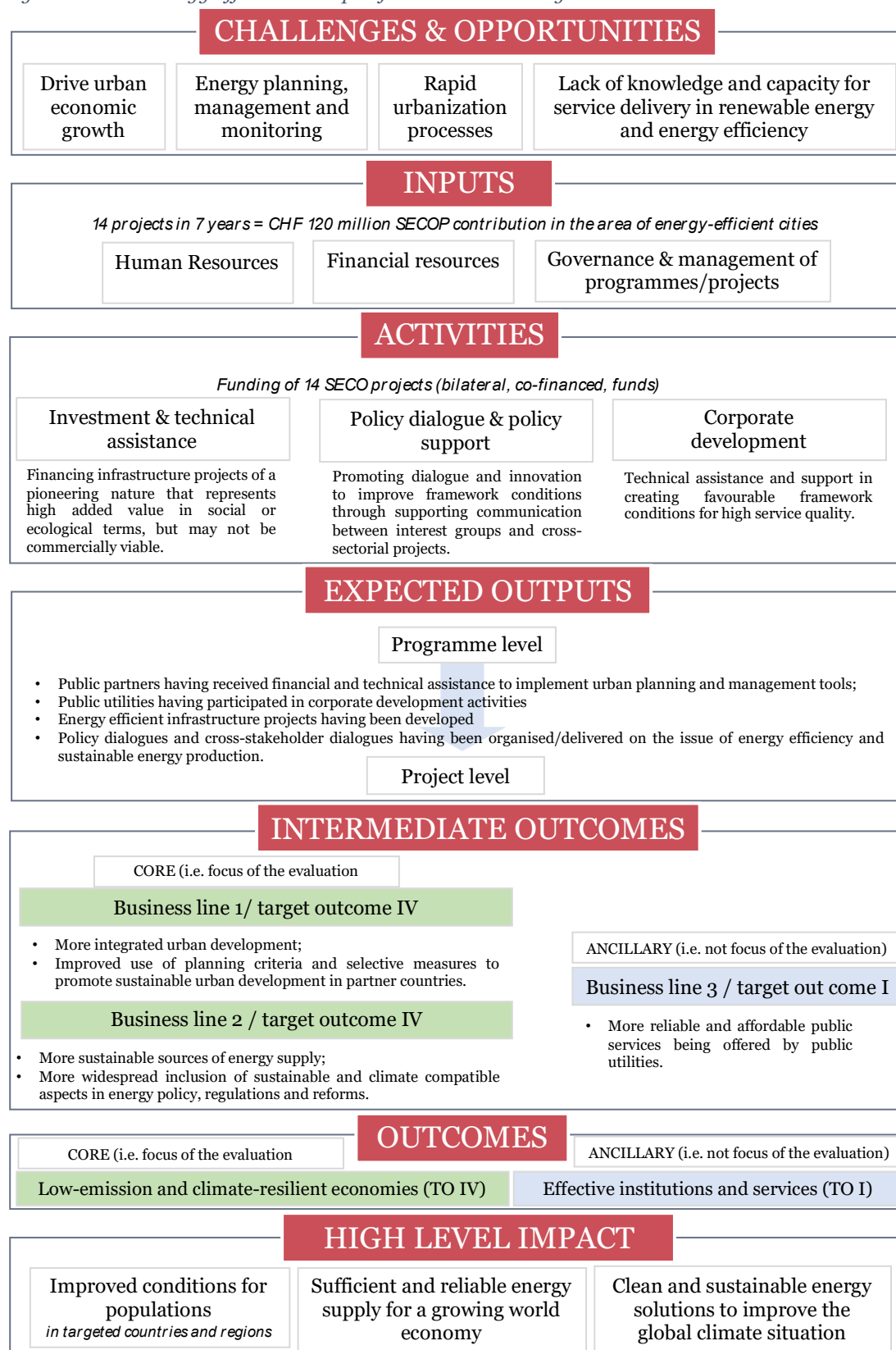
As mentioned in the previous section of the report regarding the scope of the evaluation (section 2.2), the evaluation looked at SECO's portfolio of projects which are directly linked to the field of energy-efficient cities. The distinction between a portfolio of projects and a stand-alone programme is key to understanding the nature of SECO's intervention in this particular field, as well as the results of the evaluation. The group of projects analysed as part of this evaluation do not share a common pre-defined overall logical frame, rationale, governance and steering structure, or programming process; as would be the case with a standard policy or programme. Instead, the portfolio is a mix of individual projects sharing the same overarching ambition to improve energy efficiency at the city level and implemented under the supervision of SECO WEIN; but which vary in terms of their specific ambitions and scope, geographical focus, management and implementation structure, and size and level of funding. This diversity within the portfolio of projects makes it particularly challenging to conduct a global assessment and develop findings and analysis which is applicable to all projects.

Given the objective of the evaluation to perform a thematic assessment of SECO WEIN's intervention in the field of energy-efficient cities, a common framework has been developed to serve as the baseline against for the assessment of the portfolio. This has taken the form of an intervention logic for SECO's intervention in the field of Energy-Efficient Cities, as summarised in the following figure. The intervention logic was developed during the inception phase of the evaluation on the basis of several key documents, as well as a discussion with the evaluation management group during the Inception meeting in March 2018.

The intervention logic approach to policy design and description is useful in illustrating how policy inputs (e.g. human and financial resources) are meant to evolve into tangible results and outcomes, which are in turn intended to address issues or challenges identified at the outset of policy implementation. In doing so, the IL describes the link between direct policy outputs generated through specific activities, and high-level results to be achieved.

A detailed presentation of how the IL was developed, as well as its main components is found in Appendix B.

Figure 1 SECO's energy-efficient cities portfolio intervention logic



Source: Evaluation team in collaboration with the SECO evaluation reference group

A total of 14 projects have been identified by SECO as falling within the scope of the energy-efficient cities thematic. These projects are reflected under the IL under the ‘activities’ heading (see previous figure). These projects make up the project portfolio which have been assessed as part of this evaluation. According to the IL, projects represent the main building block of SECO’s intervention in this field. As such, they can be said to constitute SECO’s main activity to support the promotion of energy-efficient cities at a global scale. According to the SECO approach paper for energy-efficient cities,

“the term “project” is used to describe all activities in the area of energy-efficient cities, comprising (a) bilateral projects (i.e. projects which are implemented by SECO WE alone with the beneficiary in a SECO WE priority country or countries eligible for SECO WE complementary measures); (b) co-financed projects (i.e. projects run jointly with the Multilateral Development Banks, e.g. World Bank or European Bank for Reconstruction and Development, or bilateral Development Finance Institutions, e.g. KfW, AFD or GIZ) to attain greater synergies and to support more comprehensive outcomes at an institutional and political level; and (c) funds/facilities through which SECO WE can make contributions to a program or sector through facilities that support the SECO WE operational axes, possibly including private financing. The contributions are normally linked to a participation in the fund’s strategic and/or decision-making bodies”.

As illustrated in the previous paragraph, there are three categories of projects supported by SECO in this particular field, each of which corresponds to a different rationale. Each type of project is also implemented and managed differently, mainly from the standpoint of SECO involvement. When possible and relevant, evaluation findings presented in the following sections of the report are nuanced to reflect the key differences in the natures and dynamics of these three project types.

The **bilateral projects** focus on implementing activities in a single country (i.e. single country focus), rather than in multiple countries. There are two types of bilateral projects:

- **Co-financed projects** are implemented and financed in collaboration with a third-party donor. SECO is not the only donor directly involved in the delivery of the project, and thus has less direct supervision and authority over their implementation.
- **Non-co-financed projects** are projects in which SECO is the only international donor present and providing financial support. These projects often benefit from financing and the support of local stakeholders and beneficiaries (governments, local utilities). These projects have been designed by SECO, who controls all aspects of the project from design, alignment with national and local strategic directions of development, implementation and procurement as well as monitoring and reporting.

In the sample of projects in the Energy-Efficient Cities Portfolio the following seven projects are bilateral (co-financed and non-co-financed)

Box 1 List of bilateral projects

- Serbia/East
 - UR-01033.10.01: Renewable energy for District Heating Programme/Serbia/East
 - UR-00779.10.01: Municipal Energy Efficiency and Management Project (MEEMP)/Serbia/East
 - UR-00516.01.01: Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela/Belgrade/Serbia/East
- Ukraine/East
 - UR-00645.10.01/88: EE/RE Zhytomyr project / EEA in Ukraine
 - UR-00469.01.01-03: Energy Efficiency Vinnytsia Project/Ukraine/East
- Colombia and South Africa/South
 - UR-00816.10.01: Energy districts in Colombia/South
 - UR-00785.10.01: Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa/South

The **global projects** are usually funds/facilities which are either global or regional in scope, to which SECO contributes a share of the overall contributions. Therefore, the control which SECO exerts over different elements of project design, individual project selection and implementation is limited. In the sample of projects in the Energy-Efficient Cities Portfolio the following seven projects are global funds or facilities:

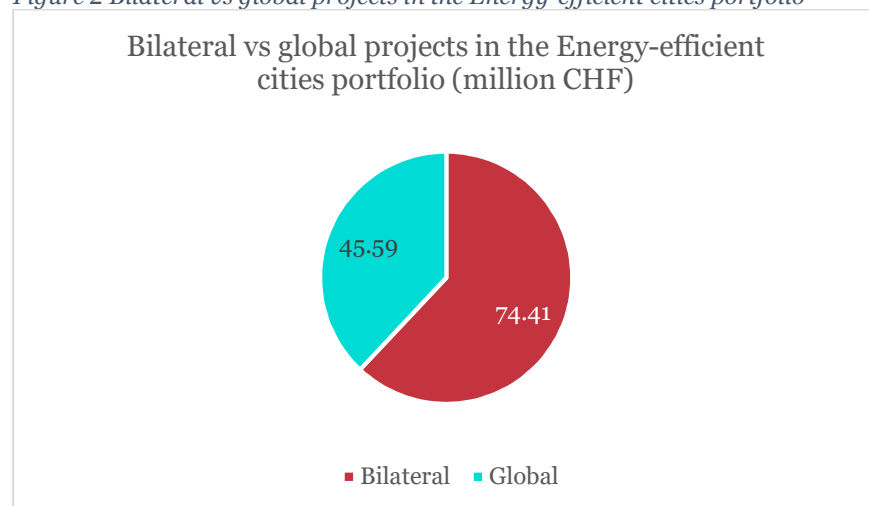
Box 2 List of global projects (funds/facilities)

- E5P (Eastern Europe Energy Efficiency and Environment Partnership)/Ukraine/East
- UR-00941.10.01: Earmarking energy and city - phase I (ESMAP)/Global/South
- UR-00705.10.02: Emerging Sustainable Cities Initiative (ESCI)/Global, Colombia, Peru/South
- UR-00705.10.04: Cities Alliance (CA)/Global, Tunisia/South
- UR-00769.10.01: Cities Development Initiative for Asia (CDIA)/Global/Asia/Oceania, Indonesia, Vietnam
- UR-01000.10.01: Cities and Climate Change in Africa (CICLIA)/Sub-Saharan Africa/South
- UR-00123.04.01: Platform Renewable Energies (REPIC IV)/Global/South

Half of the projects in the SECO EE cities portfolio are bilateral, while the remaining half are global funds or facilities. The evaluation team can only underscore the importance of understanding the key differences between both families of projects, in order to understand the results of the evaluation presented in the subsequent sections.

The following figures shows that approximately 62% of the funding channelled through the EE cities portfolio is dedicated to bilateral projects, compared to 38% to global funds and facilities.

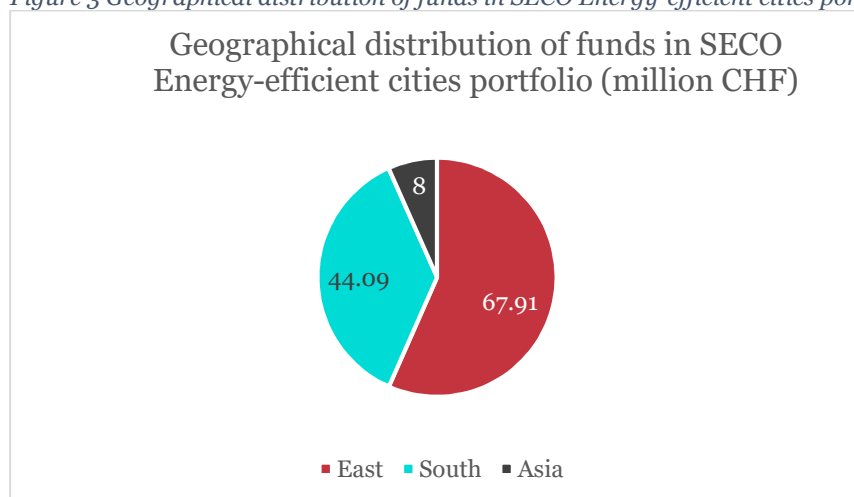
Figure 2 Bilateral vs global projects in the Energy-efficient cities portfolio



Source: Own calculations. Figures not precise because of exchange rates.

In terms of funding, approximately 57% of the portfolio financial support targets the geographical area East, 37% is dedicated to the South and around 8 million CHF to Global/Asia/Oceania, Indonesia, Vietnam.

Figure 3 Geographical distribution of funds in SECO Energy-efficient cities portfolio (million CHF)



Source: Own calculations. Figures are not precise because of exchange rates.

In addition to the distinction between bilateral and global projects, it is also important to gain an understanding of the state of maturity of the projects assessed as part of the evaluation. Projects which are ongoing or recently completed have not all yielded their expected results, which makes it more difficult to assess their effectiveness as compared to other projects which have been closed for a number of months.

The following table presents the group of projects which have either recently finished or will finish in the coming year. Consequently, most of the outputs of these projects should already have been achieved. The projects in the second group are halfway through their implementation and a significant share of their outputs and outcomes are forthcoming. Therefore, only a judgement of the likelihood of achieving outputs and outcomes has been made at this stage.

Table 3 Progress of the Energy-efficient cities portfolio projects

Completed and nearly completed	Running (mid-way)
- UR-00645.10.01/88: EE/RE Zhytomyr project / EEA in Ukraine - Bilateral (2018) - UR-00469.01.01-03: Energy Efficiency Vinnytsia Project/Ukraine/East – Bilateral (2018) - UR-00816.10.01: Energy districts in Colombia/South – Bilateral (2017) - UR-00785.10.01: Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa/South – Bilateral (2019) - UR-00516.01.01: Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela/Belgrade/Serbia/East – Bilateral - UR-00705.10.02: Emerging Sustainable Cities Initiative (ESCI)/Global, Colombia, Peru/South - Fund/Facility (2016) - UR-00769.10.01: Cities Development Initiative for Asia (CDIA)/Global/Asia/Oceania, Indonesia, Vietnam - UR-00123.04.01: Platform Renewable Energies (REPIC IV)/Global/South - Fund/Facility	- UR-01033.10.01: Renewable energy for District Heating Programme/Serbia/East – Bilateral (till 2021) - UR-00779.10.01: Municipal Energy Efficiency and Management Project (MEEMP)/Serbia/East – Bilateral (till 2020) - E5P (Eastern Europe Energy Efficiency and Environment Partnership)/Ukraine/East (till 2020) - UR-00941.10.01: Earmarking energy and city - phase I (ESMAP)/Global/South - Fund/Facility (till 2021) - UR-00705.10.04: Cities Alliance (CA)/Global, Tunisia/South - Fund/Facility (till 2021) - UR-01000.10.01: Cities and Climate Change in Africa (CICLIA)/Sub-Saharan Africa/South - Fund/Facility

A more detailed presentation of the projects is available in Appendix A.

4 Main evaluation findings

The analysis is structured along the DAC Criteria for Evaluating Development Assistance: Relevance, Effectiveness, Efficiency and Sustainability. **Relevance** is to be understood as the measure to which the projects are suited to the needs and priorities of the beneficiaries as well as the priorities of the funding institution (SECO). **Effectiveness** is the measure to which the intervention reaches or is likely to reach its objectives. This criterion also explores the major factors interfering with the achievement or non-achievement of objectives. The **efficiency** analysis investigates the relation between qualitative and quantitative outputs and the resources used to achieve them (financial and non-financial), as well as the timeliness of the intervention and project management. **Sustainability** covers the likelihood of activities continuing after the end of the project and the factors associated with it.

4.1 Relevance of the SECO energy-efficient cities project portfolio

The first evaluation criteria to be analysed in this chapter is relevance. According to the OECD DAC Criteria for Evaluating Development Assistance, **relevance** is the extent to which aid activity is suited to the priorities and policies of the target group, recipient and donor. On this basis, SECO developed a list of evaluation questions aimed at exploring in more detail the extent to which the portfolio of energy-efficient cities projects can be said to be relevant. The general relevance of the portfolio has been assessed against several elements including:

- The high-level ambitions and strategic objectives of SECO (see Section 4.1.1)
- The needs and challenges which exist in beneficiary countries and cities (see Section 4.1.2)
- The policy priorities of these countries (see Section 4.1.3)

In addition to this, several more specific relevance dimensions have been explored which include:

- The relevance of selected partners given the needs of SECO partner countries (see section 4.1.4)
- The relevance of the approaches and solutions implemented by project, in light of project objectives (see Section 4.1.5)
- The relevance of SECO interventions in light of other existing international initiatives in the field of energy-efficient cities (see Section 4.1.6)

Box 3 Main messages on relevance

- The SECO portfolio of projects and their related objectives are in line with the Strategic Objectives of SECO as a whole, particularly those identified in the current and previous Message to Parliament. There is also a satisfactory alignment between projects and SECO country priorities as defined in the national country strategies. Direct relevance vis-à-vis SECO strategic objectives is more easily ensured through bilateral projects, where SECO has more influence over project design, than through global funds and facilities.
- SECO projects are deemed fully relevant in light of the issues and challenges identified at the country and regional level. There also appears to be high consistency between SECO interventions and local policy and regulatory frameworks.
- SECO appears to be filling a unique intervention niche compared to other international donors active in the field of energy-efficient cities. This is especially reflected in the bilateral projects it supports. SECO interventions are complementary to the work conducted by other major actors in the field of energy efficiency.
- The approaches adopted in the framework of SECO projects, whether methodological or technical in nature, are found to be relevant and well aligned with the objectives the projects. This applies to the use of the Energy Efficiency Award which is a frequently used methodological approach, and one of the hallmarks of SECO intervention in the field. Further work could be done to justify the selection of the methodological and technological choices made by projects, and enhance

understanding of key social, environmental and economic advantages/disadvantages linked to these choices.

4.1.1 *Relevance of project objectives with regard to the SECO WE strategic goals and objectives (reference to intervention logic see Appendix A)*

This section explores the extent to which the objectives established by individual projects are aligned with the objectives of SECO WEIN in the field of energy-efficient cities. In this context, SECO objectives are defined at two levels:

- At the level of SECO WEIN priorities (energy-efficient cities at the global level), as defined in the Message to Parliament on International Cooperation and in the intervention logic for the SECO portfolio of projects in the field of energy-efficient cities (see Section 4.1.1.1). At this level, projects have been assessed to verify that they are compatible with the SECO strategy in terms of general and specific objectives, SECO business lines, and geographical targeting.
- At the level of country strategic priorities as defined in the SECO national country strategies (see Section 4.1.1.2).

4.1.1.1 *Relevance of EE city projects with regard to global SECO objectives and strategic priorities*

The evaluation revealed that, generally, both bilateral and global projects are in line with SECO infrastructure development and energy-efficient cities strategic priorities (e.g. promoting the development of low-emission and climate resilient economies). The evaluation did not identify the existence of any project (and related objectives) which significantly deviates from the SECO priorities identified in the intervention logic. As illustrated in section 4.1.2, the challenges being addressed by projects are - for the most part - fully in line with challenges representing the basis for SECO's intervention in the field of energy efficiency in cities (see intervention logic challenges and issues)

The evaluation team also found the assessments made in credit proposals of project relevance vis-à-vis SECO priorities to be robust and based on sound evidence (i.e. evidence was confirmed in evaluation interviews). For instance, the Colombia Energy District project is considered to be in line with the Message on International Cooperation 2013 -2016 and more specifically, with SECO's priority theme II 'extension of city infrastructure and supply structures'. In the case of Serbia, the evaluation team's analysis of project objectives and related log frames vs. SECO's EE cities intervention logic also illustrates the existence of clear ties between both levels. The overall relevance of SECO projects has not been affected by the adoption of subsequent Messages to Parliament.

While the overall relevance of the SECO project portfolio with regard to SECO strategic objectives is high, the relevance of global funds requires a more nuanced analysis (as compared to bilateral projects). In the majority of instances where SECO has provided a contribution to global initiatives, it has done so alongside a number of additional partners and donors. As a result of this, SECO does not always have the capacity or influence to ensure that these initiatives (and the range of projects they support) are always fully in line with its own strategic objectives and priorities. This said, the evaluation has demonstrated that SECO has opted to support global initiatives which to a large extent, reflect its own vision of why and how energy-efficiency measures should be supported at the city level. Alignment between SECO objectives and global funds is also strengthened by the earmarking measures (soft and hard) which are introduced in administrative agreements between SECO and global funds and facilities.

It is worth noting that when it comes to supporting global initiatives, SECO also has a number of 'indirect' or 'implicit' strategic objectives which are not explicitly formulated in project documents or performance frameworks. This refers to ambitions such as participating in international dialogues and developing thought leadership in the field of energy-efficient cities, contributing to shaping development cooperation efforts in this field, or showcasing Swiss expertise and know-how in an international context. It is difficult to assess the level of relevance of these objectives from an evaluator's perspective given that they are not formally acknowledged in project or project portfolio intervention logics. However, the evaluation's assessment is that these ambitions, which are generally referred to as

‘opportunities’ by SECO¹, are fully justified and are complementary to SECO’s longer-term environmental protection ambitions.

When it comes to the links between the project portfolio objectives and the three key SECO business lines (and observation areas), the evaluation found that all business lines are directly and indirectly addressed by project objectives. As such, project objectives can be said to be directly relevant to the three key business lines identified in the SECO EE cities IL. Unsurprisingly however, there is a stronger emphasis among projects on objectives directly tied to Business line 2 (outcome IV) relating to sustainable energy supply. In addition to this, the portfolio analysis shows that there is a healthy balance in terms of the types of expected results, in line with the SECO EE cities intervention logic: investment and technical assistance, policy dialogue and policy support, and corporate development.

The analysis of project portfolio objectives also reveals that:

- The objectives of SECO intervention in the field of EE cities are mainly environmental in nature and energy-related. The economic and social dimensions of energy efficiency and management are only indirectly addressed within the broader framework of project rationales.
- A number of projects are directly aimed at facilitating the entry and market access of innovative technologies. This ambition is not necessarily reflected in SECO’s overall intervention logic to EE cities.

The target countries and cities where SECO funding is being used to implement projects are, in general terms, aligned with SECOs geographical priorities and target countries. In spite of this, country targets of global funds and facilities supported by SECO tend to be broader than the set of priority SECO countries identified in the IL. The evaluation team does not consider this to be detrimental to SECO’s efforts to promote EE cities. Earmarking (soft and hard) for specific projects in specific countries has allowed SECO to steer the efforts of global funds towards some of its priority countries. The evaluation has not been able to fully verify the share of SECO support going to secondary cities which represent its priority target; as compared to large and small cities.

4.1.1.2 Relevance of EE city projects with regard to SECO country strategies

The evaluation also found that there is a consistent level of compatibility between SECO EE cities projects and SECO country strategy priorities. This is particularly the case for bilateral projects. For instance, the Energy-Efficient Street Lighting Retrofit Project in South Africa is directly linked to the SECO Country Strategy for South Africa (2013-2016) under the 2nd country objective which aims to address “climate-friendly and green growth through the development of a low carbon industry”. In the case of the Colombian Energy District project, the project is considered to be fully in line with the Colombian 2013-2016 country strategy, particularly when it comes to its objective to “strengthen climate change risk management and sustainable urban development to mitigate the impact of climate change and manage rapidly growing urbanisation”.

Assessing the relevance of global funds and facilities vis-à-vis country strategies is more challenging given the global and regional nature of these funds, and the very high number of projects they finance. In addition, these projects are not always implemented with the direct involvement of SECO country offices. For instance, SECO country offices do not follow the implementation of all REPIC-supported projects.

The evaluation has not conducted a systematic assessment of the compatibility of global fund- and facility-supported projects, and the SECO country strategies of the countries they are implemented in. The only instance identified by the evaluators where weak project relevance influenced the implementation of the project is the budget extension of the ESCI programme for the implementation of actions in Peru. In this case, the relevance of the project was limited by the lack of a more prominent recognition of energy-efficient cities in the SECO country strategy at the time of its design. In addition,

¹ Project proposals include a section on ‘opportunities’ which describe these elements in more detail. They are not per se, official project objectives, but windows of opportunity which projects aim to seize.

target cities of the budget extension were not fully in line with local SECO priorities. This appears to be an isolated case among the hundreds of projects supported by SECO-sponsored global funds and facilities.

4.1.2 *Relevance of projects with regard to country/regional needs*

A second important dimension of relevance is the extent to which SECO projects and their related objectives are aligned with the needs and challenges of beneficiary countries and cities; and whether these needs and challenges have undergone any significant evolution since the time of the projects' inception.

The evaluators find that in general terms, a direct link exists between SECO project objectives and what are considered to be key local challenges when it comes to enhancing sustainability and energy efficiency. This has been confirmed through the analysis of project documents (e.g. issues addressed vs. project objectives), as well as by the great majority of interviewees contacted as part of the evaluation.

Given the number of projects which are directly or indirectly supported by SECO's portfolio in support of EE cities, it would be very challenging to identify all of the challenges and needs each individual project is addressing. However, examples of these include the following:

- Reducing energy consumption, in order to reduce emissions of harmful substances;
- Improving air quality to improve quality of life, reduce negative environmental and health effects;
- Retrofitting and modernising energy infrastructure and building stocks which generate energy losses;
- Reducing dependency on and use of Ozone Depleting Substances which generate a negative environmental effect;
- Remediating skills scarcity which act as a barrier to implement and enhance the impact of energy-efficiency initiatives (e.g. addressing skills gaps in the environmental goods and services sector);
- Reducing the energy intensity of the economy and high level of dependency on imported sources of energy (e.g. gas);
- Mitigating the negative effects of the price of energy, improving efficiency and introducing renewable energy;
- Improving the capacities of energy management teams and units at the municipal, in order for them to be able to better implement energy-efficiency policies and programmes;
- Addressing the legal and administrative challenges linked to the introduction of an innovative technology or solution.

In addition to there being a high level of compatibility between project objectives and identified issues and challenges, the relevance of project objectives has not been weakened by changes or evolutions in local situations. Issues and challenges addressed by SECO projects are found to remain valid throughout project lifetimes.

Developing a blanket assessment of whether global funds or facilities supported by SECO are aligned with local needs is (once again) fairly complex from an evaluator's perspective. This is mainly due to the broad range of issues tackled by these projects and the multiple countries and cities they are deployed in. The main source of evidence regarding global fund and facility relevance vis-à-vis local challenges are the existing fund/facility external evaluations, which tend to provide positive appraisals in this regard. This is the case for instance of the 2016 external evaluation of the relevance of the ESMAP

programme, which concluded that “ESMAP... objectives and programs remain highly relevant to global and regional challenges in the energy sector”².

The very high level of demand experienced by certain funds and facilities can also be considered an illustration of their relevance in light of local needs and challenges. This is the case for instance of the Cities Development Initiative for Asia where the number of cities demanding the support of the programme grew by 511% between 2010-2017. High levels of demand were also cited by ESCI representatives.

4.1.3 Relevance of projects with regard to country/regional strategic objectives and international commitments

The evaluation has also assessed the relevance of SECO projects with regard to the existing landscape of policy initiatives and strategies in beneficiary countries. This has been done in order to verify the lack of ‘intervention contradictions’ vis-à-vis existing local strategies and policies, as well as the potential for success of SECO actions given the existence of ‘fertile ground’ stemming from a project-compatible local policy and regulatory framework.

Project stakeholders interviewed as part of the evaluation overwhelmingly find SECO projects to be in line with existing local policy frameworks and initiatives. This has been confirmed by the analysis of project documents and their review of how SECO projects are compatible with and are meant to build off of existing local policies and strategies. In the case of Serbia for instance, the MEEMP project builds on existing legislation including the Energy Law, Law on Planning and Construction and Law on Efficient Use of Energy. In this specific case, the Ministry of Mining and Energy stated that the project was fully aligned with one of its areas of strategic focus covering the implementation of EE policy to reduce energy consumption and costs to utilities.

The evaluation also found a high level of compatibility between SECO project ambitions and local commitments to reaching international environmental and climate protection goals (e.g. Nationally Determined Contributions as part of the Paris Agreement). Many projects and initiatives are likely to contribute to the objectives set in NDC, despite the fact that, in many cases, projects were designed and approved before the adoption of the Paris Agreement and the definition of NDCs. In the case of the Colombia ED project, local stakeholders stressed the importance of the project to reaching the commitment made by the country as part of the Montreal Protocol.

Many of the global funds and facilities supported by SECO are also directly aligned with major international environmental treaties and agreements. For instance, a number of SECO-supported funds and facilities are considered to be directly contributing to Sustainable Development Goal 7 (Ensure access to affordable, reliable, sustainable and modern energy for all) established in the framework of the 2030 Agenda for Sustainable Development. It is worth highlighting that the ESMAP project contributes to the monitoring and reporting of this SDG through its contribution to the SDG7 Energy Tracking Report³.

The evaluation shows that SECO’s internal practices and procedures, particularly in terms of project design and approval, contribute to ensuring the existence of direct links between project objectives and local challenges (see Section 4.1.2), and with local regulatory and policy frameworks. Many projects – particularly bilateral projects – are developed on the basis of a demand-driven (bottom-up) approach. The evaluation identified a number of instances where SECO support has been delivered on the basis of a specific request on behalf of the beneficiary (e.g. Energy District Project in Colombia). Many project partners also contribute to the drafting of project proposal documents. This also applies – albeit to a more limited extent – to the global initiatives. For instance, in the case of ESMAP, projects are often designed and approved on the basis of consultations with World Bank field offices, which have a good

² ICF International (2016).

³ <https://trackingsdg7.esmap.org/downloads>

understanding of country and regional needs and challenges. This bottom-up approach to project formulation was also highlighted in the case of the REPIC programme.

In addition to this bottom-up approach to project formulation, two additional measures implemented as part of the internal SECO project assessment and selection process strengthen the relevance of projects vis-à-vis local needs and interests:

- The first of these is that credit proposals include a specific section on project relevance to local needs, as well as SECO priorities. This ensures that project officers and sponsors specifically think about the potential contribution of projects to remedying local challenges.
- In addition, a number of project concepts are subject to an external review (e.g. feasibility studies) in order to assess and confirm their relevance and viability. It is not clear how many SECO EE cities project portfolio projects have undergone this process, but it appears to be a somewhat common practice.

Global funds and facilities supported by SECO also frequently rely on project design and selection procedures which ensure the existence of links between projects and local challenges and priorities. In the case of REPIC for instance, the linkages between projects and national strategies are driven by the fact that the integration of REPIC project proposals in a national strategy (whenever there is one) is used as an important (but not exclusive) criterion for their selection

4.1.4 Relevance of selected project partners for SECO partner countries

In addition to exploring the extent to which the SECO project portfolio is relevant in light of SECO's general strategic objectives, and local challenges and needs, the evaluation has also explored if selected partners have proven to be relevant for SECO WE partner countries⁴. The issue of partnerships is addressed both under the relevance criteria (i.e. the present section of the report), as well under the efficiency criteria (see Section 4.3). However, in the latter, the analysis focuses on how and if the composition of project partnerships has been conducive to a smooth, timely and efficient delivery of projects. In the present section, the analysis is focused on whether the partners mobilised as part of SECO EE city projects were the best suited and most relevant, given project ambitions and country interests.

4.1.4.1 Bilateral projects (including co-financed projects) partners

When it comes to bilateral projects (including co-financed projects), SECO has been successful at building strong partnerships which are fully relevant to the nature and the ambitions of the project. Key strengths of project partnerships include:

- The legitimacy, visibility and clout of some of the key partners brought on board for the projects, which in many cases included key ministries and agencies at the national level;
- The technical capacities to implement projects brought by some of the key project partners;
- The local presence and reputation of key partners, which was important to raising local awareness and increasing buy-in on behalf of local stakeholders;
- In many cases, projects were able to attract private stakeholders which offered distinct perspectives and valuable input for project implementation.

The above points are well illustrated by the nature of the partnership developed in the framework of the Colombia ED project. Some of the partnership assets illustrating its relevance vis-à-vis project ambitions include:

- The participation of a major local utility as the main implementing partner, which gave the project a wealth of legitimacy and visibility. The utility had very strong technical capacities to implement certain elements of the project.

⁴ See Evaluation sub-question 1.5

- The national Ministry of Environment, and the Ministry of Energy also became actively involved in project governance and provided valuable support to project implementation.
- Within each of the selected cities for the development of an energy district feasibility study, the project identified and brought on board a local focal point (e.g. local environmental agency).
- Local business roundtables were organised for each of the selected cities which brought together representatives from the public sector, utilities, businesses, trade federations etc.

Bilateral project co-financing partners are also deemed to be relevant by the evaluation team and the beneficiary countries. These partners not only offer a source of additional funding leading to an important financial leverage effect but, in many cases, also provided important assets supporting project implementation (e.g. visibility, project management capacity, previously existing relations with key stakeholders). Such is the case of KfW and GIW in Serbia which had a long track record and visibility in the country, providing support to the implementation of the Renewable energy for District Heating Programme.

Appendix E provides an overview of project partnerships along with key strengths and weaknesses.

4.1.4.2 Global funds and facilities partners

Whereas the relevance of partnerships for bilateral projects is mainly based on the analysis of the composition of the project delivery a partnership (i.e. who SECO has identified as partners for project delivery), the relevance of global project partnership is mainly based on the nature and characteristics of the key partner institution hosting the project (i.e. who SECO has decided to provide funding to as part of a global project - e.g. World Bank, Inter-American Development Bank etc). In some cases, the relevance of global project partnership is also assessed on the basis of who are the additional donors contributing the project, as well as in cases where programmes are being run as joint-partnerships between several Swiss governmental institutions (e.g. REPIC).

The analysis of global project partners reveals that SECO has developed partnerships with a range of key multilateral and bilateral donors, which have a very strong presence at the global scale and strong track record in the field of infrastructure and energy efficiency. This generally makes them very relevant partners with regard to SECO's ambitions in terms of energy-efficient cities promotion (see section 3). The partnership developed with the World Bank in the framework of the ESMAP programme is for instance deemed to be highly relevant to SECO strategic ambitions given the organisation's following assets:

- Worldwide coverage and ability to leverage actions in all regions of the world;
- Very extensive network of projects and partners;
- Track and legitimacy (including in the field of energy and infrastructure) as the key multilateral agency when it comes to international development assistance, with a very strong track in energy and infrastructure;
- Capacity to mobilise other bilateral and multilateral donors and create a platform for inter-donor cooperation.

The majority of these assets also apply to other key SECO partners such as the Interamerican Development Bank, the United Nations Development Programme, the Asian Development Bank, and the European Union. These partnerships are considered by the evaluation team to be key strategic assets for SECO in its pursuit to promote energy-efficient cities at a global scale.

It is also worth mentioning that the range of global fund and facility partners is also balanced in terms of geographical coverage (e.g. global partners based in Africa, Latin America, Asia).

This said, additional key donors in the field of sustainable urban development (including energy efficiency), with which SECO could look to build future partnerships, include the Global Covenant of Mayors as well as the African Development Bank. In addition to this and given the importance of supporting private sector development in SECO's mandate, SECO could also seek to build stronger ties

with private-sector development institutions (bilateral or multilateral) such as the International Finance Corporation, or PROPARCO (France).

Appendix E provides an overview of project partnerships along with key strengths and weaknesses.

4.1.5 *Relevance of project approaches (i.e. technological and methodological) vis-à-vis project ambitions and local context (e.g. EEA or other standard methodologies)*

As part of the relevance assessment conducted as part of the evaluation, the team also looked into the issue of whether the solutions advocated by the project appeared to be the best suited to reach project ambitions. In other words, could projects be reaching or have reached better results using alternative technical or methodological solutions. In general terms, the two types of approaches assessed include:

- **Technological solutions**, which refer to the specific types of products or technologies which are being financed via the SECO projects (sometimes through the transfer of Swiss know-how), notably under infrastructure development/renovation and renewable energy production, and;
- **Methodological approaches**, which are used to conduct energy diagnostics and strategy development, or more broadly speaking urban development and planning diagnostics and strategies, including training and capacity-building.

4.1.5.1 *The relevance of technological solutions adopted as part of SECO EE projects*

Regarding the nature of the technological solutions (i.e. products and technologies) implemented under SECO projects, the evaluation reveals that in general the choices made in the framework of projects are relevant to project goals. Selected technologies appear to be fully in line with project ambitions, and choices have been made on the basis of robust evidence regarding for instance, the potential for impact, price, existence of previous successful implementation examples, and potential for replication and innovativeness.

While projects appear to have been very pragmatic regarding their selected technological solutions, some have been more risk-prone by selecting more innovative and less mature technological solutions. Examples of these include the energy district technology used in the La Alpujarra district in Medellín, the chip boiler technology used in Vinnytsia and Zhytomyr, the CHP in Zhytomyr and the installation of biomass district heating plants in Serbia. Despite involving higher levels of risk which are inherent to the innovation process, these technologies were also selected based on their very high potential to yield positive results. In addition, in these cases, demonstration of new technologies is also inherently embedded in project objectives, which fully justifies the use of less mature or new-to-context solutions.

In other cases, projects have selected more mature technologies based on the need to ensure short-term implementation, energy-efficiency gains and long-term durability of the technology; rather than on the need to demonstrate the visibility of more innovative solution. These choices are also consistent with project ambitions (e.g. demonstration is not necessarily a priority) and existing local contexts and conditions. This is the case for instance in the Padinska Skela CHP project where the remediation of derelict public buildings and the existing district heating piping networks is not an innovative technology as such. In the case of this project, the choice was driven by pragmatism and the desire by the SCO and project implementation team to achieve some positive results, given the failure of the installation of the CHP unit that was originally part of this project.

In both of the above-described scenarios, technological solutions are deemed by the evaluators to be adapted to the local challenge identified at the outset of the projects. This said, additional efforts could be made in the project design and appraisal process to further justify the selection of technological solutions on behalf of projects vis-à-vis incumbent or alternative solutions. This could allow to further understand and describe the potential social, economic, environmental benefits of the selected technology, as well as any potential trade-offs compared to the alternatives.

4.1.5.2 The relevance of methodological approaches implemented as part of SECO EE cities projects

The choice of methodologies applied to implement projects and reach project objectives can be as much a determining factor of project success as the choice of technological solutions (see previous sub-section). Different methodologies may be more or less appropriate to reaching certain results, in different specific contexts. This is of particular importance for SECO projects in the field of EE cities given the diversity on available methods to support energy planning and management at the local level. In particular, this evaluation has addressed the issue of whether the European Energy Award (EEA) approach which has been actively supported by SECO, can be deemed appropriate in light project and global SECO ambitions.

4.1.5.3 The relevance of the EEA approach

The European Energy Award (EEA) is a standardised management and quality assurance instrument for municipal energy and climate protection policy. The implementation of the EEA at the municipal level follows a continuous optimisation process. With its catalogue of measures and its implementation instruments, it is tailored to the needs of local authorities in order to implement national and global climate protection goals on the ground. The EEA fits perfectly into SECO's overall strategy to support local authorities and promote Swissness worldwide.

The EEA is unique in its holistic approach and focus on the implementation of energy and climate management processes in local communities. Other instruments and approaches are limited to sub-areas or deal only superficially with the implementation of management processes. In particular, the quality assurance process in the EEA and regular auditing and certification are unique selling points.

The national EEA programmes generally offer a variety of instruments tailored to the needs of the country and linked to national legislation and existing initiatives. This approach is very useful to achieve high policy acceptance and to exploit possible synergies with other initiatives.

The reach of the EEA is already very high in Europe, but cannot compete globally with the Global Covenant of Mayors, which has by far the highest reach of any climate change initiative. It would therefore be highly advisable to seek closer cooperation with the GCoM for the further dissemination of the EEA.

The two approaches pursue the same objectives and complement each other very well. The GCoM brings with it some obligatory elements, such as two-year reporting, CO₂ balancing and the commitment to reduction targets. The EEA, on the other hand, offers a rather low-threshold introduction to the topic of municipal climate protection by supporting the implementation process with external consultants. With the four-year external audits and the annual internal performance assessment, the EEA also contributes a supplementary quality-assurance instrument⁵.

The EEA is already a recognised instrument for the implementation of the Sustainable Energy Action Plans (SEAP) in accordance with the GCoM⁶. The coordination and harmonisation of the two approaches will be further deepened within the framework of the EU research program Horizon 2020.

A combination with quantitative instruments such as the Climate Action for Urban Sustainability (CURB) tool or the tool for rapid assessment of city energy (TRACE) could extend the scope of the EEA and facilitate docking with various initiatives such as C40, ESMAP and GCoM.

4.1.5.4 The relevance of other standard approaches used by SECO projects

In addition to the EEA methodology, SECO projects have relied on the use of several different methodological approaches, especially when it comes to urban energy planning and management such

⁵ Huwiler, C.: Municipal energy planning and monitoring approaches and tools – A comparative analysis, Institute for Development, Environment and Energy (IDE-E) on behalf of SECO, Bern 2017.

⁶ European Commission: Letter of Recognition of the EEA as an efficient implementation tool for sustainable action plans (SEAP)

as the ESCI methodology⁷ implemented by the ESCI program, or the Tool for Rapid Assessment of City Energy (TRACE)⁸ methodology used by the ESMAP programme. The evaluation team has not been able to conduct a full-fledged assessment of these methodologies. However, the evidence collected through interviews and previous evaluations indicate these are perceived by project stakeholders and beneficiaries as being not only relevant, robust and reliable⁹, but in some cases, quite complementary to the EEA. Complementarity was particularly emphasised in the case of the ESCI methodology. According to one expert interviewed as part of the evaluation, EEA allows a city to take a deep dive into all different aspects of urban energy generation, distribution and efficiency (e.g. electricity, fuels, heat, renewables), while ESCI only looks at general energy-efficiency indicators from a very global perspective. EEA also allows to add a very participatory dimension to the energy component of ESCI.

Overall, the methodological approaches are found to be relevant, given the objectives pursued by SECO energy-efficient projects. However, as is the case for technological solutions (see previous sub-section), projects could take further measures to fully justify their selected methodological approaches during their design phases. This would also allow to further understand and describe the potential social, economic, environmental benefits of the selected methodology, as well as any potential trade-offs or blind spots vis-à-vis alternatives.

4.1.6 *Added value of the projects vis-à-vis other existing and similar projects or initiatives*

The relevance of SECO projects and of the overall SECO intervention in the field of EE cities can also be assessed from the perspective of whether it adds value as compared to existing efforts in similar field (i.e. other policy initiatives)¹⁰. In other words, SECO's intervention can be deemed to be relevant to the extent that it fills policy gaps left by other stakeholders, and that it does not overlap with other similar initiatives (i.e. policy redundancies).

The evaluation has not found any evidence of SECO projects being in direct competition or contradiction with other existing initiatives (either local or international) leading to limited project relevance or utility. On the contrary, SECO has been skilful at developing a range of alliances with other stakeholders supporting EE cities in the context of its target countries. This has been done notably through bilateral co-financed projects which have facilitated the development of donor synergies in specific contexts.

At the global level, despite the fact that support for sustainable urban development is becoming an increasingly-crowded policy space, the need for support is still so important that there is room for multiple players to contribute to addressing this issue. SECO is assuredly not the only international donor providing support to energy-efficient cities, but it does appear to be doing so in cases or contexts where the presence of other donors is low or inexistent. As a result, SECO projects are found to be filling specific local gaps (e.g. market, development assistance, energy access, public policy, capacity development - depending on specific project challenges addressed) which have not been directly addressed by other initiatives (either local or international).

There is one instance, however, where the links between SECO-supported activities and an external programme is not fully clear. This is the case of the links (if any) between cities participating in the Covenant of Mayors initiative supported by the European Commission, and cities receiving support through SECO-funded projects. SECO would gain from developing a clearer position vis-à-vis this initiative, particularly since it is gaining momentum at the global level and not only in Europe.

As a result, SECO's operations can be said to be either unilaterally filling support gaps which have not been addressed by other donors or developing coordinated efforts with other donors in cases which have proven relevant for cooperation. In addition to this, SECO interventions are also perceived as having

⁷ <https://www.iadb.org/en/cities>

⁸ <https://esmap.org/node/235>

⁹ The evaluation of ESCI for example concludes that the ESCI methodology is “highly relevant, as the initiative correctly identified and targeted the planning needs of a niche of cities”

¹⁰ In the context of this evaluation, this assessment has been linked to the relevance criteria. However, in many cases this may also be described as the external coherence criteria of SECO's interventions in the field of EE cities.

specific characteristics which set them aside from other donor projects and support – reinforcing their uniqueness. The unique characteristics identified in the framework of the evaluation include but are not limited to:

- **Supporting the development and/or uptake of specific and innovative technologies** or solutions which are not being supported by other initiatives or projects (e.g. Energy Districts project in Colombia).
- **The scale of the intervention:** this is the case of global projects and programmes such as ESMAP or ESCI. The geographical scale of these operations¹¹ makes them unique vis-à-vis incumbent projects or programmes. Large geographical coverages tend to offer unique opportunities when it comes to project replicability, knowledge capitalisation and capacity to reach out to policy makers and practitioners.
- **The type of support being offered:** Compared to other initiatives, SECO projects are often characterised by the existence of complementary activities such as infrastructure development, corporate development, policy support and general capacity-building¹². This makes SECO support different from other initiatives which tend to focus more exclusively a single issue or type of activity.
- **The scope of the interventions:** In many cases, SECO interventions are considered to be relatively small-scale projects, which are designed to catalyse longer-term commitment or engagement by third parties. This ‘seed funding’ nature of a number of SECO projects was highlighted by some interviewees asked about what makes their project different from existing initiatives or donor-led activities. This was often accompanied by remarks on the quality and high dosage of technical assistance-related activities provided with the framework of the project. This does not necessarily imply that SECO should be systematically conducting small-scale operations. It does however illustrate the high return on investment of some of SECO’s smaller-scale operations; as well as high perceived added value on behalf of local beneficiaries.

4.2 Effectiveness of SECO energy-efficient cities project portfolio

The second evaluation criterion to be analysed in this chapter is effectiveness. According to the OECD DAC Criteria for Evaluating Development Assistance, effectiveness is the measure to which the intervention reaches or is likely to reach its objectives. This criterion also explores the major factors interfering with the achievement or non-achievement of the objectives. On this basis, SECO developed a list of evaluation questions aimed at exploring in more detail the extent to which the portfolio of energy-efficient cities projects can be said to be effective. The general effectiveness of the portfolio has been assessed against several elements including:

- Aggregated impact of the portfolio of energy-efficient city projects (outputs, outcomes, high-level impacts) (see Section 4.2.1)

In addition to these, several additional effectiveness dimensions have been analysed:

- Financial leverage effect of SECO contributions (see Section 4.2.2)
- Contribution of SECO actions to its visibility and clout on the international stage (see Section 4.2.3)
- Unintended results and impacts of projects (see Section 4.2.4)
- Level of harmonisation of projects with other projects, initiatives or donors (see Section 4.2.5)
- Appreciation of the Swissness of the energy-efficient cities project portfolio (see Section 4.2.6)

¹¹ This refers to the scale of the project or programme, no to the scale of the SECO contribution to it.

¹² Other donors also frequently use this blended approach to support based on the implementation of complementary support activities. However SECO has made this one of the cornerstones of its strategy to infrastructure development support, which means that this approach is almost always present in the projects it supports.

- Role of European Energy Award in delivering support to energy-efficient cities (see Section 4.2.7)

Box 4 Main messages on effectiveness

- Aggregation of impacts to portfolio level is a challenging exercise. Some projects are still in early stages of implementation and no significant results have been achieved. For other projects, data availability is low. In certain cases, the lack of quantitative targets is an obstacle to evaluating effectiveness. Evaluation of high-level impacts is also hampered by the time lag.
- Overall, on a portfolio level, the intended results of energy-efficient cities projects have been achieved. Evidence shows that seven projects have fully achieved the results or are very close to achieving them. For three projects, sufficient indirect evidence of success is available. The rest of the projects are at an early stage of implementation but there are no indications that results will not be achieved.
- The Energy-Efficient Cities portfolio contributes to integrated urban development especially through the introduction of the European Energy Award (EEA). It also contributes to improved sustainable energy supply mainly in those projects where new renewable energy infrastructure has been constructed.
- Overall, the portfolio projects have improved the reliability of basic public services due to infrastructure investments but also due to capacity-building for municipal and public utility staff. Low-emission and climate-resilient economies is mainly achieved through energy-efficiency measures and through the introduction of renewable energy sources. The outcome 'Effective institutions and services' has been reached through the capacity-building components of the projects. This impact is mainly related to the supply-side aspects of the projects. This leads to increased consumer benefits and well-being because of the improved urban infrastructure and subsequent security of supply.
- Projects have also addressed the demand-side of sustainable energy through energy-efficiency measures catering for the achievement of the high-level impact 'Clean and sustainable energy solutions to improve the global climate situation'. On a portfolio level, the impact 'more sustainable energy management at the municipal level' has been achieved to a large extent through increased capacity of municipal and public utility experts.
- Because of the time lag, it is difficult to provide a judgement on the impact of SECO projects to improved living conditions for populations in targeted countries and regions. The full benefits of improved energy infrastructure are only visible after the project completion. However, there is a high likelihood that this will be the case in the case of infrastructure projects leading to security of supply of heating and electricity.
- The evidence indicating SECO projects are contributing to economic development is limited, and mostly anecdotal. Given that economic development ambitions are not explicitly mentioned in the majority of SECO projects, such results are not being monitored and accounted by projects. The SECO EE city project portfolio's contribution to economic development thus remain mostly unaccounted for.
- Although on a portfolio level the intended project results have been achieved to a large extent in some cases project implementation has been sub-optimal due to a number of reasons. These include: lack of political continuity in municipalities as well as lack of administrative continuity; sub-optimal policy context; and lack of communication between different stakeholders.
- The financial leverage effects of SECO energy-efficient cities portfolio is relatively high. The leverage effect varies across projects also as a function of their design: certain projects are expected to lead to follow-up loans (mainly funds/facilities ones) while for other projects (bilateral and multilateral ones) leveraging additional funds is not a primary objective. Nevertheless, some of the latter projects have also led to follow-up financing.
- Based on the analysis of individual projects, on a portfolio level, we consider that SECO is a major international player in the field of Energy-Efficient cities. SECO is particularly visible by stakeholders in countries where there are bilateral and multilateral projects such as Ukraine, Serbia, Colombia and South Africa.

- In the case of funds and facilities covered in this evaluation SECO's visibility is smaller and this is due to the multitude of other donors and the almost absent element of Swissness. However, the participation in global initiatives provides SECO with a precious opportunity to steer important international energy-efficient efforts and is a good value given the relatively small size of SECO shares.
- On a portfolio level, the evaluation team did not identify any negative unintended results and a number of positive ones have been detected. We have classified these into several groups: impulses to develop and strengthen renewable energy supply markets, increased momentum for holistic policy reform; and positive spill-over effects into other development areas (local contexts or related thematic areas).
- Overall, the levels of harmonisation of SECO projects with other projects and initiatives is good. Interviewees have not been able to identify instances of significant overlaps or duplications. Harmonisation and coordination are necessary for passing enabling policy reforms but also for increasing the Swissness aspect within global funds and facilities and for synchronizing capacity-building efforts.
- The introduction of EEA approach and certification is the main aspect of Swissness within the studied projects. Swissness is also perceived as the transfer of Swiss know-how, technology and working culture.
- The effectiveness of the EEA is very high. In addition to the introduction of clear structures and the development of strategic planning, the recurrent quality control through internal and external audits is particularly worth mentioning. With these positive elements, the EEA can be very helpful in persuading future donors to finance future projects.

This sub-chapter provides a synthetic and qualitative overview of the achievements of the portfolio of energy-efficient city projects. In addition to the diversity and the complexity of the 14 projects which are part of the Energy-Efficient City portfolio, several aspects make the aggregation of impacts of the entire portfolio somewhat challenging:

- **Projects still under implementation or in their inception phase.** Certain projects have not yet come to an end. As a result, the impacts of the project are not entirely visible and measurable
- **Data availability.** The outcomes and impacts for certain project cannot be comprehensively evaluated due to a lack of reliable and updated data. Additionally, for some projects, a comparison is not possible as achievement of outcome and output indicators is available but for different points in time depending on the timing of the last logframes or reports.
- **Lack of quantitative targets.** The absence of quantitative targets makes it difficult to assess objectively the results of the project.
- **Time lag.** In principle, for any project or programme, some high-level impacts such as 'improving living standards of population' may only become visible and measurable after several years.

4.2.1 *Impact of the portfolio of energy-efficient city projects*

In the text and table below we provide an overall qualitative appreciation of the achievement of intended results (outputs, outcomes and impacts) vis-à-vis goals, indicators and key planned activities within the portfolio of energy-efficient cities. We will then dwell in a synthetic way on the level of achievement of outputs, outcomes and impact on portfolio level based on the analysis of individual projects. Detailed tables on the level of achievement of outcomes and impacts are available in Appendix F and Appendix G.

Overall, on a portfolio level, the intended results of energy-efficient cities projects have been achieved or are likely to be achieved by the end of the projects. Results vary across the projects mainly depending

on their progress. For projects without sufficient quantitative data the judgement is based on qualitative analysis and anecdotal evidence.

In the table below, we are dividing the projects into several groups depending on the achievement of results. Their position also depends on project progress in time, availability of quantitative data and seriousness of issues faced.

Table 4 Achievement of results

Fully achieved or very close to fully achieving the expected results Projects without sufficient reliable data but with enough evidence that outcomes and outputs will be achieved. Significant modifications of initial outputs. New ones achieved. Relatively early stage of implementation with no or minor issues Early stage of implementation which had some issues at the start	
Projects	Achievement of results
Vinnitsia Zhytomyr District heating Serbia REPIC CDIA Cities Alliance E5P	Fully achieved or very close to fully achieving the expected results Projects are at an advanced stage of implementation and all conditions and factors concur to reach the objectives. Although some outputs might not be a fact yet, there is sufficient evidence that the majority of outcomes and even high-level impacts are either already achieved or will be achieved in the near future. Because of the high relevance of these projects to SECO energy-efficient cities objectives we can conclude that the achievement of project objectives contributes significantly to SECO Energy-efficient Cities ambitions.
Colombia District Cooling ESCI ESMAP	No sufficient quantitative evidence available but enough indirect evidence of results, outputs and outcomes being achieved These are projects towards the end of implementation period but there is little evidence for quantitative assessment of achievement of outcomes and impacts. Nevertheless, the evaluation has revealed that the great majority of results have been achieved. Some questions remain however regarding the project outcomes and impacts given lack of reliable and updated data.
Padinska Skela CHP project	Significant modifications have been made due to problems. New, modified objectives achieved. The project faced different issues at the start (design, budgetary, administrative, technical) and important decisions needed to be taken for subsequent implementation. Caveats in the stage of feasibility study and design were compensated with good and adaptive redesigning and management. The objectives of the project were modified, and the analysis of the impact has been made in line with the new objectives.
CICLIA	Relatively early stage of implementation with no or minor issues. Improvements needed. There are improvements to be made but they are relatively minor. Nevertheless, these are factors for the success of the project and should be taken seriously if outcomes and impacts are to be achieved.
South Africa EE Lighting MEEMP	Projects at a relatively early stage of implementation or with big delays and issues at the start For these projects it could not be judged yet if they will achieve their intended results. However, due to the fact that at the start of the projects they faced different issues, problems and modifications utmost attention will be needed during project implementation to achieve the intended outcomes and high-level impact.

4.2.1.1 Achievement of project outputs

In the section below, we attempt to provide an overall appreciation of the achievement of project outputs and describe deviation or cases with insufficient relevance.

The level of achievement of outputs is mainly correlated with the progress of the projects described in Table 3 Table 3 Progress of the Energy-efficient cities portfolio projects.

For advanced projects from the portfolio, outputs have been achieved or are on their way to be achieved with minor exceptions. Specific project-level indicators which are in danger of not being achieved have been highlighted in the case studies and in individual project reports. These are relatively minor and do not endanger the overall results of the projects. The projects Colombia District Cooling, ESCI and ESMAP lack solid quantitative evidence that outputs have been (or will be) achieved. However, this is compensated by sufficient qualitative evidence of outcome achievement. There have been issues with the Padinska Skela CHP project where a major output - the construction of a CHP unit - has been cancelled due to contextual issues. However, the project management demonstrated flexibility and adapted project objectives to the situation.

The types of achieved outputs within SECO energy-efficient cities projects are in line with the intervention logic and include among others:

- Public partners having received financial and technical assistance to implement urban planning and management tools and strategies;
- Policy reforms and regulation drafted and developed, which are more favourable to sustainable energy production and consumption;
- Innovative energy-efficient infrastructure projects constructed or under construction;
- Conducted policy dialogues and cross-stakeholder dialogues on the issue of energy efficiency and sustainable energy production;
- Public utilities engaged in and benefiting from corporate development support activities;
- Triggered interest in financiers to fund projects for which feasibility studies have been prepared or are being prepared.

4.2.1.2 Achievement of project outcomes

In the section below, we make an attempt to provide an overall appreciation of the achievement of intermediate outcomes and outcomes as per the Figure 1 SECO's energy-efficient cities portfolio intervention logic.

The intermediate outcomes as per IL are:

- Integrated urban development (target outcome IV, business line 1);
- Sustainable energy supply (target outcome IV, business line 2)
- Reliable basic public services (target outcome 1, business line 3)

The outcomes include:

- Core outcome: Low-emission and resilient economies (TO IV);
- Ancillary outcome: Effective institutions and services (TO I).

Integrated urban development

On a portfolio level, the intermediate outcome of integrated urban development is on track to be achieved. The EEA approach has contributed a great deal towards this outcome, as manifested in

projects in Ukraine. A similar outcome has the potential of being achieved within MEEMP in Serbia if EEA concept becomes more known in the country and if a national body is set up. Although expected outcomes within ESMAP are also related to better energy strategies, the programme had only managed to achieve 25% of its expected outcomes. ESCI has reached a good level of achievement of applying the ESCI tools for a comprehensive assessment of the urban key challenges in terms of climate impact, economic benefits and public opinion. Within Cities Alliance expected outcomes of national, integrated policy framework are about to be reached both on global level and in Tunisia. Very positive outcomes have been reported within projects funded by CDIA despite the fact that the energy efficiency component is weak and only indirect.

Sustainable energy supply

We consider that the intermediate outcome of Sustainable energy supply is also on good track to be achieved although all outputs related to it have not been fully completed yet (Vinnytsia and Zhytomyr). It is worth noting that in both cases - wood-fired and CHP boilers - optimal functioning depends on a number of enabling factors outside of SECO's control such as the level of tariffs. In the case of Serbian Renewable Energy for DH project, the outcome related to energy supply is likely to be achieved considering its current status and outlook. In the case of E5P, 748,000 tonnes of gas per year is saved through installed renewable energy sources and energy efficiency measures. REPIC has fully achieved its sustainable energy supply outcomes.

Reliable basic public services

The intermediate outcome 'Reliable basic public services' has a good potential for being achieved. Infrastructure components of Vinnytsia, Zhytomyr and Serbian Renewable Energy for DH project which improved the reliability of public services. Improved reliability of heat and warm water supply in selected districts will be achieved in the coming months. E5P has also catered for the achievement of this outcome through the rehabilitated district heating networks. CDIA has been very effective as long as reliable public services are concerned but not in the field of energy efficiency and energy-efficient cities.

Low-emission and climate-resilient economies

The outcome 'Low-emission and climate-resilient economies' is mainly achieved through energy efficiency measures (Zhytomyr, Vinnytsia, Colombia Energy Districts, E5P, ESMAP) and through the introduction of renewable energy sources (Zhytomyr, Vinnytsia, Serbia District Heating, Padinska Skela). The introduction of EEA in Vinnytsia and Zhytomyr as well as in Tunisia (Cities Alliance) has additionally contributed to the adoption of better energy management including energy efficiency measures that go beyond the remit of the SECO-funded projects. The climate-resilient aspect of this outcome is directly achieved within and Cities Alliance project. It is worth noting that ESMAP has supported 23 urban energy efficiency technical assistance programs for national and local governments in more than 50 cities in 28 countries.

Effective institutions and services

The outcome 'Effective institutions and services' has been achieved to a satisfactory extent in many of the projects within the SECO Energy-efficient Cities portfolio. It has been reported that the capacity-building components of the projects targeted both at the municipalities and at the municipal public utilities have contributed significantly to this outcome. Capacity-building addressed both the technical aspects of functioning of new infrastructure but also its management aspects. This outcome has also been achieved by the introduction of the EEA leading to a better and more effective organisational structure within municipalities and hence better services for the citizens. For example, the ESMAP project has contributed to building the foundation for urban energy efficiency planning and investments through city-level diagnostics using TRACE in 70 cities.

As a result of the SECO-induced organisational improvements on municipal and utility level cities have increased capacities to better plan, manage and monitor their energy supply. In addition to EEA-triggered changes REPIC has also supported local partners promote sustainable energy sources.

Contribution of SECO projects to economic development of beneficiary countries and cities

Economic development and growth do not figure prominently among the key objectives of SECO projects in the field of EE cities. Instead, projects tend to focus primarily on environmental, energy, urban planning and infrastructure-related ambitions. As such, the economic dimension of SECO interventions in the field of EE cities – in theory – is low.

The lack of a more explicit recognition of economic development and growth ambitions in the framework of SECO EE cities projects does not mean however that the potential for generating positive economic spill-overs does not exist. Ensuring an adequate and sustainable supply of energy is a key condition for any functioning economy, and a factor for social prosperity and growth. This is even more the case given the increasing energy demands of cities linked to economic development. The same applies to adequate living and working conditions which are linked to the existence of decent and modern infrastructure and buildings, public services, and efficient use of resources, as well as the importance of modern infrastructure to ensure an attractive business environment. Enhancing EE is thus by nature a key driver of economic development.

The evidence indicating SECO projects are contributing to economic development is limited, and mostly anecdotal. Given that economic development ambitions are not explicitly mentioned in the majority of SECO projects, such results are not being monitored and accounted by projects. The SECO EE city project portfolio's contribution to economic development thus remain mostly unaccounted for.

In Appendix F, the evaluation team provides an appreciation of the potential for achievement of these outcomes on an individual project level.

4.2.1.3 Achievement of high-level impacts of project portfolio

In this section we are providing a judgement of the level of achievement of high-level impacts on the level of Energy-efficient Cities portfolio. The team judgement is formulated on the basis of individual project analysis and comparison with impacts as identified in the Intervention Logic:

- improved living conditions for populations in targeted countries and regions;
- sufficient and reliable energy supply for a growing world economy;
- clean and sustainable energy solutions to improve the global climate situation.

A more detailed table with an assessment of the achievement of high-level impacts as per the Intervention Logic is available in Appendix G.

Sufficient and reliable energy supply for a growing world economy

This impact is mainly related to the supply-side aspects of the projects and corresponds to the increasing energy demand of cities. Projects including supply-side measures have contributed to achieving the impact to a satisfactory level. This leads to increased consumer benefits and well-being because of the improved urban infrastructure. It also leads to subsequent security of supply as well as positive impacts on the environment and the economy as a whole. This has been the case for a number of projects such as REPIC, the Serbian District Heating company project as well as the Vinnytsia and Zhytomyr projects. In the latter case, evidence shows that the full impacts have not been achieved yet due to the fact that two of the major infrastructure outputs have not been completed yet but are on good track. For Vinnytsia and Zhytomyr energy savings from renewable energy have not been fully achieved yet also because of lack of precise measurements. This is not the case of E5P where sufficient funds have been leveraged and plenty of data exist that electricity savings have been achieved on the level of the E5P project portfolio in Ukraine.

The CHP construction component of the Padinska Skela project was also meant to be on the supply side of sustainable energy, however, given the lack of engagement and ownership of project implementation partners (City of Belgrade and Ministry of Mining & Energy), it was decided at the start of 2018 to cancel the planned construction of the CHP plant. The MEEMP project faced some initial challenges due to a large time lag between the feasibility study and project inception phase, but with focused efforts by the project implementation team, the planned impacts can be achieved.

Clean and sustainable energy solutions to improve the global climate situation

A number of portfolio projects have addressed the demand-side of sustainable energy through energy efficiency measures catering for the achievement of the impact. Strictly speaking, this impact is also achieved through supply-side measures addressed in the previous paragraph. Overall, on a portfolio level the achievement of these components is also satisfactory. Some delays which have occurred in the case of Zhytomyr and in the case of the South Africa project are a cause for additional attention in the future, but they have not compromised the achievement of this impact. In Zhytomyr, the CO₂ reduction per year will be 12,654 tonnes. Within the Colombia ED project, despite the lack of quantifiable data, the implementation of the La Alpujarra District had led to the suppression of traditional and outdated AC systems and unit, giving way to the reduction of ODS in the user buildings. If implemented, the results of CICLIA will contribute to this impact as projects are expected to lead to the adoption of climate change adaptation and mitigation strategies. This is already the case with the Kampala energy lighting project within CICLIA which is already under implementation.

More sustainable energy management at the municipal level

Our assessment shows that on a portfolio level, the *impact on more sustainable energy management at the municipal level* through increased capacity of municipal and public utility experts has been achieved to a large extent. This has been the case for Vinnytsia, Zhytomyr, ESMAP, ESCI, Cities Alliance (Tunisia Country Programme). Wherever EEA has been introduced as part of the projects it contributed significantly to the achievement of this impact and lead to an increase of the capacities of cities to better plan, manage and monitor energy supply. In Colombia, the promotion of energy districts in the strategies drafted by environmental authorities is a case in point. Within Cities Alliance, one of the main objectives, already achieved, is to support effective governance and active citizenship with a strong pro-poor and climate resilience focus.

Improved living conditions for populations in targeted countries and regions

In some cases there are difficulties in judging whether *improved living conditions for populations in targeted countries and regions* has been achieved or will be achieved on portfolio level due to the time lag. For example, the full benefits of better energy infrastructure and supply in Vinnytsia and Zhytomyr (improved quality of district heating and hot water supply) will be felt in a year or more but there is a high likelihood that this will be the case. The same is valid in the case of energy efficiency renovations in Zhytomyr whereby children in the renovated kindergartens will have better studying conditions in the coming winter. However, there are projects (like E5P) where energy-efficiency renovations have already led to better living conditions in a number of Ukrainian cities. In Colombia, citizens have already benefited from energy-efficient cooling systems. This is not the case yet for South Africa where the project is at an early stage of implementation. Past CDIA projects in water and waste management have already led to improved living conditions in targeted countries. CICLIA has not achieved yet impacts on improved conditions for the population.

Justification of gaps

Although on a portfolio level the intended project results have been achieved to a large extent, in some cases project implementation has been sub-optimal for a number of reasons. In most cases, justifications are project-specific but we have attempted to aggregate typologies of justifications across projects. Some of these issues are external to the projects and SECO is not in the position to influence them. In these cases, the knowledge and awareness of these issues prior to and during project implementation may

help SECO in designing better risk-mitigation strategies. In other cases, SECO has an influence on the issues and can incorporate mitigation activities within the project.

Some issues were reported by several stakeholders, including:

- **Lack of continuity due to elections.** Very often, projects have been reported to be influenced by lack of continuity in the political will to implement the project. In certain cases, this has simply led to delays while in other cases the issue has plagued the start of the projects and has endangered or even prevented (in the case of Padinska Skela CHP project) their implementation.
- **Lack of administrative and technical continuity.** Turnover in project staff threatens the success, sustainability and replicability of certain projects, as key knowledge and competences are not necessarily transmitted to successors and are lost in the process.
- **Sub-optimal policy/regulation context.** Project implementation has been hampered or delayed in several cases because of regulatory issues on a national level. The regulatory framework (e.g. decentralisation of the energy system, incentives for the development of renewable energies, etc.) play a critical role in the success, sustainability and replicability of projects. In several countries, a significant regulatory reform would likely enhance the impacts and outcomes of SECO-funded projects in the future. Relevant regulatory reform concerns the tariffs, the procurement regulation, the condominium rules, the blocked account issue, etc.
- **Contractual issue.** In certain cases, delays have been incurred due to procurement and contractual issues stemming from local procurement legislation, imprecise ToRs, etc. Despite often leading to delays these have not significantly hampered project implementation.
- **Lack of communication between different project stakeholders.** In some cases, slow or inefficient communication between different partners in the project (including local and national authorities) led to delays and non-optimal project implementation

4.2.2 *Financial leverage effect of SECO contributions to energy-efficient city projects*

We will assume that there are instances of financial leverage effect mainly when the additional financing would not have happened without SECO's participation or without the participation of the funds or facilities supported by SECO. Indeed, in the case of bilateral projects we will not define as leverage effect the financial participation of the beneficiaries or the co-financing of the other donors.

The evaluation team identified **high financial leverage effects of SECO energy-efficient cities portfolio**. This assessment is based on the analysis of individual projects and the extent and types of leverage achieved. The leverage effect varies across projects also as a function of their design: certain projects are expected to lead to follow-up loans (mainly for funds/facilities) while for other projects (bilateral ones), leveraging additional funds is not a primary objective. It is nonetheless considered as very positive.

Several funds and facilities designed to leverage funds have already generated significant leverage for the majority of the individually funded projects (E5P) while others have done so just for a portion of the individual funded projects (CDIA). Currently, CICLIA has generated a lot of initial commitments which have not been materialised yet.

Some bilateral projects are in an early state of implementation and no confident judgement can be made. For others, the success of the SECO-funded projects and the introduction of EEA has led to financial leverage through additional follow-up projects.

In the table below we have tried to group the projects by the clearly demonstrated financial leverage effect. Details for each individual project could be found in Appendix H.

Table 5 Leverage effect of SECO contribution

Leveraging effects as part of the project/programme design. Significant own participation triggered within a bilateral project Significant amount of leveraged funds but only for 60% of projects. Indirect financial multiplier. Leveraging funds by design but early stage of evaluation. Leveraged funding within the implementation of EEA programme. No evidence is available	
Projects	Leverage effect of SECO contribution
E5P ESCI	Leveraging effects as part of the project/programme design Some of the evaluated projects have been designed as grant facilities leading to follow-up loan financing. Significant financial leverage effects have been reported for E5P (about 1:3.5) ESCI has a considerable financial effect given the influence of its activities on spending and investments carried out by the IDB. In many cases, ESCI also leveraged local resources form local or national governments for the implementation of the methodology at city level.
Energy districts in Colombia/South – Bilateral	Significant own participation triggered within a bilateral project SECO contribution (only \$2.1M) triggered a significant investment on behalf of EPM (\$20M USD) for the development of the Alpujarra ED and \$0.76M USD in co-funding form the MADS, mostly as an in-kind contribution of staff time. Strictly speaking, this does not fit within the definition of leveraged funds, but we are mentioning it because of the low SECO co-financing rate and resulting high generated funds.
CDIA	Significant amount of leveraged funds but only for 60% of projects Project is designed to leverage additional funds and it has a good leverage of about 1:4.5 and more than 6 billion USD of leveraged funding. However, only 90/150 projects have led to concrete funding.
ESMAP – Phase I	Indirect financial multiplier SECO's contribution is not generating a direct financial leverage per-se. However, ESMAP can be described as having a considerable financial multiplier effect given the influence of its activities on spending and investments carried out by the WB
CICLIA	Leveraging funds by design but early stage of evaluation Projects are at an early stage of implementation and there are no leveraged funds yet although the expected leverage effect is very high. Slightly more than 2 million EUR worth of grants are expected to lead to loans of about 270 million EUR or about 1:135 grant-to-loan ratio. Estimated amounts to be adapted at a later stage in line with the Feasibility study results.
Vinnytsia Zhytomyr	Leveraged funding within the implementation of EEA programme. EEA implementation led to concrete follow up projects in both cities such as the GIZ Project "Integrated Urban Development in Ukraine", Support from the State Fund for Regional Development and others. More expected. Difficult to attribute precisely the role of EEA in the increased interest in funding projects. Switzerland was key
Serbia Renewable Energy for DH project	SECO as a co-funder for a multilateral project In the case of the Serbia Renewable Energy for DH project SECO finances slightly less than 20% of the overall amount the rest being provided by Germany's KfW and BMZ. The fact that SECO decided to provide the grant made the whole project go ahead and gave an important impulse to the project by reducing the loan amount. SECO grant was the piece of the puzzle that really helped the overall project and made additional funding possible.
Cities Alliance	No evidence is available as to the leverage effect of CA on global level. On country level in Tunisia, some 1,844,168 USD worth of grants for five projects have led to the

	mobilisation of 966,000 USD of co-financing (not leverage according to the definition).
South Africa MEEMP	Early stage of implementation
Padinska Skela	No substantial additional financial contributions to the project leveraged. A co-financing effort by the City of Belgrade, but it was only planned for the latter stages of the project. This late financial involvement might be seen as contributing to the lack of project ownership of the City of Belgrade.

Within bilateral and multilateral projects SECO contribution leads to the mobilisation of local resources, both financial and in-kind, which guarantees municipal buy-in and deserves to be mentioned. Usually, the municipal co-financing rate varies between 10% and 25% for these types of projects (MEEMP, Vinnytsia, Zhytomyr, Padinska Skela). The Energy Districts in Colombia is an exception whereby national and local participation represents 56% of the project. Local stakeholders for these projects often contribute with staff time which in some cases remains unaccounted.

4.2.3 Contribution of SECO actions to its visibility and clout on the international stage

Based on the analysis of individual projects, on a portfolio level, we consider that SECO is a major international player in the field of Energy-efficient cities. SECO is particularly visible by all stakeholders in countries where there are bilateral and multilateral projects such as Ukraine, Serbia, Colombia and South Africa. This is due to the concentration of funding and to the Swissness of SECO's approach namely the EEA introduction, the infrastructure investments coupled with capacity-building and the transfer of Swiss know-how. With regards to the global funds and facilities covered in this evaluation SECO's visibility is smaller and this is correlated with the almost absent Swissness element with a few exceptions (such as the soft earmarking for Tunisia Country Programme within the Cities Alliance). In these cases, a much higher level of communication and outreach efforts are needed to increase the association of these initiatives with SECO and Switzerland. It is worth noting, however, that the participation in global initiatives provides SECO with a precious opportunity to steer important international energy-efficient efforts and is of good value given the relatively small size of SECO shares. Additionally, a predominantly Swiss initiative like REPIC brings a sufficient level of visibility as in the case of Chile and Bosnia and Herzegovina.

These observations are illustrated with several examples based mainly on documentary analysis and interviews with stakeholders. A more comprehensive and representative evaluation of this issue would require a much larger sample of interviews with national and international stakeholders but would nevertheless remain largely subjective. Nevertheless, the evaluation team has come up with the following insights with regards to the factors which enabled higher visibility and bigger international clout for SECO:

4.2.3.1 Bilateral projects

EEA approach

Promoting the EEA approach sets SECO apart from other donors. It is seen as very useful by the beneficiaries and is closely associated entirely with SECO and Switzerland and therefore raises their visibility.

Combination between infrastructure investment and capacity-building

SECO has been identified as one of the few (or in certain cases, the only) donors to provide such type of support. Despite the fact that SECO is not the only international donor emphasising capacity-building, to a significant extent it is seen as a very staunch proponent of integrating capacity-building in the projects financed by SECO.

Provision of high-quality Swiss equipment and know-how.

Due to the fact that the support to Vinnytsia was in the form of a grant it could afford purchasing high-quality equipment. Both Vinnytsia and Zhytomyr benefited from Swiss know-how and experience. Participation of SECO staff based in Switzerland and in the countries is highly appreciated. Within the Colombian Energy District project several of the stakeholders had participated in the study visit to Switzerland and were additionally exposed to Swiss technology and organisation.

Perception for effectiveness and efficiency

Very often, interviewees perceive SECO contribution and the interaction with SECO staff as very effective and efficient. SECO is also associated with insisting on aspects of the projects (like participatory approach, gender balance, etc.) which had been previously neglected. These perceptions facilitate project implementation and contribute to cultural shifts in the beneficiaries.

This insight come mainly from Ukraine and Serbia. Despite the fact that the Ukrainian donor landscape is relatively crowded, we estimate that SECO's visibility is very high. However, in Serbia SECO enjoys less visibility than other bilateral donors such as GIZ or multilateral donors such as UNDP. For bilateral projects (Ukraine, Serbia and Colombia) it could be said that the visibility is limited to the national context. For the three countries it is true that the more successful the project the higher the associated clout and visibility.

In Colombia, the Energy District project has spurred a significant amount of interest both nationally and internationally, which has in turn generated a good level of exposure for SECO and the Swiss government. SECO representatives have been directly involved in the delivery of a wide range of project activities and events. The evaluation has not revealed any missed opportunities which would have allowed the project to further promote Swiss visibility and promote strategic priorities.

4.2.3.2 Funds and facilities

Intensification of cooperation with development banks and agencies

One of the positive results from SECO's contribution to various funds and facilities across the world is the intensification of cooperation and collaboration with implementing development banks and in this way improving the impact of limited funding. This is the case with ESMAP which reinforced the Swiss position in the board of the WBG in the domain of energy and place strategic messages within Bank thematic policies and strategies. SECO could also advocate for specific subjects through ESMAP and support projects for energy efficiency in an urban context. Some of the positive take-aways for SECO linked to its first round of funding for ESMAP include: the active participation of SECO in the preparation of a new business plan, the initiation of donors only meetings, the promotion of Swiss approaches, etc. This benefit has also been reported in the context of CDIA (Asian Development Bank) and CICLIA (Agence Française de Développement)

Opportunities to promote priority issues

The SECO officer in charge of overseeing the SECO contribution to ESMAP highlighted the opportunity that ESMAP provides SECO with, in order to promote priority issues such as hydropower, or fossil fuel subsidy reform. However, given the relatively limited scale of the SECO contribution compared to the overall operation of the programme (i.e. SECO is only one of 18 other donors), one must not over-estimate the contribution made by the program to SECO visibility.

Limited visibility and clout

Despite the positive effects discussed above in the cases where SECO's overall contributions to the funds/facilities is not significant it is hard to expect a strong Swiss visibility and international clout. This is also due to the fact that the level of Swissness for global projects is very low and to the fact that in most cases there is no earmarking of the Swiss contribution. Having said this, we believe that the level of visibility achieved is in line with the size of the contribution and is a good return on investments.

Better visibility in case of earmarking

In the case of Cities Alliance, despite the fact that SECO's contribution represents a small share of the overall budget (9%), the soft earmarking for Tunisia country programme and the city resilience joint-work programme was appreciated and led to higher SECO visibility in Tunisia and the beneficiaries of the JWP. The very positive fact that Switzerland is associated with being very result-oriented could bring additional visibility benefits.

Role of representatives of Swiss cooperation offices and embassies

In spite of the small size of REPIC projects, the platform is part of the broader Swiss cooperation strategy and gave way to the consolidation of bilateral relations with certain countries (e.g. Chile, Bosnia and Herzegovina). The role of local representatives of Swiss cooperation offices and embassies is very important to enhance collaboration and support from local and national authorities. REPIC is regarded by beneficiaries as a highly successful and impact-focused initiative, in which red tape is limited.

4.2.4 Unintended results and impacts of projects

Unintended results are results which are not incorporated in the project-level intervention logic, but which have been identified in the course of the evaluation. On a portfolio level, the evaluation team did not identify any negative unintended results. However, a number of positive results have been detected which are either unintended or, if they are somehow anticipated, were not central to the Intervention Logic. Unintended results included the development of entire supply chains, unexpected levels of demonstration effects or the stimulation or alignment of policy dialogue to a degree higher than that which was expected. Below, we have attempted to organise these results around several groups.

4.2.4.1 Impulses to develop/strengthen renewable energy supply markets

- **Development of biomass and wood-chip market:** Before starting the Vinnytsia and Zhytomyr projects there was no market for wood chips. The relatively stable consumption stimulated the development of the market and the establishment of different suppliers. The more the demand is stable the better it is for the development of the supply market.
- **Generating government support for biomass:** It is expected that a successful DH fuel switch programme can also contribute to improving the national government's support of bioenergy if voters start seeing it as desirable and positive for their communities.
- **Cultural shift through EEA and capacity-building:** In many of the projects, capacity-building was a clear project component and a part of the intervention logic. However, in multiple cases capacity-building was reported to lead to higher than expected results. This has been the case in Ukraine where the EEA introduction was seen as introducing a 'cultural shift' in the organisation of sustainable energy management on municipal level. In Zhytomyr, EEA introduction increased municipal ambition and actions to increase significantly the renewable share in energy supply.

4.2.4.2 Increased momentum for holistic policy reform

- **The EEA introduction and capacity-building** increased the momentum within municipal administrations to engage in holistic policy reform on municipal level in areas such as sustainable transport, renewables, etc. Climate has been brought to the municipal agenda.
- **Policy dialogue as catalyst for reform:** The policy dialogue taking place in the framework of E5Pproject has triggered the solving of the Ukrainian disbursement issue (see Ukrainian case study) and, if maintained, has the potential to contribute to furthering the long-awaited energy efficiency sector policy reform in Ukraine.
- **Creating multi-level discussion and dialogue:** Effects related to improved multi-level governance are relatively frequent, but they are not necessarily anticipated in the project intervention logic. Such unintended effects have been reported in Ukraine (ministry-regional authority-local authority-public utility collaboration). The Colombian project created a relevant platform for collaboration between national agencies and ministries (e.g. MADS) and regional stakeholders (e.g. local environmental agencies). The project also created a platform between

the private and the public sector on an issue of common interest. Both of these elements were highly valued given that they are not widespread and common practice in Colombia.

- **Alignment of dialogue:** One of the unexpected results of the Cities Alliance project was the transformation of the steering committee for the Tunisian project into a platform for exchanging views around urban development issues. The discussions go beyond the concrete project and address city development issues in general. Additionally, the local urban forums to lead the city-development-strategy process have a high probability of being institutionalised once the project ends.

4.2.4.3 Positive spill-over effects into other development areas (local contexts or related thematic areas)

- **Demonstration effect of funded projects:** In several of the evaluated projects the demonstration effects were higher than anticipated. This is the case of both Vinnytsia and Zhytomyr where the adopted technical solutions have been inspiring examples of other municipalities in Ukraine. The EEA certification of Vinnytsia has also been of formal and informal interest to different Ukrainian municipalities.
- **Stimulating awareness of holistic approach to urban planning:** In the context of the MEEMP project it has been reported that even in the absence of results at this early stage, stakeholders are beginning to make conscious connections between transport, waste, energy and urban planning sectors. Introduction of EEA is expected to additionally strengthen this trend.

4.2.5 Level of harmonization of projects with other projects, initiatives or donors

In the section below, we discuss the perceived level of harmonisation of projects with other efforts concerning the energy-efficient cities sector. We also review the related concepts of cooperation and coordination with other international donors be it for providing a fuller and more coordinated support to the countries SECO is operating in or for advancing necessary policy reform.

On a portfolio level, we can say that levels of harmonisation of SECO-funded projects with other projects funded by other donors is good which, we can assume, leads to an overall higher impact. Interviewees have not been able to identify instances of overlaps or duplications. We can differentiate several distinctive ways harmonisation of projects takes place.

Firstly, in the case of bilateral projects efforts for cooperation for the sake of harmonisation are carried out by SECO representatives on a country level in collaboration with SECO. It is assessed as very effective and sufficient and only positive cases of cooperation have been reported by stakeholders.

With regards to global funds and facilities our perception is that harmonisation and cooperation happen on a more ad-hoc basis and SECO has much less influence on these efforts. In most of the studied countries and contexts there is a multitude of donors. On one hand this leads to a certain level of competition for projects but on the other hand it creates the need to ensure harmonisation and cooperation between donors. Understanding the typologies of cooperation and the way it works would optimise SECO's influence.

The individual project evaluation has identified the following aspects of harmonisation and cooperation which have already taken place and associated added value and constraints:

- **Passing of necessary reforms as an enabling factor for project implementation .** A certain degree of political influence goes with funding and to a bigger or smaller extent donors manage to exert this influence. In Ukraine, there is a burning need for reform in several sectors related to energy-efficient cities such as the public utility (district heating) and tariff reform. There is an ongoing policy dialogue in the country and E5P is a major player in it. Hence, SECO's contribution to E5P is key to SECO being seen as being a part of the efforts for moving the reforms forward. SECO also has the possibility to use WEIF' private sector promotion funding for addressing the regulatory reform issue, i.e. with regards to energy efficiency renovations.
- **Increasing Swissness within projects funded by global facilities**

Fund/facility managers have shared that as intervention is in so many geographical locations and in so many contexts that most of the cooperation and harmonisation is done ad hoc between project staff and SECO representatives on the ground if there are such. This is an opportunity to inject an additional dose of Swissness to the individual projects.

- **Synchronising capacity-building efforts**

Capacity-building is a component of most of SECO bilateral and global projects. At the same time, very often beneficiaries receive trainings from other international donors or partnerships. We have encountered evidence of matching a funded project with other training providers in a way leveraging additional funding and know-how. This is one more instance of achieving higher impacts through better cooperation.

- **Harmonisation and cooperation with the Covenant of Mayors (COM) and the Covenant of Mayors in Sub-Saharan Africa (COMASS)**

Despite the fact that SECO successfully introduces the EEA approach in some projects and countries, the Covenant of Mayors in general and COMASS in Africa are in also gaining speed and members. EEA and COM have been assessed as complementary hence there are no competition issues between them. The cooperation mode between SECO and COM/COMASS can provide synergies; direct SECO funding to more skilled cities; help avoid duplication of efforts. Participation of EC COMASS experts in CICLIA Steering Committee meetings is very positive.

- **Coordinated communication and outreach**

One positive practice of coordination is using communication and outreach efforts to liaise with other donors and initiatives through inviting them to events and including them in other outreach activities. One positive example comes from ESCI where ESCI was successful at implementing different types of partnerships with over 70 development partners from government, academia, and the private sector, both inside and outside the region. This added to the perceived value of the initiative and contributed to positioning the Bank. In some cases, at the country level, these partnerships contributed to linking the work of ESCI with financing and investment activities and opportunities provided by national agencies or investment banks.

- **Embedding coordination in organisational strategies**

Coordination and harmonisation can also take place in the context of organisational partnership strategies. For example, AFD carries out its coordination activities in line with its partnership strategy.

- **Aligning efforts on local level**

Sometimes, in addition to country- and region-wide levels, coordination and harmonisation can occur on a project-wide basis. For example, in Vinnytsia and Zhytomyr, projects have been funded both directly from SECO (bilaterally), through E5P (globally) and for Zhytomyr also through a facility (DemoUkraine) funded from E5P and other bilateral donors. This generates a situation where very similar projects have been funded by the same and/or different donor(s), both through grants and loans, therefore necessitating close cooperation. This cooperation would mitigate the antagonism sometimes present when one beneficiary receives grant and loan funding for similar projects. Another example, on project-level coordination is the Kampala Street Lighting Project (CICLIA) where a close coordination with the World Bank is needed as the WB has a project on street lighting as well.

- **Internal coordination of different SECO-funded projects**

Now and again, SECO must be confronted with a situation where two different SECO-funded projects in the same geography need to collaborate and coordinate their efforts. For example, an interesting case of collaboration has been identified in Tunisia where SECO finances the Cities Alliance Tunisia Country Programme. At the same time, SECO is financing the ACTE project in Tunisia. The goals and objectives of both projects have been assessed as

complementary but in order to maintain this complementarity a close cooperation and harmonisation is needed between both projects.

- **Alignment between EU initiatives.**

SECO often contributes to initiatives where the European Union is a major donor. This is for example valid for CICLIA and E5P. The European Union disposes with huge financial clout and is therefore the initiator and implementer of a multitude of initiatives. Therefore, coordination and cooperation between initiatives where the EU is a major player is particularly important.

4.2.6 *Appreciation of the Swissness of the energy-efficient cities project portfolio*

The introduction of EEA approach and certification is often regarded by stakeholders as the main aspect of Swissness. The EEA issue is analysed in-depth in the next sub-chapter. In this sub-chapter we will draw the attention to other aspects identified by the evaluators and the beneficiaries as manifestation of Swissness.

Our overall evaluation is that Swissness is particularly high in the bilateral projects such as the ones in Ukraine, Serbia and Colombia. In these cases, SECO is free to structure the projects in such a way to increase Swissness in terms of EEA, knowledge and know-how transfer as well as a specific combination of infrastructure renovation, capacity-building, equipment and working culture. In some cases (i.e. Zhytomyr), the Swiss know-how and technology transfer component has decreased (compared to Vinnytsia) because of WTO rules. With regards to global projects no particular Swiss added value has been identified and reported in addition to the possibility of SECO to participate and influence the functioning of the projects through their governance structures. Swiss consultants compete with consultants from other countries on a general basis and hence there is no explicit transfer of Swiss technology, know-how and working culture. However, even within global projects there could be possibilities for improvement.

The following aspects have been perceived by the project beneficiaries and stakeholders as a part of the SECO/Swiss identity and contribution:

- **Combination between infrastructure investment and capacity-building**

While neither infrastructure investments nor capacity-building are a SECO monopoly the combination of both with a strong focus on capacity-building has been assessed as a very positive typically SECO approach.

- **Use of Swiss partners and know-how**

The participation of Swiss consultants in the Vinnytsia project has been assessed as very positive because of his long international experience and competence. However, it has been admitted unanimously that the teaming of Swiss consultants with good local consultants is suitable and necessary. In REPIC, participation of a Swiss partner is obligatory and seen as very positive. The involvement of representatives of Swiss cooperation offices and embassies in relevant national processes bring additional added value to REPIC projects. Furthermore, the reduced bureaucratic process for project submission and monitoring, as well as the ad hoc support provided by the REPIC Secretariat are praised, compared to other international donors.

- **Swiss equipment and technical solutions:** In Vinnytsia, the use of Swiss equipment has been assessed as very positive with the disclaimer that it is very expensive, and it could probably be only bought through grants. It remains to be seen if alternative local or international suppliers could be used, especially if the project is funded through a loan. Additionally, Switzerland is perceived as a world leader in energy efficiency which increases the willingness of stakeholders to cooperate with SECO (Serbia).

- **Study visits to Switzerland:** Several project beneficiaries have benefited from study visits to Switzerland. The added value of such a component is evident, as the cultural shift needed in many of the studies countries could be achieved with personal example among others.

Working culture: Certain aspects of the Swiss working culture have been assessed positively as being very Swiss. Despite the utter subjectivity of such statements it is worth noting that Swiss have been seen as being punctual, flexible, solution-oriented and result-oriented.

4.2.7 *Role of European Energy Award in delivering support to energy-efficient cities*

The effectiveness of the EEA is very high. In addition to the introduction of clear structures and the development of strategic planning, the recurrent quality control through internal and external audits is particularly worth mentioning. With these positive elements, the EEA can be very helpful in persuading future donors to finance projects.

The complexity of the EEA process is not seen as particularly challenging by local authorities. One reason for this is the comprehensive support given by external implementation consultants to the pilot cities in the implementation process. This is not the only reason why external support in setting up new structures should be a fundamental part of the EEA. In projects where this support was insufficient, the results achieved were significantly lower.

The following section discusses the effectiveness of the EEA approach from a general perspective and describes the challenges and success factors in implementing the EEA. The results of the individual projects are described in the annex.

4.2.7.1 Challenges

The challenges facing local actors and external implementation partners vary widely. The most frequently-mentioned challenges in the projects examined are listed below and described using selected examples.

Prioritization

In emerging and developing countries, climate protection has a completely different status than in Western industrialised countries. Other political and social issues such as poverty reduction, economic development, job creation, security or education are superficially more important. The acceptance of investments necessary for the sustainable implementation of the EEA processes is therefore not sufficiently given. A much higher interest can be recognised for investments in concrete infrastructures projects.

In order to further strengthen the importance of the EEA, the positive side effects must be emphasised even more clearly. Thus, the implementation of identified EEA projects can contribute to economic prosperity. Suitable traffic and urban development planning can create competitive advantages compared to other municipalities, the construction industry and local craftsmen benefit from an improved volume of orders, which in turn has a positive effect on demand for labor. The EEA therefore has the potential as a stimulus package to strengthen the local economy. By implementing energy efficiency measures, the outflow of funds can be reduced, and the funds saved can be channeled into local development.

Financial resources

The implementation of the EEA is not free of charge. For the municipalities, annual costs are incurred due to license fees, costs for the external EEA consultants and the auditors. Additional funds are also needed for the restructuring of existing municipal processes and the creation of an EEA energy team. However, by far the largest financial need is for the implementation of identified measures, which usually cannot be financed from the municipal budget.

The amount of the implementation costs is very decisive for whether the EEA can prevail in developing and emerging economies. They should not be too high, otherwise municipalities will not be able to raise the funds. Especially in countries, where no national funding program is available, the necessary financial resources are lacking. In order to ensure the implementation of identified measures, the municipalities must be offered financing possibilities, as is the case, for example, in the pilot cities in Serbia and Ukraine.

In the long-term perspective, the implementation of the EEA could simplify access to funding. Through the preparation of current state analysis, catalogue of measures and implementation program as well as the establishing of a continuous quality assurance process within the framework of the EEA, leads to a

transparent basis and creates reliable structures, which are positively assessed by potential funding bodies in their assessment of the funding commitment.

Competencies

The availability of sufficient competencies in the implementing administrations is essential for ensuring a successful and sustainable implementation of the EEA. The appropriate level for the implementation of the EEA (municipal, local or regional) is normally explored in advance through a feasibility study. However, in some older projects, local administrations did not have sufficient competence to take planning decisions at the local level. In these cases, the EEA instruments could not achieve their full effectiveness.

Another problem, particularly in countries with a strong centralisation of political power in the capital, such as Romania, is the lack of experience with strategic, long-term planning in municipalities. This means that decision-makers find it difficult to deal with the long-term EEA approach and have the patience to wait for the medium- to long-term effects.

A lack of tax and budget sovereignty in the municipalities can also pose a problem for the introduction of the EEA. In centralised states, the investment budget must be requested from the state responsible for budget allocation. Experiences show that the inclusion of non-budgeted costs is extremely difficult, as flexibility is much less than that of Central European cities, which have easier access to overall budgets. It is therefore necessary to plan over a longer time horizon and budget accurately before the project starts.

Staff

An important prerequisite for the implementation of the EEA is the availability of qualified local personnel. At the beginning of a project there is often a lack of knowledge and understanding of climate protection policy. Therefore, the development of the knowledge of existing personnel must be an obligatory component. In this context, the language barriers between external consultants and decision-makers are very problematic, as they often occur in Ukrainian projects. Also frequent personnel changes in the local administrations regularly lead to a loss of knowledge. However, this problem lies outside SECO's sphere of influence.

Often there is a lack of capacity in the administrations, so that additional work because of the implementation of the EEA is rejected. In general, changes in the usual processes often lead to discomfort and rejection by the staff concerned.

It is also important to find a suitable local partner with a good network of decision-makers and stakeholders for the institutionalisation of the EEA at national level. The choice of a local partner is a challenging task, depending on the interests in the respective country. This applies in particular to projects in which contracts are awarded by the partner country itself and cannot be influenced by SECO.

Political framework

The policy framework has a significant impact on the success of the EEA. The unstable situation following political upheavals (as in Tunisia) or in conflict areas (as in Eastern Ukraine) makes the implementation of the EEA very difficult.

Another problem is the short terms of office of mayors, which lead to frequent changes in local decision-makers and thus to a constant reorientation of the political agenda. For a long-term project such as the EEA, these policy changes are a challenge as they require continuous persuasion.

Complex, bureaucratic reporting structures have proved to be a major challenge, which can contribute to significant problems in work processes and financing.

If the national government has already initiated climate protection measures at the local level, this can lead to excessive demands on local authorities. The EEA's structured management process can be very useful to support the municipalities, if it is appropriately synchronized with national requirements.

4.2.7.2 Success factors

The success factors that support the implementation of the EEA are very heterogeneous. In some cases, they can be influenced directly by SECO, for example by the project design, while other success factors are determined more by chance and can only be clarified within the framework of feasibility studies in the run-up to a project. The most important identified success factors are listed below, sorted by influence ability by SECO.

Project preparation

Good project preparation, in which the essential aspects have already been considered, simplifies the implementation process and reduces the number of complications and difficulties that arise. Very good instruments for this purpose are upstream feasibility studies. These feasibility studies examine which level is most suitable for the implementation of the EEA, what competencies the municipalities possess, what the national funding landscape looks like or who the decisive actors on the ground are. Based on the results, a project design can be selected that best addresses the national framework conditions.

Adequate project design

The institutionalisation of the EEA is very important for a sustainable anchoring of the EEA process. It is essential that a national organisation can be established to accompany and monitor the implementation process of the EEA at local level. The national organisation is responsible for the education and training of local EEA advisers and for building up an adequate pool of advisers. Other important tasks of the national organisation are the regular adaption of the catalogue of measures and the certification of the participating municipalities.

Sufficient funding

A decisive success factor is ensuring simple, non-bureaucratic access to funding for the implementation of the measures identified. In countries where a national funding scheme already exists and can be used by the municipalities, the transition between inventory analysis and implementation of concrete projects is considerably simplified.

Legal framework

Existing legal framework conditions can support or hinder the introduction and the sustainable implementation of the EEA. Although the legal framework cannot be directly influenced by SECO, appropriate adjustments can be made to the EEA approach. By synchronising the EEA approach with national objectives and strategies, the EEA could be introduced throughout the country in this context. However, this requires a functioning, well-connected national EEA organisation.

Knowledge

A high level of knowledge about municipal climate protection in general and the EEA process in particular is very helpful. Well-informed municipal decision-makers can develop a clear vision of how the EEA can help their own community and how the EEA certification and access to international networks can support the municipal goals. Besides relying on previously acquired, profound knowledge at the beginning of the project, the willingness and interest to learn about new approaches are essential. SECO can influence this success factor in a way through elements of capacity-building, supporting awareness raising campaigns and through persuasion at the political level.

Involvement

The involvement of decision-makers is of great importance. A high commitment of the mayor and a close involvement of stakeholders in the implementation process could make the EEA a great success. A special opportunity arises when new policy-makers take office and want to leave a footprint in the history of the city through the implementation of the EEA. If a decision-maker at national level combines the political ambitions with climate protection in general and with the EEA in particular, institutionalisation can take place much more easily.

4.3 Efficiency of SECO energy-efficient cities project portfolio

DAC Guidelines define efficiency as the amount of qualitative and quantitative outputs in relation to the inputs, which is decomposed as cost-efficiency, time-efficiency and relative efficiency compared to alternatives. In the context of this evaluation, efficiency can be considered as the capacity of SECO-funded projects to achieve expected or higher results, outcomes and impacts within the planned budget and time. A thorough comparison with alternative funding programs would require in-depth research to provide relevant results, given the variety of situations (geographic/political context, partners, topics, practical outputs), found in the different SECO-funded projects, compared to other international donors.

Box 5 Main messages on efficiency

- Cost-efficiency of SECO-funded projects is generally good. Overhead costs are mostly within reasonable range. Management costs of the REPIC Secretariat are higher than what is usually found in other international programmes (See REPIC case study for explanations).
- Several projects obtained an extension in timeline due to initial delays.
- Efficiency is generally comparable to other Swiss development programs (SDC).
- Management and oversight by SECO is robust and consistent, in spite of a few limited issues with other donors.
- All projects use a logframe with performance indicators somewhat aligned with SECO KPIs, but a great diversity of situation exists with regards to the depth of the monitoring & evaluation systems implemented.
- Project outputs and outcomes are consistently monitored and reported, and most projects achieve the expected direct results within the expected budget and relatively on time (with a few exceptions). In other words, a high level of efficiency exists at project management level, notably due to the dedication and rigor of local SECO staff. This evaluation did not yield any reason to suggest significant changes in the oversight, coordination and involvement of SECO staff in beneficiary projects, besides trying to comprehensively account for the time spent by local SECO staff in support of local partners.
- At the level of impacts, however, the inconsistent use of quantitative indicators prevents any accurate evaluation of the cost efficiency of SECO projects. Should GHG emissions be significantly reduced by the implementation of SECO-funded projects, their cost-efficiency would be considered high as far as the Swiss contribution to climate change mitigation in partner countries. There is, however, a risk that some of the technologies supported or the specific context of projects do not bring about such environmental benefits, in which case the efficiency of SECO WE strategy would be limited.
- Consequently, the systematic use of quantitative and consistent impact indicators and related methodologies (e.g. for GHG accounting) constitutes an important area of improvement for the evaluation of efficiency of SECO-funded projects.

As with several other aspects of this evaluation, the efficiency of SECO-funded projects could not be assessed in all cases, due to the early development stage of some projects. The following sections focus on those projects for which sufficient information was made available to the evaluators to provide a meaningful analysis, representing around two-thirds of the projects/case studies evaluated.

4.3.1 Global appreciation of the cost-efficiency of projects

Whenever an evaluation of cost-efficiency was possible, most SECO-funded projects achieved their objectives within their initial budget. While several projects obtained the authorisation to extend their timeline, this was not accompanied by an increase in budget, except for a few exceptions such as the Biomass CHP Padinska Skela project (Serbia). This project cancelled the significant work package of the construction of the CHP plant, due to lack of progress and commitment from local partners. This generated a significant unspent amount of project funding (4.86M EUR), which was partly reallocated

to energy efficiency measures, and partly recovered by SECO. In spite of this, the time and budget spent in preparation of the CHP plant, which was finally cancelled, constitutes a loss of the project.

In the context of this evaluation, overheads are understood as the costs related to the management and oversight of the execution of the project by grantees, including administrative tasks, accounting, office expenses, etc. On the basis of our evaluation, overheads generally look reasonable across SECO-funded projects, i.e. around or slightly above 10% of the total project costs (or even lower in exceptional cases, such as ESMAP for the 2017-2020 Business Plan period, with claimed overhead costs around 5%). It should be noted, however, that in several projects, additional work and support was provided by SECO personnel (esp. local representatives) which is not reflected in the project budget and planned inputs, which may give a slightly optimistic vision of the project's cost-efficiency. This is, for example, the case in the Energy District project (Colombia) where SECO's in-kind contribution to project management were significant and unaccounted for in terms of the project budget. On top of the usual monitoring and liaison activities, the local SECO officer had to deal with some important and time-consuming restructuring of the project, such as the reintegration of a feasibility study (Component 2) originally assigned to the local partner (EMP) within SECO activities. Extra activities also included the general promotion of the project at local and national levels and participation in discussions with EPM and MADS to secure additional investments. This active involvement from local SECO staff appears to have played an important role in the success and likely continuation and replication of the project in Colombia.

CDIA has an interesting approach to reduce its overhead costs, which includes the requirement that partner cities host and equip project staff (implementation consultants) to take those costs off its own payroll. Some cities also accept to fund official training sessions. CDIA, as well as other projects (e.g. certain REPIC projects), also requires project partners to inject funding (20% in that case), which not only reduces project cost, but also enhance long-term financial sustainability. SECO WEIN may consider expanding such approach to other projects by strongly encouraging it or making it compulsory.

Within implemented activities, it was noted (e.g. in the Padinska Skela CHP project) that renovation measures could have been more ambitious (more advanced energy efficiency technologies) to last longer, which would have been a more efficient use of SECO funds. However, the implemented measures already provided significant benefits, due to the poor state of repair of the buildings.

The evaluation team observed that transparency and accountability in the use of Swiss funds are generally high across SECO-funded projects. Difficulties in tracking the use of SECO funds, are logically reported in multi-funded projects like CDIA, which is inherent to their nature, hence not necessarily linked to any specific component of SECO strategy. As a consequence, specific projects funded under this regime cannot be specifically attributed to one single donor.

Only a few REPIC projects were able to further increase cost-efficiency, by bringing additional value beyond expected direct outcomes: For example, local companies were able to develop and implement a successful business plan (e.g. in Kenya with South Venture), which keep generating profit today. Similarly, REPIC projects in Chile or Bosnia & Herzegovina were used as flagship to demonstrate benefits and incentivise other municipalities/regions to develop similar energy efficiency or renewable energy programs. The implementation of such programs beyond the initial geographic scope provides a multiplying effect to SECO's initial investment. For the rest of SECO-funded projects, value creation beyond the direct project outcomes was not considered a critical element given the limited "commercial" dimension of beneficiary projects (e.g. energy policies, public services, academic cursus, etc.). While the potential replicability of projects is an important decision criterion in the selection of projects, a limited number of projects gets actually replicated.

As programme, REPIC management costs represent more than 27% of the programme budget, which is significantly higher than usual overheads. This can be explained by the fact the management and monitoring of projects are outsourced to a Swiss consultancy. Furthermore, dealing with a large number of small projects generate efficiency losses compared to a reduced number of larger projects. Finally, the REPIC Secretariat is spending a considerable amount of time to support beneficiaries, including at

project design stage, which, in the view of the evaluation team, contributes to the high rate of success of REPIC projects in achieving expected results.

4.3.2 *Global appreciation of the quality and relevance of project management and oversight*

In bilateral projects, SECO grantees are national or local governmental bodies (e.g. municipalities), while SECO's contribution to global projects (E.g. ESMAP, CICLIA, etc) generally goes to another international donor (e.g. Inter-American Development Bank, Agence Française de Développement, etc.). The day-to-day management of beneficiary projects is often delegated to implementation consultants. Most of the time, implementation consultants work in autonomy on the daily monitoring of projects and team up with grantees for delivery (e.g. municipalities, state, companies), under the supervision of a steering committee (and sometimes an advisory committee), which generally comprises the local SECO representative, local partners (e.g. municipalities, ministries) and other donors where applicable. In rare cases, SECO representatives may play a more active role in the day-to-day coordination, as illustrated in the Energy District (Colombia) project, during which the difficulties of the local partner to ensure project coordination led SECO to take over that role with some acknowledged success. In REPIC, the primary beneficiary must be a Swiss organisation, which usually teams up with a local partner. This setup can be seen as beneficial from a communication point of view (e.g. same time zone, limited cultural gap, similar working practices, etc.).

The role of the steering committees is generally limited to the general oversight of projects, review of annual (or bi-annual) reporting/evaluation and high-level strategic decisions. In the E5P (Ukraine) project, decisions are taken by an Assembly of Contributors upon advice from the Steering Committee. Quality control systems and backstopping are reported in some projects, but not all of them. Whenever this is the case, those are reported as playing a critical role.

Some issues were reported to the evaluators for the CICLIA project (Africa), in which management and oversight by the AFD was reported to be sub-par vis-à-vis SECO expected standards, especially with regards to the absence of a project pipeline, the absence of clear rules and criteria for the acceptance of new projects, and the lack of clarity about the role of the European Union. Similarly, some difficulties were reported with the IADB due to their unilateral decision to modify the activities initially planned in the ESCI project (Peru) without communicating to SECO.

Available external evaluations of global SECO-funded projects (e.g. ESMAP) also provide positive appraisals regarding the quality of programme management / steering.

In the specific case of REPIC, project beneficiaries generally acknowledge the limited bureaucracy and simplicity of project application and monitoring phases. In addition, the REPIC Secretariat provides reactive and valuable support to applicants and beneficiaries throughout the project. The support role played by local *staff from SECO and other Swiss representatives* was equally acknowledged as valuable.

In some cases, local authorities appear less engaged and active in the oversight of projects (e.g. Ukraine). This not only has negative consequences on quality but also on the overall sustainability of the project, given the importance of a strong commitment and representation by local authorities in the promotion and replication of SECO projects.

In conclusion, the evaluation tends to show that project governance generally provides good results, with regards to the oversight, quality control and steering of projects. Aside from some difficulties encountered in very specific cases, the collaboration between SECO and other donors seems to prove satisfactory at governance and decision-making levels.

4.3.3 *Degree and quality of project monitoring and evaluation*

Monitoring & Evaluation (M&E) systems are essential to measure whether expected results, outcomes and impacts of projects are achieved. Monitoring requires collecting data on results, outputs, outcomes and/or impacts against a set of key performance indicators (KPIs) integrated in the project logical framework (logframe). Reporting against this logframe is part of the duties for all SECO grantees.

Table 6 describes the KPIs used by SECO in its last message to the Parliament and those used by WEIN for project monitoring. In addition, Appendix I presents a table containing a detailed overview of key impact and outcome-level KPIs for each of the analysed projects, along with a simple assessment of the quality of baseline and target values, and alignment of these indicators vis-à-vis SECO KPIs.

Table 6 Selected SECO indicators for Energy-efficient Cities-related business lines

Business line / Observation area	Selected indicators as presented in the Message to the Swiss Parliament 2017 - 2020	Selected indicators currently used by SECO WEIN for results monitoring
Integrated urban development (target outcome IV, business line 1) Observation area 1: Improved planning criteria and selective measures promote sustainable urban development in partner countries.	• Number of urban plans and strategies fulfilling the sustainability requirements • Population numbers expected to benefit from development plans and urban projects, broken down by region and economic strength if possible • Savings in CO₂ emissions achieved through energy efficiency measures	• Number of inhabitants benefiting from sustainable urban development projects • Number of cities with urban development measures (including for improving governance) in the sectors of public transport, energy efficiency and natural disaster risk management • Measures for improving capacity development • Greenhouse gas emissions saved or avoided in tCO₂eq
Sustainable energy supply (target outcome IV, business line 2) Observation area 2: By including sustainable and climate-compatible aspects, SECO contributes to improving the energy policy as well as reforms and investment measures and to increasing energy efficiency and supply (e.g. by promoting renewable energy).	• Additional kilowatt hours from renewable energy and from energy-efficiency measures through project interventions	• Kilowatt hours saved through energy-efficiency measures and kilowatt hours additionally produced from renewable energy • Greenhouse gas emissions saved or avoided in tCO₂eq
Reliable basic public services (target outcome 1, business line 3) Observation area 3: Through technical and financial support, public utilities are better placed to offer a reliable and affordable public service	• Number of persons having access to improved (basic) public services • Coverage ratio of operating and maintenance costs • Leverage effect of SECO's financing (as a means of improving the solvency of public bodies)	• Number of persons with access to better (basic) services • Proportion of O&M costs recovered through charges • Measures for improving capacity development • Leverage effect of SECO's financing in million USD

Source: SECO WEIN (2018)

There is a great deal of diversity among SECO-funded projects with regards to their objectives, contents, partners, geography, political context and expected environmental/socio-economic impacts. Consequently, some flexibility is given to each project to develop ad hoc performance indicators, which are generally in line with SECO's KPIs, but not necessarily identical, e.g. with regards to units and time horizons for measurement. Furthermore, the degree of development and implementation of M&E systems varies considerably across the projects evaluated, which reflects their current status: some of them are only starting whereas others are about to finish or completed. Logically, projects at very early

stages are yet to complete and implement their M&E system (e.g. ESCI, EESTLRP in South Africa, and in the case of MEEMP and Renewable Energy for DH in Serbia because these two projects were only in their inception phase during evaluation). Some projects like Vinnytsia/Zhytomyr report difficulties for project beneficiaries (incl. local authorities) to use SECO's logframe for monitoring and reporting due to a heavy workload in the realisation of projects. The limited capacities to adequately capture the extent of the high-level impacts or outcomes of certain projects can be explained by:

- The fact that adequate means of verification/sources of data have not been defined;
- Resources to cover the costs for the collection of primary data on KPIs have not been allocated by projects.

Few projects use quantitative indicators to report on environmental benefits, such as the reduction in energy consumption or in GHG emissions. This is for example the case in Ukraine (Zhytomyr & Vinnytsia), where the implementation partner used emission factors from the International Panel on Climate Change (IPCC) Guidelines.

In the specific case of global projects (e.g. REPIC, ESMAP, ESCI), a specific monitoring and evaluation process is being implemented by the grantees to report to SECO about use of its funds. Such evaluations are made available to the public, which ensures transparency and accountability vis-à-vis Swiss taxpayers. It must be noted that project-level consolidated data (e.g. KPI) are not always available.

The disparities of SECO-funded projects make it difficult for the evaluation team to produce a unique and universal SECO-level consolidated data and indicators regarding high level outcome and impacts generated through its portfolio of projects in the field of energy efficiency (see Section 4.2.2). In addition, the analysis shows there is a strong concentration of KPIs which are directly linked to the area of 'sustainable energy supply' (i.e. target outcome IV, business line 2) of the intervention logic.

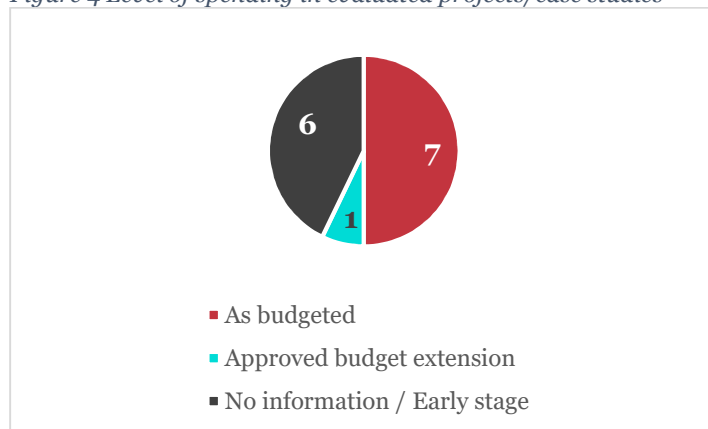
In summary, the evaluators observed that all project partners use a logframe with performance indicators established at the start of the project to report on achieved results. While project results are satisfactorily monitored and reported, impact-level indicators are more seldom used, and project performance monitoring based on the use of KPIs is in many cases limited by a better and more systemic definitions of baseline and target values for selected KPIs (particularly outcome / impact KPIs). The evaluation team found that in many cases such values have not been defined, making it difficult to establish the level of ambition of the projects, and their level progress towards expected results. As a result, only a limited number of projects make use of quantitative indicators.

This lack of systematic, quantitative and consistent measurement of environmental, social and economic impacts/outcomes in the project implementation areas precludes any robust assertion regarding environmental or social benefits from SECO-funded projects.

4.3.4 *Level of spending (vis-à-vis original plans) of projects*

Six projects could not be assessed regarding their level of spending, either because they are at an early implementation stage (actual level of spending is limited) or because no information on disbursement is available. Among the remaining eight projects/case studies, most of them report a level of spending in line with original plans (see figure 4 and Appendix H). The only exceptions are the Cities Alliance project (only 55% of budget spent by CA at the time of this evaluation) and the Biomass CHP Padinska Skela (Serbia), which received a budget extension, but ended up not using a significant amount of its budget as the CHP work package was finally cancelled. The Energy District project in Colombia was authorised to use its budgeted contingency to implement additional activities, which cannot be considered as over-expenditure. Project capacity to spend allocated resources, or correctly disburse them based on project goals, is not an issue of concern in the case of SECO EE cities.

Figure 4 Level of spending in evaluated projects/case studies



Source: Own

4.3.5 Other key management issues or concerns

Some projects reported delays during the launch phase, which are essentially due to the length of initial bureaucratic processes and internal political economy (e.g. the signature of an agreement between SECO and the South African Department of Energy in the case of EESTLRP).

Projects and programmes involving other donors sometimes pose additional challenges in terms of project management and coordination, especially with large organisations such as the World Bank, EBRD, UNDP or GIZ. SECO partnerships in the field of EE cities are generally reported as fruitful and constructive, but require careful coordination and communication to ensure projects are implemented efficiently and achieve the expected results.

Several interviewees reported to the evaluation team that SECO is generally perceived as an “impact oriented” organisation, which reduces red tape and is focused on achieving the project objectives, which makes the application and execution of projects smoother and easier than with other donors. This is particularly true for Cities Alliance and REPIC, for which beneficiaries shared positive feedback regarding SECO funding as an efficient, simple and accessible process. In a number of cases, project partners and beneficiaries also expressed satisfaction with the type / culture of project management within SECO, focuses more on finding solutions rather than stressing the existence of problems.

4.4 Sustainability of SECO energy-efficient cities project portfolio

Based on DAC Guidelines, the definition of sustainability in the context of this evaluation is the likelihood for the benefits to be brought about by SECO-funded projects to be sustained after the funding ends (incl. from other donors). Such benefits theoretically include direct project achievements (e.g. infrastructures created, improved capacity and training among staff, new policies, etc.), as well as higher-level environmental, social and economic impacts. However, the limited and inconsistent use of quantitative environmental indicators across projects (see Section 4.3.3) makes the latter difficult to evaluate. Therefore, this evaluation is primarily looking at the sustainability of direct project outcomes over time. The evaluation team used different categories of project outputs/outcomes as follows:

- Energy efficiency in building includes all renovation/construction works looking at increasing thermal efficiency in existing or new buildings, thus resulting in lower energy consumption (heating or cooling).
- Renewable energy production includes the building and operation of heat and power units using renewable material, as well as individual energy sources, such as biomass used in households.

- Waste management includes projects aiming at developing or improving processes and infrastructures for the collection and recycling/disposal of waste.
- Policies and public services include any newly developed policies aiming to enhance renewable energy and/or energy efficiency at the local or national level. Public services in this context include the possibility for citizens to access, renewable energy, energy efficiency or waste management programs ran by local authorities.
- Urban development plans are a subset of policies looking specifically at municipality-level initiatives to further improve the infrastructures and services used for energy efficiency and/or renewable energy production.
- Academic training and capacity-building aim to train local workers and students to acquire the necessary skills to operate energy efficiency and renewable energy projects.

Box 6 Main messages on sustainability

- Project sustainability was extrapolated based on the nature of outputs and outcomes, as well as the project dynamics (e.g. partner, context).
- A high likelihood of sustainability is expected over a limited number of SECO-funded projects only, for which outputs/outcomes require limited maintenance (e.g. energy efficiency in buildings) and/or because grantees ensured a viable source of income over time (other than alternative international donors).
- In spite of an alignment between project focuses and existing local/national strategies, sustainability could be enhanced by supporting grantees regarding the engagement of local and national authorities in the endorsement of the project, its financing and the development of a favourable policy context. The EEA framework could constitute a solution, given its streamlined structure and consistent conformity process, but the need to develop a national funding scheme may turn out to be a limiting factors in several countries.
- Additional success factors for sustainability include the creation of a dedicated national body to oversee RE and EE development projects, reduced red tape and streamlining of processes, and better transmission of skills among beneficiaries with high staff turnover. Alternative approaches such as corporate development were not evaluated and could also be explored to enhance the sustainability and replicability of projects.
- In spite of replicability being part of the criteria used for project selection, only a limited number of projects were reported as replicated for the time being. Success factors include a strong commitment from authorities, a compelling business case (e.g. environmental, economic or social benefits), a favourable regulatory or policy context and optimised processes to reduce the administrative burden.

4.4.1 Likelihood of sustainability of individual project outcomes

The evaluation team looked at the sustainability of the outcomes from global programs and bilateral projects from two different perspectives:

- For global programs such as REPIC or ESMAP, sustainability is mostly assessed at the level of projects and their beneficiaries, and to a lesser extent at the program level;
- For bilateral projects, sustainability can only be assessed at project level.

The potential for sustainable outcomes was assessed by combining:

- 1) the type of project outputs;
- 2) the general dynamics of projects and partners, including evidence of committed new funds or viable business models.

Several outputs (e.g. infrastructure, capacity-building, policy changes, etc.) are evaluated for each project, based on whether these are expected to require continuous maintenance or support. For example, improvements in energy efficiency through building restoration are expected to last without

intensive maintenance work, whereas the implementation of new energy services, waste management, staff training or an academic cursus require continuous support to thrive.

The project dynamics is evaluated on the basis of the stakeholder interviews conducted throughout this evaluation. They include the capacity of grantees to develop a solid network of partners, investors, etc. or to develop a sound business model to sustain incomes over time.

Table 8 provides a non-quantitative analysis of the likely sustainability across the 14 projects/case studies, based on types of project outputs and dynamics. The evaluators found that less than half project outputs are deemed to show a medium-high or high likelihood of being sustained over time. These primarily include measures for energy efficiency in buildings, which do not require intensive maintenance or additional funding. Other outputs such as capacity-building, academic training and energy services are expected to be sustained when the network of partners and engagement from local/national authorities are strong, as in certain REPIC projects (Chile, Bosnia & Herzegovina) or ESMAP. Whenever a solid business model (i.e. with a secured source of income) was built, as in the Energy District project (Colombia) or Venture South in Kenya (REPIC), the likelihood for sustainability can also be considered high. Certain projects have ensured support from new investors or donors, which will sustain outcomes and benefits in the near future but is not in line with the DAC definition of sustainability. Therefore, those projects should not be regarded as sustainable *per se*, although in the case of ESMAP or CDIA, the organisation of donors around a multi-donor trust could be considered a sustainable long-term strategy.

In the rest of the projects evaluated, the lack of long-term vision, support from local authorities or any viable income-generation model, lead to the conclusion that the likelihood of outcomes obtained through SECO-funding to be sustained over time is low.

When aggregating the potential sustainability of different outputs, 7 projects/programs (ESMAP, CDIA, MEEMP, Padinska Skela, Energy District, Zhytomyr & Vinnytsia) come out with an overall medium-high/high likelihood of sustainability. However, when excluding projects and programs, which secured future incomes through other donors (incl. trust funds), only 2 projects appear sustainable through a viable business model.

In conclusion, Table 8 shows that the likelihood of sustained outcomes (and by extension impacts) can only be considered high in a limited number of projects. This is either due to the very nature of such outcomes (e.g. academic training), which do not generate any income, or due to the absence of long-term vision by grantee and/or lack of engagement from authorities or the private sector.

Success factors to enhance the sustainability of project outcomes, include:

- Focusing investments on outputs with a low level of required maintenance/need (e.g. building renovation);
- Ensuring a strong commitment from local authorities or investors to uphold and continue the project (e.g. CDIA Asia). As exemplified in certain REPIC projects (e.g. Bosnia, Chile, Kenya), project financial sustainability may be further secured by an early engagement with local and national authorities, or, in the case of CDIA, by making partners contribute financially to the project and enhance ownership through the creation of legal entity (Trust Fund) with a clear strategy in the short term;
- Related to the above, a favourable policy context is important for the sustainability of project outcomes, which can be reformed based on the outcomes of the project in certain cases;
- Developing a viable business model with sustained incomes, as in Ukraine (economically autonomous public utility);
- Whenever possible, the EEA process provide a solid framework to further sustain project outcomes.

Alternative models, such as corporate development, are insufficiently exploited in SECO-funded projects and would deserve additional research to understand how they could possibly contribute to enhance the sustainability of projects.

Policy reforms were not frequently triggered by SECO-funded projects but could also help further increase the likelihood of sustainability, as they would create a legal incentive as well as a concrete legal framework for the development of renewable energy and energy efficiency. This potential remains largely unexploited but would require a stronger effort from SECO and grantees to bring in authorities and create mutual trust.

The structuring of renewable energy and energy efficiency projects around the EEA also helps structuring and optimising the use of funds to produce the expected outcomes. Even in the case of EEA, continuous funding also constitutes the main limiting factor to the sustainability of outcomes, as some countries are unable to implement a national funding program to cover the costs related to the EEA label (e.g. compliance, audits, etc.) and would therefore rely on some international collaboration.

4.4.2 Key threats to project sustainability

Project managers and other key stakeholders identified various factors, which would likely jeopardise the continuation of the project and sustained benefits over time. These include:

- The lack of commitment and engagement from authorities, be it at local or national level, would invariably lead to the project and its outcomes being progressively lost (e.g. Biomass CHP Padinska Skela, Serbia). This is further aggravated in countries with long distances between municipalities/regions (e.g. South Africa), thus limiting the geographic coverage unless project staff is considerably increased. Projects with a strong commitment, participation and ownership by local (e.g. Municipalities) or national (e.g. Ministry of Energy) have a much higher chance to be sustained and replicated over time, especially if this engagement also materialises through dedicated resources used to oversee the implementation and continuation of the project, the development or improvement of policies and related incentives to enhance energy efficiency and renewable energy. A risk exists, however, that the financing of subsequent measures would ultimately bring costs up for the private sector through tariffs or induce additional taxes on consumers, which could be politically detrimental and discourage policy makers.
- Even with a strong support from local or national authorities, many project outcomes require funds to be maintained or continuously improved. Investors may consider the risk of failure too high or potential profits too low to invest in a project. The lack of investors may be compensated by moving to an economically viable model (e.g. a public utility) or by securing a financial contribution to all project partners (e.g. CDIA). Another key factor for the economic viability of projects is a reform in the tariff structure and removing of subsidies. This is the case in Ukraine whereby strengthened policy dialogue could give an impetus for further tariff reforms.
- The potential for sustainability of ongoing or recently started projects is essentially evaluated through commitments from project partners, local authorities and investors. Gaps may exist between commitments and real actions, which constitutes an important threat.
- The slow pace or length of certain administrative procedures is often reported as an issue throughout the project lifecycle, but the same would be true for the sustaining of the project and its outcomes over time. The development of mainstreamed (i.e. simpler and faster) processes for procurement, investment rounds, training, etc. would address this issue.
- An important turnover, either among project staff or among local/national authorities, may have important consequences over the continuation of the project and its outcomes. First, project staff carries a great deal of knowledge and competences, which could be lost in the process, if those are not properly identified, recorded and transmitted. Then, partners within local/national authorities or donors are essential to ensure the long-term participation and support from their organisations. The individual buy-in, commitment and leadership from individuals, esp. at higher level, is also critical to the continuation of a project. Elections or work turnover may suddenly put the continuation and the sustainable outcomes of a project at risk, if an alternative contact person is not identified in due time.

- As observed in some projects, poor coordination and/or communication among partners/donors may also hamper the functioning of a project and its sustainability over time, especially if one of them appear less committed or proactive in promoting the project.
- Ukraine projects reported a specific challenge due to the 2013 national energy reform forcing utilities to effectively reimburse their entire debt to the national gas company (The State may take up to 80% of their incomes). This decreases the economic competitiveness of the said utilities, which try to promote and develop renewable energy. An exaggerated tax regime may as well send a negative signal towards investors and slow down investments. The SECO project is expected to play a role in triggering further legislative changes in favour of energy efficiency and renewable energy, e.g. through the forthcoming Law on Energy Efficiency in buildings, a reform of the Law on Utilities and the Law on Energy Servicing.
- Finally, the lack of quantifiable environmental/economic impacts mentioned in earlier sections may as well threaten the sustainability of the project and its outcomes, by reducing the credibility of the technologies/approaches promoted. Support from civil society is important to convince authorities and investors to remain committed; such support requires environmental, social and economic benefits to be clearly and objectively measured.

4.4.3 *Triggered reform processes and awareness raising leading to broader scale impacts*

While most SECO-funded projects built upon some partnership with local or national governments, a limited number of projects led to actual reforms (e.g. changes in legislation, multi-year investment plans):

- Several REPIC projects benefited from a strong buy-in and engagement from municipalities (e.g. Tuzla project in Bosnia & Herzegovina) or national government (e.g. Chile). The continuation and expansion of these projects appear very likely, as these governments integrated the energy/waste management plans in their official roadmaps, secured a share of their budget for the continuation of activities and are actively promoting the results among other municipalities or countries.
- In the Energy District (Colombia) project, the local government is working on improving the regulatory conditions, reduce costs and trigger additional investments in the energy district. The actions currently being implemented, particularly by the ministry of energy, are likely to generate medium-term effects which will considerably improve the ED market and business environment and spur additional investments in places where SECO is not currently working.
- In South Africa (ESTL), the Department of Energy is committed to roll out phase 2 at national level by pushing the energy efficiency agenda, e.g. through public procurement policies.
- The participation in the EEA program (e.g. Vinnytsia, Zhytomyr, MEEMP) generally lead to official legislative changes at local level.

Awareness-raising heavily depends on the scope of the project and how proactively partners promote its extension to other municipalities or regions. Here again, a limited number of projects appear to have such a strong commitment and engagement from partners, thus leading to limited awareness from the population in most cases.

Based on the above, the evaluators observed the expansion of impacts beyond the scope of the initial SECO-funded project in a limited number of cases only, in which favourable elements were gathered to allow for an optimal promotion and replication of the project. In reality, these optimal conditions are not encountered in the majority of SECO-funded projects, either due to a difficult political context, a lack of commitment from local partners or limited capacities from the grantee (e.g. staff, network, skills).

4.4.4 *Potential for or evidence of replication of SECO-funded projects*

As mentioned in previous sections, several SECO-funded projects are at an early stage or still ongoing. Even in the case of completed projects, evidences of replication are rather scarce. As with the sustainability of project outcomes, the replicability of projects depends on a combination of favourable conditions, not all of which are in the hands of the project manager. Based on the few projects, which

were replicated beyond the initial scope or region, the evaluators would consider the following as success factors for the replication of projects:

- A strong commitment from local and/or national authorities, which not only translates into investments or legislative changes, but also in the active promotion of energy efficiency and renewable energy measures throughout the country and among neighbour countries. This engagement is all the easier thanks to the implication of local Swiss representatives, who proved instrumental in many instances to facilitate connections with key governmental players.
- An attractive business case for other municipalities, countries and investors, e.g. through the development of profitable energy services, clear and verifiable environmental benefits contributing to national objectives (e.g. NDCs) and public support, which appears critical in the perspective of elections.
- A favourable regulatory/legislative context, which includes legislations, financial incentives and other instruments, as well as the state structure, e.g. a decentralised/federal state would provide a favourable framework for the replication of municipal/provincial development plans.
- The simplification and standardisation of project information and results so that cities/countries replicating the project could start at a more advanced stage in the learning curve. The evaluators consider that the lessons learned and positive outcomes from the initial project should also serve to streamline administrative and technical processes by making them shorter, leaner and cheaper. This would make the replication of projects more compelling for other countries/regions.
- The implementation of communication/promotion activities shall start as early as possible in the project (i.e. not after completion).

The most notable cases of replication in SECO-funded projects are found in REPIC, for which an external evaluation conducted in 2017 by JaLogisch tends to demonstrate that one third of REPIC projects were reportedly replicated elsewhere in the country once or multiple times. No specific explanation was suggested to explain this rate. Although all REPIC projects should theoretically aim for replication, a 30% rate of REPIC projects being replicated (i.e. achieving a “meaningful impact”) is reported by JaLogisch as being in line with SECO’s targets.

In the CICLIA project, significant efforts (trainings and seminars) are deployed by SECO and AFD to disseminate good practices and potential benefits throughout sub-Saharan Africa. Existing initiatives such as the Covenant of Mayors are also used to promote the results obtained in the project and convince other municipalities to implement similar approaches. In Colombia, the IADB is promoting the ESCI project through its mainstreamed lending instruments and by engaging with key partners with a similar agenda, such as FINDETER, whose mission is to support territorial development particularly infrastructure finance at the subnational level. Similarly, the energy district concept developed for the city of Medellin was quickly replicated to other Colombian cities. In parallel, significant efforts were deployed by SECO and its partners to communicate about the benefits of the approach, which generated interest in other Latin American countries. The replication of CDIA (Asia) and MEEMP (Serbia) would be theoretically possible through an appropriate country-wide communication strategy, but the availability of resources to deploy such strategy is yet to be confirmed.

In spite of these encouraging results, the replicability of SECO-funded projects could still be significantly enhanced. The conditions mentioned above could be promoted more actively among project beneficiaries or even become part of the terms to comply with in order to obtain funds. Additional recommendations are included in the following section.

5 Conclusions of the evaluation (4 pages max)

The following sub-sections provide a global conclusion for each of the key evaluation questions addressed (see Appendix). In addition, the section begins by providing a global assessment of the EE cities portfolio and SECO intervention in this field.

5.1 General conclusions and evaluators' observations

The evidence drawn in the framework of the evaluation demonstrates that SECO is in the process of implementing a very lively, diverse and high-performing set of projects in the field of energy-efficient cities. The objectives of these projects are well aligned with the general SECO strategy in the field of EE cities, as presented in the IL developed in the framework of this evaluation.

The analysis of the full portfolio of projects has revealed the existence of a holistic, coherent and relevant storyline and strategy being implemented from the SECO frontline (at headquarters and in the field). This storyline is supported by the existence of a wealth of projects directly addressing key issues and challenges when it comes to promoting the generation and use of more sustainable energy in diversity of geographical contexts. It is important to note this, given that no explicit EE cities strategy has been developed by SECO ex-ante, or ahead of the implementation of its portfolio.

Given the amount of financial support provided, the diversity of geographical contexts worked in, the variety of project types implemented, and the multiplicity of local and international partners partnered with, it is safe to say that SECO is currently an important international player in the field of EE cities. Its partners and beneficiaries appreciate the quality and type of support it is providing. Through its projects, SECO has managed to leverage significant resources, knowledge and expertise across a range of international organisations, as well as with local strategic partners. In addition, it has often injected Swiss expertise and know-how, promoting the visibility of Switzerland abroad.

In doing this, SECO appears to have carved itself a unique position in the international donor landscape. This position could be described as that of a 'reliable enabler or catalyst', given that it often times enables broader processes and change to take place with a comparatively low dosage of financial investments. In addition to this, SECO has planted a number of seeds for energy-related innovations and transformations to take place in the medium term in places where they would have otherwise not happened, or at least not at the same pace.

This said the complexity and richness of the SECO EE cities interventions does not appear to be the result of a planned or centrally managed intervention on behalf of SECO. There is no evidence to show that the type of partnerships that SECO has developed, the geographies it invests in as a priority, and the distribution funding provided to different project types (i.e. bilateral vs. global) for instance, is the product of a centrally-planned or -managed intervention. Instead, the patchwork of SECO projects, partnerships, solutions and beneficiaries appears to be in part a product of chance. The conclusions to be drawn from this finding are only for SECO to say. From the perspective of the evaluation team, by no means should this finding point to any type of deficiency or weakness in SECO's intervention. Instead, it should be seen as an opportunity to further strengthen and flesh out its strategic ambitions to drive energy efficiency in cities, using lessons learned as a means of more effectively steering and showcasing its intervention on a global scale.

5.2 Relevance

5.2.1 *To which extent have WEIN projects been aligned with the needs of the partner countries' development priorities as well as with requirements of the Paris Agreement/Nationally Determined Contributions (NDCs) and the SDGs?*

SECO projects in the field of EE cities are deemed fully relevant in light of the issues and challenges identified at the country and regional level in the field of environmental protection and promotion of sustainable energy. There is also a high level of consistency between SECO interventions and existing local policy and regulatory frameworks dealing with energy efficiency, environmental protection and

urban planning. SECO projects are often seen by beneficiaries to contribute to Nationally Determined Contributions adopted in the framework of the Paris Agreement. It is worth noting however that several projects have been launched before the adoption of NDCs in their relative countries. From the perspective of the evaluation team, the SECO portfolio of EE cities projects is also fully aligned with Sustainable Development Goals, and particularly SDG 7 (i.e. Affordable and Clean Energy). SECO has not however formally linked its EE cities portfolio to any particular SDG.

In spite of the general relevance of SECO WEIN energy-efficient cities project portfolio, the level of direct relevance of project objectives with regard to SECO global priorities varies across projects. This depends on whether they are bilateral or global projects. In global funds and facilities, relevance is often limited by the fact that SECO is only one among a number of other donors involved in supporting and implementing the initiative. SECO's capacity to influence the objectives of these projects is also lower. This however is often offset by a number of other advantages linked to the contribution of these facilities, such as the level of exposure SECO gets to the international donor community working in the field of EE cities.

5.3 Effectiveness

5.3.1 *Have the activities contributed to the overall objective of helping cities better plan, manage and monitor their energy supply?*

SECO activities within the Energy-efficient Cities portfolio have significantly helped cities to better plan, managing and monitoring their energy supply. These features are particularly present where the EEA approach has been introduced.

In principle, the effectiveness of the EEA is assessed very positively. In addition to the introduction of clear structures (energy team) and the development of strategic planning, recurring quality control through internal and external audits should be mentioned in particular. External support for the establishment of new structures in the municipalities are also regarded as a well-suited element. In projects where this support was insufficient, the successes achieved were considerably lower.

The inventory analysis in the pilot cities in Serbia is completed, work programmes have been drawn up and identified measures will now be implemented. Access to funding for the implementation of concrete measures was the main argument of the municipalities for participation in the projects, but in the meantime the understanding of the EEA has changed positively. Capacity-building has already made good progress so that local consultants are available to promote the EEA idea. Although the EEA fits well with national targets and the legal framework, additional and continued efforts have to be made to engage with key stakeholders at local and national level to foster commitment to sustainable EEA implementation.

In Ukraine, due to the positive experience gained in the pilot cities, many other municipalities have shown interest in implementing the EEA. EEA approach has been very beneficial for both cities and the approach is fully understood and appreciated. EEA increased the city's motivation to undertake energy efficiency measures and the EEA certification process triggered a cultural shift. EEA is complementary to the Covenant of Mayors and helps implement the practical measures from the Sustainable Energy Action Plans (SEAP).

Besides the projects with an EEA component where the sustainable energy management has been improved, there are several projects which have achieved impact with regards to planning, managing and monitoring energy supply. For example, REPIC stakeholders concur that the project is achieving its expected impacts, with regards to supporting local partners promoting and developing innovations in energy efficiency, sustainable energy source and resource efficiency, and bring them to closer to a commercial level.

5.3.2 *What have been the results (intended and unintended, positive and negative, e.g. rebound effects reducing gains from energy-efficient technologies), and what have been success factors and challenges?*

One of the major impacts of the Energy-efficient Cities portfolio is *increasing energy supply and making it more reliable* leading ultimately to consumer well-being and benefits for the environment and the economy. This has been the case for a number of projects such as REPIC, Vinnytsia, Zhytomyr, E5P, etc. Energy supply has been increased through the construction of *improved urban infrastructure* which is highly efficient and innovative. In certain cases (i.e. E5P) significant funds have been leveraged. The associated impact of additional energy supply from renewable energy and from energy efficiency measures (both supply and demand) has been achieved to a big extent. Improved urban infrastructure has also been the impact of CDIA projects, however most of them are in areas not directly linked to energy efficiency such as water and waste management and sustainable transport. Energy efficiency is taken into consideration in these projects indirectly.

Certain projects and project components have improved significantly the *demand-side of sustainable energy* through energy efficiency measures in this way improving the global climate situation. The achievement of demand-side impact is satisfactory despite some delays in the case of Zhytomyr and in the case of the South Africa project. In both cases, some rebound effects could be expected as temperature levels in the kindergartens will go up and the illumination of streets in South Africa (and other African cities within CICLIA) will be improved. This leads to additional well-being and improved safety.

Our assessment shows that on a portfolio level, the *impact on more sustainable energy management at the municipal level* through increased capacity of municipal and public utility experts has been achieved to a large extent. This has been the case for Vinnytsia, Zhytomyr, ESMAP, ESCI, Cities Alliance (Tunisia Country Programme), etc. SECO's efforts on capacity building, including in cooperation with other donors, have been highly appreciated. However, the introduction of EEA has been the most instrumental in improving municipal energy planning and management.

At this stage, with some exceptions, it is still hard to judge if SECO interventions have led to *improved living conditions for populations in targeted countries and regions* has been achieved or will be achieved. One of the reasons for that is the time lag. For example, the full benefits of better energy infrastructure and supply in Vinnytsia and Zhytomyr will be fully present in a year or more. In E5P, energy efficiency renovations have already led to better living conditions in a number of Ukrainian cities. In Colombia, citizens have already benefited from energy-efficient cooling systems. This is not the case yet for South Africa where the project is at an early stage of implementation. Past CDIA projects in water, waste management, etc. have already led to improved living conditions in targeted countries. CICLIA has not achieved yet impacts on improved conditions for the population.

The evaluation team identified no negative unintended results and a number of positive ones divided in several categories. In several cases SECO projects gave additional impulses for strengthening renewable energy supply markets, e.g. through the development of wood-chip markets. SECO projects also increased the momentum for holistic policy reforms in the countries. There have also been some very positive spill-over effects into other policy domains such as a holistic approach to urban planning.

The success and effectiveness of projects depend on a number of factors. The political will before the start of the project and during its implementation are key. Securing buy-in for the project on different governance level is of great support to the projects. The availability of local partners has secured important links between Swiss know-how and local conditions. The timeliness of the capacity-building both for municipalities and public utilities increases chances for project success. The lack of subsidies for fossil fuels is an external factor stimulating introduction of renewables and SECO is in the position to influence it through policy dialogue.

All of the success factors become challenges if they are not addressed in a timely manner. Additional challenges include the sub-optimal policy context, high bureaucracy, municipal and utility staff turnover, etc.

5.3.3 *Was there an added value in projects brought by WEIN/Switzerland as a donor or through cooperation with Swiss educational, research or private sector partners and is there a potential for improvement in relation to “Swissness”?*

There has been significant value added by SECO as a donor. The EEA approach is the main aspect of Swissness of both bilateral and global projects and it has been highly appreciated. In addition to the introduction of clear structures (EEA team) and the development of strategic planning, recurring quality control through internal and external audits should be mentioned as the main EEA assets. In certain cases, the EEA certification process increased the motivation for the implementation of energy efficiency measures, increased the profile of these measures including through the climate prism and even triggered a cultural shift.

Swissness is particularly high in the bilateral projects such as the ones in Ukraine, Serbia and Colombia. In these cases, SECO has been free to structure the projects in order to increase their Swissness through EEA introduction but also through other approaches such as Swiss knowledge and know-how transfer. Swissness has also been perceived by stakeholders as a donor bringing in a specific combination of capacity-building and innovative infrastructure but also introducing a working culture of flexibility and punctuality. With regards to global projects the Swissness aspect has been diluted and interviewees did not identify any particular Swiss added value.. Within global projects Swiss consultants compete with consultants from other countries on a general basis and hence there is no explicit transfer of Swiss technology, know-how and working culture.

Swissness could be further increased if the introduction of EEA is optimised and if EEA better synchronises its efforts with other global initiatives. Specific, novel and innovative approaches to capacity building would be another entry point for Swissness as developing the human potential is a factor for success.. Within global projects, SECO has the possibility to participate in the government structures of these funds and facilities and inject a dose of Swissness. Additionally, by making sure sustainability and replicability of projects are guaranteed Swissness will live on even after the completion of the projects.

5.4 Efficiency

5.4.1 *Have the SECO WE projects, approach and instrument mix proved cost-efficient with regard to achieving the objectives and has the cost-benefit ratio at portfolio level been adequate?*

The overall cost-efficiency of SECO WE projects can be considered satisfactory. On the basis of this evaluation, most projects achieved the expected objectives within the initially approved budget (6 projects out of 14 are in too early stages to report actual expenses). The staff in charge of managing projects and their partners are considered efficient and they generally work under the supervision of a steering committee, which monitors, among other things, that resources are used efficiently. The coordination costs of REPIC are on the high side compared to other SECO projects (27% of the REPIC budget). These high costs may be justified by the decision to outsource project coordination and monitoring to Swiss consultants (REPIC Secretariat), efficiency losses due to the large number of small projects in REPIC and the proactive support provided by the Secretariat to REPIC beneficiaries.

While the execution phase of SECO WE projects can be considered cost-efficient overall, only a limited number of projects were replicated, which means that a “multiplying effect” is only observed over a limited number of SECO WE projects. The evaluators consider this is mostly due to the limited engagement from local and national authorities and other partners, which prevents building a compelling business case for replication, based on concrete benefits.

Some projects were extended in time (without any budget increase) or were allowed to use their contingency fund (Energy District in Colombia). Reported overhead costs used to manage projects (either by beneficiaries or through external consultants) are generally within reasonable limits (about 10%); however, a significant amount of support with administrative and management aspects of projects is provided by SECO *pro bono* to the project beneficiaries, which is not accounted for in reported

overheads and admin costs. Actual overhead and admin costs might therefore be higher than reported, but we do not anticipate these would be large enough to significantly change the above appreciation of cost-efficiency.

While project-level monitoring of results and outputs is implemented by grantees through the agreed logframe, of the evaluators consider that a consistent and robust monitoring and evaluation (M&E) system for impacts should be generalised across SECO WE projects. As observed in other development projects, energy efficiency and renewable energy projects are generally assumed to bring about real social/environmental benefits, but this is not always the case. Therefore, a risk exists for SECO funds to be used for technologies with limited benefits. Consequently, the evaluators consider that the quantitative assessment of environmental impacts within the scope of the project and beyond would help ensure that SECO's investments only support the technologies and innovations with higher potential for GHG emission reductions and other environmental benefits.

5.5 Sustainability

5.5.1 *Are the project outcomes likely to be sustained after project termination and what have been the success factors for sustainability?*

As described in Section 4.4, the evaluators chose to evaluate the sustainability of SECO WE projects on a project-by-project basis and for specific achievements/outcomes, taking near-future needs for maintenance or funding into account. In this perspective, only a limited number of SECO WE projects have a relatively high likelihood to be sustained in time, without necessarily relying on additional funding or maintenance. Energy-efficiency measures generally involve specific constructions or refurbishment of buildings and houses, which are expected to last for several decades.

On the other hand, some types of outcomes such as energy services, training or the implementation of waste management systems require constant support and maintenance to be sustained over time. Hence, the evaluators consider that the likelihood for such outcomes to be sustained over time is therefore low, unless the Swiss and/or local partners achieved a robust network of supporters and donors to sustain/replicate the project whenever the SECO contribution stops. Continuous funding by international donors would not be considered sustainable as per DAC Guidelines, although it is frequently observed in the world of development and cooperation for projects that do not generate sufficient incomes. Several projects included in this evaluation would require such continuous funding, as in the case of ESMAP, for which alternative sources of funding were secured up until 2020, or with CDIA, which organised an efficient co-financing system (trust) with partners. In some REPIC projects, the level of endorsement and support from local and/or national governments appears significant and result in the constitution of national funding schemes (as with EEA projects), which will provide continuous funding, but may in certain cases be politically sensitive if relying on extra taxes for the private sector or individual citizens. The main success factor to ensure sustainability over time without relying on public funding or international development is to support partners developing viable business models such as Venture South in Kenya. However, this model would not be applicable to projects in which the commercial dimension is absent or limited (e.g. urban planning, academic training, capacity-building).

As mentioned in the preceding section, a limited number of SECO WE projects gave way to a replication or multiplication of their outcomes, including by triggering large-scale reforms in the region/country. Changes in the local/national regulation or policies remain exceptional across REPIC projects.

6 Recommendations

Theme: Theory of Change.

Recommendation 1: Develop a more detailed and comprehensive Theory of Change to drive further and help steer SECO interventions in the field of energy-efficient cities.

The evaluation has demonstrated that SECO's intervention when it comes to supporting EE cities is extremely rich and diverse in terms of types of projects supported, partnerships developed, technologies promoted, and types of results being accomplished or sought to be accomplished. This is the result of the many 'explicit' and 'implicit' objectives driving the design of individual projects. The full picture of how SECO is promoting EE cities globally is not currently fully captured in a holistic intervention logic or strategy document. In the absence of any formal strategic vision adopted in the future, formally recognising and describing the SECO Theory of Change when it comes to supporting EE cities, it is likely that the effectiveness and quality of its intervention in this field may decrease. Adopting such a strategy will ensure that, moving forward, the strength of SECO intervention does not dwell only in the sum of its individual projects, but rather in a coordinated effort to intelligently invest its limited resources in a high potential and balanced set of projects. This will also ensure developing a more explicit vision of how some of its current hallmark tools and approaches (e.g. the EEA) are meant to further contribute to its efforts in this field.

A more detailed and complex Theory of Change should be developed which adequately reflects both the implicit and explicit objectives of SECO's interventions in the field of Energy-efficient Cities. This theory of change should not only be operational in nature, but also include guiding strategic principles (e.g. who to partner with, when, and why?). This could also include a list of central outcome and output-level KPIs, in addition to the ones defined in the Message to Parliament; as well as strategic KPIs.

Theme: Monitoring and evaluation (M&E) framework

Recommendation 2: Ensure full consistency between projects and SECO global strategic priorities and Key Performance Indicators, and means of monitoring achievements.

The evaluation has demonstrated that while there is a high level of relevance of SECO projects vis-à-vis global SECO strategic priorities, the links between projects and high-level objectives stated in the Message to Parliament (previous and ongoing) are not always explicitly formulated in project proposals. In addition to this, the evaluation found a lack of more systematic and consistent use of Message to Parliament KPIs in project performance frameworks. It is thus recommended that moving forward, project designers pay careful consideration to ensuring and describing the direct link between project ambitions and high-level SECO ambitions and take on board centrally-defined KPIs.

Recommendation 3: Promote the development and implementation of a consistent monitoring and evaluation (M&E) framework across SECO-funded projects.

The present evaluation has demonstrated that the body of evidence illustrating the effectiveness and efficiency of SECO-funded projects is limited. Recent evaluations are scarce due to early implementation stages, but those which do exist do not provide a full picture of programme performance on the basis of DAC evaluation criteria, due to the lack of quantitative impact indicators demonstrating concrete environmental, social and/or economic benefits. This makes it extremely challenging to assess the cost-efficiency of SECO investments with regards to energy efficiency, climate change mitigations and other

socio-environmental benefits, beyond some of the anecdotal evidence provided by SECO and its partners.

Given the strong role played by environmental protection, climate change mitigation and improved livelihood in SECO strategy, the evaluators recommend a more systematic, quantitative and consistent framework for monitoring and measuring project impacts by grantees, especially to evaluate GHG reductions brought about by SECO projects. A fit-for-purpose GHG accounting methodology could be developed or selected among existing approaches to evaluate all SECO projects consistently, which would also allow comparing them in terms of climate change impacts, as an additional instrument for selection and steering of projects. Such methodology could be implemented at the project design stage, based on the project description and expected results, as well as during the project and upon completion to measure actual GHG savings.

Other environmental and social quantitative indicators should be added to the logframe and consistently implemented to further improve the evaluation of benefits of SECO projects, including but not limited to:

- Energy consumption;
- Water consumption;
- Air quality;
- Job creation;

Using quantitative indicators will be particularly beneficial to ascertain the benefits of certain energy efficiency or renewable energy technologies against the baseline, which is an important prerequisite for the replication stage. Their use, however, does require partners to be properly trained and supported, especially for GHG accounting methodologies, which require specific technical skills. Additional project costs should therefore be anticipated for the training of staff and purchase of specific equipment (e.g. GHG calculation software).

Theme: Project design

Recommendation 4: Strengthen relevance of methodological and technological solutions promoted by SECO, by further analysing their added value as compared to incumbents or alternative solutions.

While the relevance of selected technological and methodological approaches is high, there is a level of uncertainty regarding their relevance vis-à-vis incumbent or alternative solutions. Conducting a more in-depth description and assessment of the selected technological and methodological approaches in the project design and formulation phase, including social, environmental and economic advantages (or disadvantages) vis-à-vis alternative solutions could greatly increase the level of understanding and certainty of why these are the right solutions to the problems being addressed and objectives being pursued. This may also contribute to revealing the existence of any positive or negative trade-offs or synergies, linked to the selected solutions, which require being addressed as part of project implementation in order to be mitigated.

Recommendation 5: Strengthen demand-side measures in a systematic manner.

Certain projects and project components have already addressed the demand-side of sustainable energy through energy-efficiency measures. They cater for the achievement of the SECO Energy-efficient Cities impact on clean and sustainable energy solutions to improve the global climate situation. However, it has been reiterated by different stakeholders that SECO should address demand-side measures (i.e. installing meters and determining weak points) in a systematic way and preferably well in advance of

investing in supply-side measures. Against this backdrop, SECO should explore possibilities for supporting owners' associations and implement several rehabilitations of complete buildings with a strong demonstration focus. This can be done in cooperation with other donors and can also go hand-in-hand with building the capacity of local actors how such rehabilitations could be financed.

Recommendation 6: Further strengthen capacity-building through partnerships, adapting to local context and using local resources.

Capacity-building has been highly appreciated within current projects and need to be continued at all cost starting early in the project. While it has to be adapted to local conditions (including using local trainers) its innovative character needs to be preserved and SECO should keep bringing in new technical and cultural approaches through capacity-building. Capacity-building should be strategically thought out and well-integrated into the overall project and the overall local situation. Its share of the overall projects could be increased. SECO could also help define the training needs of the municipalities. In addition, utmost attention should be paid to training more than one expert in a certain issue and think of the issue of knowledge continuity in advance. In the case of global projects strengthening capacity-building in the implementation stage (including a stronger emphasis on aspects of energy-efficient cities) is strongly recommended. Peer-to-peer capacity-building is also strongly recommended.

Theme: Policy framework in countries of operation

Recommendation 7: Further enhance SECO's role as a driver for policy reforms.

Comprehensive policy reform in the countries of operation is a factor for the optimal implementation of projects as well as their sustainability and replicability. This mainly concerns the financial independence of public utilities; the tariff structure reforms and removing heavy subsidies; regulations on energy efficiency in public and residential buildings, etc. Full benefits of technological and organisational solutions can only be achieved if the right policy context is in place. Additionally, local stakeholders often expect foreign donors to use their leverage and put stronger pressure over governments in order to trigger policy reform. SECO has already taken measures in this direction and has been participating in policy dialogue efforts in a number of different contexts. For example, in Ukraine SECO's contribution to E5P is key to moving the reforms forward.

Nevertheless, SECO could explore in a systematic way further possible leverage to be involved even more actively in policy reform efforts on a national or regional level. SECO also has the possibility to use WEIF private sector promotion funding for addressing the regulatory reform issue, i.e. with regards to energy-efficiency renovations. In these efforts, cooperation with other donors and implementing agencies for the sake of passing is key. In addition, earmarking funds for financing policy dialogue is also important.

Theme: European Energy Award

Recommendation 8 Deploy EEA early in the project stages.

One possibility for increasing the chances of success of a project is deploying EEA (where relevant) and capacity-building components earlier and continuing with hard components only when cities have sufficient capacities to implement the project. EEA implementation also increases the chances for leveraging future municipal own or borrowed funding which could be used to implement individual EEA measures. In this way, municipalities can be reached that do not yet recognise the opportunities of EEA and capacity-building, but primarily want to make use of the investment funds for the implementation of measures. A stronger link between funding commitments and the implementation progress of EEA and capacity-building could be an appropriate way to strengthen understanding.

Recommendation 9: Sufficient financial resources must be available for implementing measures. A national organisation should be established to achieve sustainability of EEA. Education and training of local consultants must be strengthened.

The implementation of measures is an important element of the EEA. SECO should support the creation of national funding in the pilot countries. During the pilot phase, funding measures must be included in the projects.

The establishment of a national organisation significantly contributes to the sustainable success of the EEA and should be pursued by SECO after a successful pilot phase at the local level. An important issue here is the financing of the national organisation, but also the understanding of decision-makers at national level, who must support the implementation process. Funding activities should focus even more strongly on institutionalisation.

A pool of local consultants must be established so that external advice can function well. However, long-term financing of local EEA consultants is not possible without institutionalisation at national level, as the pilot projects do not provide sufficient contract volume.

Recommendation 10: The flexibility of the EEA must be maintained.

EEA measures and instruments must be adapted to local conditions. This process should start during the pilot phase and then be continued by the national organisation. The findings from the pilot cities are to be evaluated and adjustments are to be made to the measures in consultation with international experts. A good linkage of EEA approach to the national legislation and targets should always be pursued.

Recommendation 11: Optimise coordination with other donors and initiatives.

The Covenant of Mayors in general and COMASS in Africa are gaining speed and members. EEA and COM have been assessed as complementary hence there are no competition issues between them. The cooperation mode between SECO and COM/COMASS can provide synergies; direct SECO funding to more skilled cities; help avoid duplication of efforts. A closer cooperation with other initiatives and tools would also increase the dissemination of the EEA. SECO could also become more active as an advocate for the EEA in order to support the current efforts to link the EEA and the GCoM more closely in the context of Horizon 2020.

Recommendation 12: Funded projects should have a lighthouse character and achieve short-term successes.

Investment measures supported by the pilot projects must be well planned and implemented. Schools and kindergartens are particularly suitable as lighthouse projects due to their multiplication potential and their capacity to raise the awareness of tomorrow's decision-makers. The effects of the measures should be visible in the short term in order to increase motivation among the actors involved and raise the interest in the EEA among politicians and population.

Theme: Efficiency

Recommendation 13: Integrate direct contributions of local SECO staff to projects in project costs.

Extra efforts by SECO staff also proved valuable to the sustainability and replicability of projects, since they were instrumental in project successes and the strengthening of local networks. In order to improve the accountability around projects and avoid such efforts to increase overhead costs, SECO could consider including a more direct participation in project implementation in project costs. Activities may

include support to grantees in the management of project, communication and facilitation of networking. Related costs should no longer be considered as overheads, though, which would keep the relative overhead cost close to current levels.

Theme: Sustainability and replicability of projects. Knowledge capitalisation

Recommendation 14: Increase participation and endorsement by local/national authorities including in the case of EEA.

Project sustainability could be greatly improved by addressing some of the main threats described in Section 4.4, in particular the commitment and engagement from authorities appears as a key success factor. In most projects included in this evaluation, project developers manage to align with national, regional and local strategies, but this does not necessarily ensure strong support from authorities. SECO staff should support beneficiaries with the development and implementation of a proactive communication strategy to entice authorities towards the project and ensure a higher level of commitment and support. Limitations exist, however, due to the political context observed in some regions or countries, in which energy efficiency or renewable energy are not considered strategic. At least, attempts should be made in all projects to engage in a policy dialogue with authorities, with support from local SECO representatives.

In order to further enhance sustainability of projects, SECO could also encourage beneficiaries to:

- secure alternative funds and investments or a sustainable business model in the near future;
- establish a specific entity or body to deal with the project on a day-to-day basis;
- ensure continuity and transmission of key knowledge and competences when staff turnover is important;
- improve coordination and communication among partners, and;
- monitor project impacts in a slightly more systematic and quantitative fashion.

In the context of the EEA and for its successful anchoring, it is important to have strong, well-connected partners on the ground. SECO should attach even greater importance to the selection of local partners in the future. A pilot phase without involving local players is unfavourable for the sustainability of the implementation. Rather, great importance must be attached to local consultants being well trained and integrated into the EEA process during the pilot phase. Capacity-building is therefore a key element.

Recommendation 15: Secure early buy-in from follow-up financiers.

In the case of global projects with funds and facilities (CDIA, CICLIA, etc.) we would recommend keeping an approach where follow-up financiers are identified at a very early stage, even prior to approving the individual projects. This approach has demonstrated its success and has led to much higher success rate and leverage and hence - sustainability of the projects.

Appendix A Detailed presentation of the portfolio of projects

Project	Actual Duration	Sector and priority theme	Total budget	Contribution SECO	Overall goals	Beneficiary
UR-01033.10.01: Renewable energy for District Heating Programme/Serbia/East - Bilateral	2016-2021	Energy Efficiency/Climate-friendly growth	EUR 27.1M	EUR 5.1M (20%)	Consumers, population and the environment benefit from a sustainable, efficient and reliable energy supply	Five thermal power plants and pertaining municipalities More beneficiaries will be added
UR-00779.10.01: Municipal Energy Efficiency and Management Project (MEEMP)/Serbia/East - Bilateral	2015-2020	Energy Efficiency/Climate-friendly growth	CHF 15.24M	CHF 13.5M (89%)	More sustainable energy management at the municipal level through the introduction of the European Energy Award and improved energy efficiency of public buildings in 4 municipalities.	Municipalities of Paracin, Krusevac, Uzice and Vrbas with a total of 300,000 inhabitants
UR-00645.10.01/88: EE/RE Zhytomyr project / EEA in Ukraine - Bilateral	2015-2018	Sustainable energy management/Climate-friendly growth	CHF 18.91M	CHF 15.4M (81%)	Improve municipal infrastructure and energy management, introduce RES, build capacity and raise awareness about EE and RES; support EEA implementation and EEA launch at the national level.	Zhytomyr City Council ZhytomyrTeploKommunEnergO
UR-00816.10.01: Energy districts in Colombia/South - Bilateral	2013-2017	Energy Efficiency/Climate-friendly growth	USD 13.15M	USD 5.78 (44%)	Foster the implementation of energy districts in Colombia, improve energy efficiency in buildings and substitute coolers.	Ministry of Environment and Sustainable Development (MADS) Empresas Publicas de Medellin (EPM)
E5P (Eastern Europe Energy Efficiency and Environment Partnership)/Ukraine/East – Bilateral	2016-2020	Energy efficiency/Climate-friendly growth	EUR 111.8M	CHF 3.5M (27%)	Contribute to the reduction of energy intensity of Ukraine by leveraging financing for investments into EE in municipalities, utilities and homeowners	Ukrainian cities and utilities and city inhabitants

UR-00785.10.01: Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa/South - Bilateral	2014-2018 Non-Cost Extension until 2019.	Energy Efficiency/Climate- friendly growth	EUR 30M	EUR 5.5M (18%)	Contribution to achievement of South Africa's pledge under the UNFCCC to reduce national GHG emission targets through an Energy Efficiency Street Lighting Project	Approx. 15 municipalities and their inhabitants including municipalities that benefit from TA and/or Investments
UR-00469.01.01-03: Energy Efficiency Vinnytsia Project/Ukraine/East - Bilateral	2011-2015 Extended until 2018	Sustainable energy management/Urban infrastructure and utilities	CHF 27.154M	CHF 20.61M (76%)	Improve the munic. infrastructure and energy management, introduce RES, build capacity and raise awareness about EE and RES to increase living standards, promote economic development and provide a response to CC.	Municipality of Vinnytsia Public Utility "Vinnytsia Misk Teplo Energo"
UR-00516.01.01: Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela/Belgrade/Serbia/East - Bilateral	2011-2013 Budget increase: 2013-2019	Energy Efficiency/Urban infrastructure and utilities, climate- friendly growth	EUR 8,318,200	EUR 6.818M Budget increase: EUR 1.692M (82%)	Present a showcase of using biomass to produce heat and electricity implementing EE measures in selected public buildings, demonstrate the economic feasibility and viability of energy production based on RES	Agricultural Cooperative of Belgrade (PKB) City of Belgrade Beogradske Elektrane (electricity utility)
UR-00941.10.01: Earmarking energy and city - phase I (ESMAP)/Global/South - Fund/Facility	2015-2017 Second phase: 2017- 2021	Fund/Climate- friendly growth	2015-2017: USD 154M 2017-2020: USD 215M Overall budget: USD 215M	2015-2017: USD 4M 2017-2021: USD 8.05M (5%)	Generate global expert knowledge and advise to countries to secure and implement affordable, reliable, and sustainable energy supply strategy and policy. It contributes to the reduction of the extreme poverty and promotion inclusive growth.	World Bank units Energy-efficient Cities Initiative Energy subsidy reform and delivery
UR-00705.10.02: Emerging Sustainable Cities Initiative (ESCI)/Global, Colombia, Peru/South - Fund/Facility	2013-2016	Fund/Urban infrastructure and utilities, climate- friendly growth	USD 40.7M	CHF 5.5M Budget increase: CHF 1.35M (18%)	Support through a multidisciplinary approach emerging cities by addressing complex urban challenges to identify the path to long-term sustainability.	Municipality of Cusco Municipality of Huancayo
UR-00705.10.04: Cities Alliance (CA)/Global, Tunisia/South - Fund/Facility	2014-2016 Budget increase: 2016-2017 Second phase: 2018- 2020/2021	Fund/Urban infrastructure and utilities, climate- friendly growth	Appr. USD 55M	USD 4.8M Budget increase: USD 260,000 (9%)	Improved quality of life, socio-economic condition and inclusion of the urban poor. The programme goal is to support the cities in increasingly effective government management, active citizenship and delivering improved and	National governments and medium-sized cities Tunisia

					responsive services to the urban poor.	
UR-00769.10.01: Cities Development Initiative for Asia (CDIA)/Global/Asia/Oceania, Indonesia, Vietnam	2013-2017	Fund/Urban infrastructure and utilities, climate-friendly growth	USD 64.7M	USD 8M (12%)	Supports cities in preparing urban infrastructure investment projects which fulfil criteria of environmental and climate friendly development, pro-poor development and good governance, and in finding funding sources for their implementation.	Medium-sized cities
UR-01000.10.01: Cities and Climate Change in Africa (CICLIA)/Sub-Saharan Africa/South - Fund/Facility	2016-2020	Climate-friendly growth	EUR 12.41M	CHF 3.150M (25%)	Support local authorities in turning urban climate strategies into actual urban projects with climate co-benefits. It does so by accompanying local gov in the implementation of low-carbon and climate-resilient urban strategies into actual investments.	Sub-Saharan Africa cities with a population between 1 and 5 million
UR-00123.04.01: Platform Renewable Energies (REPIC IV)/Global/South - Fund/Facility	5th phase: 2018-2022	Sustainable energy/Climate-friendly growth	2013-2017: CHF 16.4M	2003-2017: CHF 6.3M (38%)	Contribute to the implementation of global climate protection agreements and to a sustainable energy supply in developing and transition countries.	National authorities, municipalities, companies, NGOs

Appendix B Intervention logic of SECO's portfolio of projects in the field of energy-efficient cities

How the intervention logic for SECO's intervention in the field of Energy-efficient Cities was built

As part of the inception phase of the evaluation, a preliminary intervention logic for SECO's actions in the field of energy-efficient cities has been constructed by the evaluation team in collaboration with SECO. This intervention logic was intended to act as the overall framework against which performance of SECO's activities in this field will be assessed.

The intervention logic picks up on information presented in a number of sources, including:

- Approach Paper, SECO WE Independent Evaluation on Energy-Efficient Cities
- Kick-off Meeting, Independent Evaluation Energy-Efficient Cities 2018, Presentation by Martin Baumann, Milena Mihajlovic, Ueli Ramseier, 24th January 2018
- Kick-off Meeting, Independent Evaluation Energy-Efficient Cities 2018, Presentation by Guy Bonvin, 24th January 2018
- Policy Dialogue in Infrastructure Financing, Concept Paper, SECO WEIN May 2016
- New Message to the Swiss Parliament, which covers the framework credit for the Swiss international aid for the period 2017 – 2020

From a methodological standpoint, it is important to highlight that the intervention logic presented in the following section was created for SECO's entire portfolio of projects in the area of energy-efficient cities. As a result, its design is that of a "policy" intervention logic covering all projects. However, it is recognised that 'Energy-efficient Cities' is not a stand-alone policy in practice but unites a number of individual projects, all of which have their own rationale and specific objectives. Nevertheless, a policy-level intervention logic is necessary to be able to conduct the evaluation across all projects of the portfolio and to guide the formulation of questions. On this basis and for practical purposes, the intervention logic refers to SECO actions in the field of energy-efficient cities, as the SECO energy efficiency portfolio.

Challenges and issues leading to the implementation of the policy

The issues which have driven the implementation of specific actions in the field of energy efficiency and renewable energy in cities on behalf of SECO are broad, ranging from high-level global challenges to very specific operational difficulties identified at the local level. These issues and challenges are well identified and explained in the sources identified in the previous section, and can be summarised as follows:

- The lack of reliable and clean energy infrastructure is a global issue compounded by the increase of the world population, rapid urbanization processes and increasing accessibility of new technologies to larger shares of society (e.g. electrical appliances for private and for industrial use) and increasing energy demand for digitalization services. Emerging trends in the mobility sector are expected to contribute to the increase of demand for energy supply, in the medium and long term.
- In addressing this increasing demand for energy, countries need to ensure they can develop reliable and affordable sources of energy enabling economic and social development in combination with climate friendly energy production and use.
- The production and consumption of energy accounts for approximately two-thirds of global GHG emissions, making energy sector interventions critical to mitigating global warming. The consequences of climate change pose an increasing burden and threat to the inhabitants and economies in particular of developing and transition countries. Rising emissions of climate-altering greenhouse gases are causing extreme weather events and gradual changes in the

natural environment, resulting in high economic losses, income shortfalls and direct and indirect health costs. The worst hit are the poorer sectors of the population and companies that are most exposed to the risks of climate change and do not have the means to protect themselves.

- Energy planning, management and monitoring are three major challenges municipalities in developing countries are facing, in terms of both costs and GHG emissions. Almost half of the world's population lives in urban areas. Urban populations consume between 60% and 80% of the world's energy production and generate the same proportion of the world's GHG emissions, but also of economic value creation. In addition to this, cities also have to deal with the need to align their own energy policies with those of other (i.e. higher) levels of government (e.g. regions and national level), and then to suffer from a shortage of financial and fiscal autonomy. As such, the capacity for municipalities and cities to act when it comes to saving energy and producing it more sustainably is often limited.
- Many municipalities and local governments lack the necessary knowledge and capacity to improve service delivery in the field of renewable energy and energy efficiency and require guidance in the development and implementation of integrated and cross-cutting energy policies. This relates to the way cities plan their development and foster the participation of their citizens and stakeholders in the identification, decision-making and planning of energy-related objectives.
- Specifically, SECO WE priority countries face a number of important challenges which include:
 - Necessity to meet climate goals arising from international obligations;
 - Need to foster inclusive access to all strata of the population in different types of settlements;
 - Know-how and competence to promote and run energy-efficient technologies are lacking, not sufficient or not enforced;
 - The legal/regulatory basis and framework conditions for efficient and sustainable energy technologies and management systems are missing or not sufficient;
 - Energy security is almost always an issue;
 - Financial resources for necessary investments or a sustainable coverage of operational and maintenance cost is not always available;
 - Low purchasing power of the population, availability of fossil fuel subsidies and energy prices which were too low in the past and grew significantly in certain countries (i.e. Ukraine).

In addition to these challenges, SECO's intervention is also underpinned by the fact that sustainable energy use and consumption, particularly at the local level, represents an opportunity to drive economic growth. Cities tend to be the economic power houses of their respective countries and are home to a significant share of industrial (manufacturing & services) establishments and utility companies. These companies are not only mayor sources of employment, but also drive economic growth. By supporting the sustainable energy agenda at the local level, SECO also seeks to create enabling conditions for local companies to grow and enhance competitiveness.

Expected high level impact (defined on the basis of the identified needs and challenges)

Given these challenges, there is need to implement sustainable energy solutions in order to achieve:

- improved living conditions for populations in targeted countries and regions
- sufficient and reliable energy supply for a growing world economy
- clean and sustainable energy solutions to improve the global climate situation

All of these objectives fit into the **general objective of SECO's Economic Cooperation and Development Division over the next four years "to contribute to poverty and global risks reduction by promoting sustainable and inclusive growth"** as defined in the new Message to the Swiss Parliament, which covers the framework credit for the Swiss international aid for the period 2017 - 2020.

Sustainable energy solutions are thus considered as a means to reduce greenhouse gas emissions and increase climate resilience, as well as create the adequate conditions for creating paths to sustainable growth. Thus, the general objective of SECO's infrastructure section's engagement in the energy sector is to support its partner countries to promote efficient and sustainable energy production from renewable sources as well as its efficient distribution and use in line with international and national climate change commitments. This also covers more effective energy planning and management at the urban level.

Outcomes (i.e. general objectives)

In order to generate high level impact, SECO seeks to achieve one key outcome by means of its energy-efficient cities programme: **Low-emission and climate-resilient economies** (i.e. target outcome IV of the New Message to the Swiss Parliament on International Cooperation 2017 – 2020). In doing so, SECO also seeks to support the development of **more effective institutions and services** (i.e. target outcome I of the New Message to the Swiss Parliament on International Cooperation 2017 – 2020). The latter of these outcomes is not considered to be at the core of SECO activities in the field of energy-efficient cities. SECO documents do not define indicators for measuring either of these two outcomes¹³.

Intermediate outcomes (i.e. specific objectives)

For the purposes of the intervention logic to be applied to this evaluation, we suggest using the notion of 'intermediate outcomes' in order to reflect the expected changes under each of the relevant business lines of the portfolio. These changes fit snugly between the outcomes of the programme (see section O), and its expected outputs (see section O). In identifying intermediate outcomes, we suggest focusing on three business lines¹⁴ which fall under the two target outcomes mentioned in the previous section (see section O); and their related observation areas¹⁵. However, two of these target outcomes (i.e. target outcome IV, Business line 1 and target outcome IV - business line 2) display a direct link to the energy-efficient cities theme; while the third (i.e. target outcome I – business line 3) is indirectly related but of significant relevance to the field. The latter also represents a key pillar of SECO's interventions in target countries. As a result of this, the first two target outcomes are considered as core intermediate outcomes for the energy-efficient cities portfolio and will thus be assessed under this evaluation; while the third is only considered as an ancillary intermediate outcome and will not be explicitly assessed under the evaluation.

Core intermediate outcomes:

- **The intermediate outcome of Business line 1 under target outcome IV** is to achieve more integrated urban development. This should be achieved by a more widespread use of improved planning criteria and selective measures to promote this type of development, including the implementation of sound energy management and related tools (e.g. European Energy Award). This also includes the use of 'smarter' and more energy-efficient urban mobility solutions¹⁶. The focus of this intended outcome is on the demand side for sustainable energy. The focus of this outcome is on sustainable energy demand.
- **The intermediate outcome of Business line 2 under target outcome IV** is an increase of sustainable sources of energy supply. This should be achieved by the more widespread inclusion of sustainable and climate-compatible aspects in (adopted and implemented) energy policy, regulation and reforms; and investment measures. The main focus of this outcome is on the supply side of sustainable energy.

¹³ Indicators are only formulated at the Business line / Observation area level

¹⁴ Outcome IV « low-emission and climate resilient economies » covers three business lines, two of which are directly related to energy efficient cities. The third one (i.e. resource efficient private sector) will not be taken into consideration for the purpose of this evaluation.

¹⁵ The exact link between business lines and observation areas is yet to be determined.

¹⁶ Mobility does not fall within the scope of this evaluation.

Ancillary intermediate outcome:

- **The intermediate outcome of Business line 3 under target outcome I¹⁷** is the emergence of more reliable and affordable public services being offered by public utilities. SECO supports its partners in providing efficient and sustainably funded public services as part of their basic infrastructure. This includes ensuring that infrastructure is more reliable and environmentally friendly, increasing capacity of public entities and utilities to provide better client services, and ensuring financing sustainability. This target outcome is strongly linked to the corporate development dimension of SECO WIEN's work.

The Message to the Parliament includes a number of indicators to be used to measure performance under each business line and related observation area. The following table presents the indicators as listed in the Message. In the framework of this evaluation, these indicators will only be used as references. As such, information and data on these indicators will only be collected and showcased when relevant, and on a non-systematic basis. The evaluation will focus on project-level indicators instead as a priority. This said, the evaluation will assess the relevance of these business line indicators and will look into whether project level performance indicators reflect them.

Table 7 Selected SECO indicators for Energy-efficient Cities-related business lines

Business line / Observation area	Selected indicators as presented in the Message to the Swiss Parliament 2017 - 2020	Selected indicators currently used by SECON WEIN for results monitoring
Integrated urban development (target outcome IV, business line 1) Observation area 1: Improved planning criteria and selective measures promote sustainable urban development in partner countries.	• Number of urban plans and strategies fulfilling the sustainability requirements • Population numbers expected to benefit from development plans and urban projects, broken down by region and economic strength if possible • Savings in CO₂ emissions achieved through energy efficiency measures	• Number of inhabitants benefiting from sustainable urban development projects • Number of cities with urban development measures (including for improving governance) in the sectors of public transport, energy efficiency and natural disaster risk management • Measures for improving capacity development • Greenhouse gas emissions saved or avoided in t CO₂eq
Sustainable energy supply (target outcome IV, business line 2) Observation area 2: By including sustainable and climate-compatible aspects, SECO contributes to improving the energy policy as well as reforms and investment measures and to increasing energy efficiency and supply (e.g. by promoting renewable energy).	• Additional kilowatt hours from renewable energy and from energy-efficiency measures through project interventions	• Kilowatt hours saved through energy-efficiency measures and kilowatt hours additionally produced from renewable energy • Greenhouse gas emissions saved or avoided in t CO₂eq
Reliable basic public services (target outcome 1, business line 3)	• Number of persons having access to improved (basic) public services	• Number of persons with access to better (basic) services 7 Proportion of

¹⁷ It is worth mentioning that the Message to the Parliament, under target outcome 1/Business line 3, does not explicitly mention the energy sector. Instead, it highlights water, basic sanitary installations and waste management.

Business line / Observation area	Selected indicators as presented in the Message to the Swiss Parliament 2017 - 2020	Selected indicators currently used by SECON WEIN for results monitoring
Observation area 3: Through technical and financial support, public utilities are better placed to offer a reliable and affordable public service	• Coverage ratio of operating and maintenance costs • Leverage effect of SECO's financing (as a means of improving the solvency of public bodies)	• O&M costs recovered through charges • Measures for improving capacity development • Leverage effect of SECO's financing in mio. USD

Source: SECO WEIN (2018)

Inputs

The key input to the activities supported in the field of energy-efficient cities are the financial resources allocated by SECO to projects in this field. According to the Approach Paper developed as part of this evaluation by SECO, over the last 7 years, WEIN has carried out 14 projects and committed funding of around CHF 120 million in the area of energy-efficient cities. This funding, however, is often complemented by additional funding provided by other donors, national/local governments, partners or agencies. The analysis of the project database to be conducted as part of the evaluation will provide additional information on the financial resources provided to each project, as well as the level of spending until today, both at the general level, as well as at the level of each specific project.

Other dimensions which are often traditionally taken into account as part of a programme's inputs include the human resources (e.g. staff time), and, in some cases, the type of governance scheme used to run the programme as well as the individual projects. Because of the complexity of the issue we will only provide a general statement of human resources. By governance scheme, we refer to the governance of the overall portfolio of energy-efficient cities (e.g. management, selection procedure, monitoring etc.), as well as to the governance of individual projects. The evaluation team has not yet been able to collect information on these two items. Initial interviews, however, seem to indicate that it will be difficult to assess the amount of time dedicated by SECO staff to managing energy-efficient cities projects. This in turn might make it difficult to develop any estimate relating to cost-effectiveness/efficiency of the projects.

Activities

There are two levels of activities implemented as part of the energy-efficient cities project portfolio. The main activity is the implementation of SECO projects in support of the previously stated objectives and expected outcomes. According to the approach paper,

“the term “project” is used to describe all activities in the area of energy-efficient cities, comprising (a) bilateral projects (i.e. projects which are implemented by SECO WE alone with the beneficiary in a SECO WE priority country or countries eligible for SECO WE complementary measures); (b) co-financed projects (i.e. projects run jointly with the Multilateral Development Banks, e.g. World Bank or European Bank for Reconstruction and Development, or bilateral Development Finance Institutions, e.g. KfW, AFD or GIZ) to attain greater synergies and to support more comprehensive outcomes at an institutional and political level; and (c) funds/facilities through which SECO WE can make contributions to a program or sector through facilities that support the SECO WE operational axes, possibly including private financing. The contributions are normally linked to a participation in the fund's strategic and/or decision-making bodies”.

As illustrated in the previous paragraph, there are three categories of projects supported by SECO in this particular field, each of which corresponds to a different rationale. Each type of project is also implemented and managed differently, from the standpoint of SECO involvement mainly.

A second category of activities are those which are implemented at the level of each project. These tend to differ on the basis of whether the project is mainly linked to target outcome I or IV, or whether the project is a bilateral, co-financed, or a fund or facility. This distinction also has implications on whether SECO implements the activity internally or directly, or whether it is implemented by a third party (i.e. the co-financing body, or the management structure of the fund/facility). This nuance has implications on what in fact can be considered as an ‘activity’ in the context of this intervention logic. For instance, in cases where activities are implemented internally (i.e. by SECO staff or under the direct supervision of SECO staff) one can really consider these to be SECO energy-efficient cities activities, whereas in cases where funding is delegated to a third person (i.e. funds/facilities), activities implemented should be considered more as an output of SECO support. This nuance is explained by the distinction between activity-output-outcome, which is often defined by the level of control/influence the executing body over generating that change or event. Activities implemented at the project level typically include:

- Providing public partners with investments and technical assistance; providing financing of infrastructure projects of a pioneering nature that represent high added value in social or ecological terms, but which may not be commercially viable.
- Provide support to selected investments and technical assistance to improve the standard and reliability of facilities and reduce their environmental impact.
- Providing support to authorities in partner countries in making decisions (and implementing them) regarding urban development and investment priorities; promoting dialogue and innovation through supporting communication between different interest groups and cross-sectoral projects.
- Support in creating favourable framework conditions for a high service quality in local communities through a clear definition of tasks and responsibilities among all players and of the financing conditions.
- Providing support to build capacities of infrastructure management institutions such as corporate development of public utilities in the areas of operations, financial management, human resources, organisation and customer relationship management.

Expected outputs

Based on the previously identified activities, a set of common expected outputs can be identified for SECO energy-efficient cities projects. These include, for example¹⁸:

- Projects implemented and funded by SECO corresponding to target outcome IV and its business line 1 and 2, or target outcome I – business line 3
- Public partners having received financial and technical assistance to implement urban planning and management tools
- Policy reforms and regulation drafted or developed, which are more favourable to sustainable energy production and consumption
- Energy-efficient infrastructure projects, particularly those which are innovative in nature
- Policy dialogues and cross-stakeholder dialogues on the issue of energy efficiency and sustainable energy production
- Public utilities engaged in and benefiting from corporate development support activities

A second level of expected outputs is defined within the framework of each of the specific projects supported by SECO in the field of energy-efficient cities (see section on activities). For instance, in the case of “Renewable energy for District Heating Programme” in Serbia, the key outputs identified in project documents are:

¹⁸ These have been formulated by the evaluation team, and do not appear as so in any of the documents listed in the introduction.

- Renewable energy-based heat generation capacities are installed and ready for operation
- Newly created complementary infrastructure is ready for operation
- Supply of sustainably produced biomass fuels is ensured
- Participating District Heating Companies are qualified and enabled to technically operate the new District Heating systems
- Participating District Heating Companies' capacities on administrative and financial performance and service quality for the customers are improved

Given that the projects have not adopted a common set of expected outputs / outcomes (and related indicators), we expect that consolidating data and information regarding results achieved from across all SECO-supported projects, will be a challenge for the evaluation team.

Targets

Albeit not a formal component of intervention logic *per se*, programme targets can be considered one of the key elements underpinning programme rationales and the course of action taken by programme implementers. Understanding what populations can be considered as intended programme target, is key to understanding the extent to which the programme managed to reach its intended goals. As such, in our evaluation approach we suggest considering targets – both in geographical and sectoral terms – as one of the components of SECO's energy-efficient cities portfolio intervention logics.

Geographical

The geographical priorities of all of SECO's economic development cooperation are defined in the previously referenced 2017-2020 message. This document states that SECO's intervention is designed to:

- respond to the partner countries' needs and thus ensure optimum utilisation of SECO's subject-specific expertise
- promote coherence with interventions by other Swiss agencies
- focus on the geographical deployment of available resources.

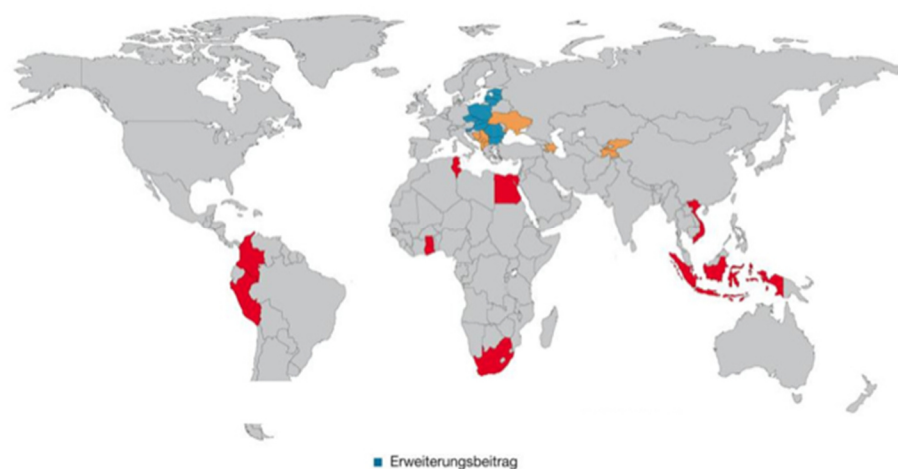
SECO operates in a limited number of priority countries, which remain unaltered for both the 2013-2016 and the 2017-2020 messages. These current priority countries are:

- Africa:
 - Egypt
 - Ghana
 - South Africa
 - Tunisia
- Asia:
 - Indonesia
 - Vietnam
- Americas:
 - Colombia
 - Peru

Eastern Europe: Albania, Serbia, Kyrgyzstan, Tajikistan and Ukraine

As illustrated in the following figure, SECO has implemented a number of energy-efficient cities projects in a number of countries. Through its involvement in a number of global initiatives such as CICLIA, Cities Alliance and ESMAP, WEIN also contributes to activities in a larger number of countries.

Figure 5 SECO's countries of operation



Source: PPT presentation, Guy Bonvin

As already mentioned, SECO targets secondary cities within these priority countries. These cities are a major source of energy demand and GHG emissions, they are key drivers of economic growth, and tend to suffer from a shortage of capacities and skills to develop and implement sustainable energy / energy efficiency schemes.

Sectoral

As stated in the Approach paper, the subject of this evaluation are SECO WE projects in the area of energy-efficient cities. By “energy efficiency” SECO WE understands producing, transmitting and using energy in the most efficient, effective and sustainable way. Additionally, as described earlier in the text energy efficiency can be a part of other projects which are not labelled as energy-efficient projects (i.e. clean transport and climate change). Therefore, the term energy-efficient cities in the context of this evaluation refers to all activities aiming at providing a reliable, sustainable and climate-friendly energy supply and use in urban areas, based on energy-efficient technologies, planning, management and monitoring.

Appendix C Overview of evaluation methodology

Phase 1: Inception

Literature review

For the time being we have reviewed the papers provided to us by SECO as well as some of the project-related documentation, namely the credit proposals. This has served us to develop the intervention logic.

- Approach Paper, SECO WE Independent Evaluation on Energy-Efficient Cities
- Kick-off Meeting, Independent Evaluation Energy-Efficient Cities 2018, Presentation by Martin Baumann, Milena Mihajlovic, Ueli Ramseier, 24th January 2018
- Kick-off Meeting, Independent Evaluation Energy-Efficient Cities 2018, Presentation by Guy Bonvin, 24th January 2018
- Policy Dialogue in Infrastructure Financing, Concept Paper, SECO WEIN May 2016
- New Message to the Swiss Parliament, which covers the framework credit for the Swiss international aid for the period 2017 - 2020

Additional papers which have been provided to us by SECO and which we intend to use during the evaluation include:

- SECO's Corporate Development of Public Utilities, Independent Evaluation, February 2015
- Corporate development of public utilities in developing and transition countries, SECO WEIN November 2010
- Overview SECO Standard Indicators
- Presentation by Ihor Knyazev on Latest Results of the Policy Reform in the DH Sector of Ukraine (21 February 2018)
- Review of success stories in urban water utility reform, Final Report, March 2016
- Urban Water Utility Reform – A tool for analysis and dialogue
- Integrated Urban Infrastructure Development, April 2013
- Heating in housing and utilities sector: Status and Prospects, Document for Discussion, March 2016
- SECO has also provided a number of cooperation strategies among which:
- Swiss Cooperation Strategy for Ukraine 2015-2018
- Swiss Cooperation Strategy for Serbia 2013-2017
- Swiss Cooperation Strategy for Serbia 2018-2021
- Swiss International Cooperation: Economic Cooperation and Development Colombia 2017-2020
- Swiss Economic Cooperation and Development South Africa 2017-2020
- Swiss Economic Cooperation and Development Peru 2017-2020
- Stratégie de coopération suisse en Tunisie 2017–2020
- Swiss Economic Cooperation and Development Peru 2017–2020
- Annual reports from Serbia and Ukraine
- Country Strategy Implementation Reports for recent years for Peru, South Africa and Colombia

Kick-off meeting

The Kick-off meeting took place on the 24 January 2018 in Berne. The kick-off meeting was extremely important in terms of clarifying numerous aspects of the evaluation.

Interviews with SECO staff

Several interviews have been carried out the same day as the kick-off meeting:

- Interview “Energy Efficiency WEIN, Guy Bonvin, Head of Infrastructure Section WEIN and Nicole Merkt, Programme Manager WEIN
- Interview “Ukraine”, Alain Geiger and Daniel Menebhi, Programme Managers WEIN
- Interview “Colombia“, Nicole von Reitzenstein, Programme Manager WEIN
- Interview “Serbia”, Sibylle Hägler, Programme Manager WEIN
- An additional discussion took place with Guy Bonvin and Nicole Merkt on fine-tuning the first version of the Intervention logic.

Inception meeting

The Inception meeting took place in March 2018 in Bern. The main purpose of the meeting was the discussion of the Inception report and discussion and validation of the Intervention Logic.

Phase 2: Evaluation

Interview implementation

Phone interviews with project beneficiaries, policy makers and donors have been carried out in countries where there were no field visits. We carried out around 3-4 interviews per project, that is to say 40-50 interviews in total.

Face-to-face interviews during the field visits in the case study countries. We carried out around 5 or more interviews per case study country with project beneficiaries, policy makers and donors. In addition to these stakeholders, in case study countries we carried out interviews with relevant agencies, NGOs specialising in the topic, city authorities in the beneficiary cities.

Field visits (see case studies)

We had two field visits to the Ukraine and Colombia, the countries of the in-depth case studies. One key expert visited the country and together with the local expert the team had meetings and discussions of general policy makers (i.e. Ministries of Energy, Ministries of Economy), other relevant international donors and project beneficiaries. The team visited the project and discuss concrete results. The team also met end beneficiaries of the project to get a better grasp of the real results.

Phase 3: Evaluation and reporting

Analysis of collected information

This analysis was based around the four broad evaluation criteria of relevance, effectiveness, efficiency and sustainability as well as the particular evaluation questions specified under each of these areas. In each case we drew on information derived from the various research activities outlined above, with individual methods providing evidence to address a number of different evaluation (sub-) questions.

Draft evaluation report

All of the results from the desk research, interviews and site visits were analysed and presented in a draft evaluation report. The Evaluation report will comply with the standard format presented with the Approach Paper.

Capitalisation workshop

The capitalisation workshop aimed at presenting the main findings of the evaluation, elicit a discussion and a feedback and validate the findings.

The precise participants and logistical issues have already been agreed with SECO WE

Participants included:

- Ruslan Zhechkov, Team Leader Technopolis
- Carlos Hinojosa, Evaluator Technopolis
- Sébastien Haye, Evaluator E4Tech
- Johannes Schrade, Technical expert Fraunhofer Institute
- Guy Bonvin, Head of Infrastructure Section WEIN
- Nicole Merkt, Program Manager WEIN
- Roman Windisch, Programme Manager WEIN
- Martin Baumann, Head of Evaluation Unit
- Milena Mihajlovic, Member of Evaluation Unit
- Alain Geiger, Programme Manager WEIN

Final draft evaluation report

The current final evaluation report is an advanced version of the draft evaluation report and reflects the written feedback of SECO WE and in addition incorporates the findings of the capitalisation workshop.

Appendix D Evaluations key questions, sub-questions, assessment criteria and data sources

1. RELEVANCE: evaluation question / sub-questions	Assessment criteria	Data source / evaluation method
Key Question (KQ) 1 To which extent have WEIN projects been aligned with the needs of the partner countries' development priorities as well as with requirements of the Paris Agreement/Nationally Determined Contributions (NDCs) and the SDGs?	- Coherence between WEIN project objectives and national EE priorities and NDC - Coherence between WEIN project objectives and perceived national challenges / needs - Coherence between WEIN project objectives and SDG / Paris climate agreement priorities	- Interviews with SECO - Interviews with local project stakeholders and partners - Interview with international partners - Literature review
Sub-Question (SQ) 1.1 Is the storyline of the SECO WE intervention logic justified, consistent and coherent?	- Perceived relevance of SECO actions in the field of energy-efficient cities vis-à-vis global SECO strategy - Degree of consistency and coherence of intervention logic	- Interviews with SECO - Intervention logic analysis / improvement - Desk research - Interviews with SECO WE
SQ 1.2 Are the SECO WE Standard Indicators valid?	- Experts opinion on validity of indicators - Opinion of alignment of indicators with international and national statistical frameworks	- Desk research - Interviews with SECO - Interviews with international partners
SQ 1.3 Are the international processes, in which SECO WE is involved, and are international approaches, SECO WE is supporting, the most relevant with regard to promoting energy efficiency? (Specific focus on EEA which is considered as a valid approach)	- Opinion on relevance of international processes and approaches supported by SECO vis-à-vis SECO strategic objectives - Perceived relevance of SECO-supported international processes vis-à-vis country and regional needs	- Desk research (e.g. evaluations of supported processes) - Interviews with local project stakeholders and partners - Interviews with international partners - Interviews with SECO WE - Comparative analysis of international processes and initiatives
SQ 1.4 To what extent is the focus on energy-efficient cities relevant for the achievement of the objectives of economic development? Are potential synergies in this field sufficiently exploited?	- Perception of WEIN representatives regarding the level of relevance of energy-efficient cities activities vis-à-vis economic development objectives - Existence of economic development objectives in energy-efficient cities projects	- Interviews with SECO - Analysis of project documents - Interviews with project partners and beneficiaries
SQ 1.5 Have the selected partners proved to be relevant for SECO WE partner countries?	- Commentary on relevance of partners both for country-based and for global projects by local experts - Commentary on relevance of partners both for country-based and for global projects by SECO reps	- Interviews with local project stakeholders and partners - Interviews with SECO WE

SQ 1.6 What are the opportunities and constraints for replicating the approach in other countries, particularly in the South?	• Analysis of opportunities and constraints • List of additional countries where this approach could be replicated	• Desk research • Interviews with other donors • Interviews with SECO WE
2.EFFECTIVENESS: evaluation question / sub-questions	Assessment criteria	Data source / evaluation method
KQ 2 Have the activities contributed to the overall objective of helping cities better plan, manage and monitor their energy supply?	• Level of achievement of project result indicators • Comparison of beneficiary cities with other national cities not having received support • Perception of project stakeholders regarding project outcomes and results	• Desk research (e.g. evaluations of supported processes) • Interviews with local project stakeholders and partners • Interviews with project beneficiaries • Interviews with SECO WE • Comparative analysis of city performance
KQ 3 What have been the results (intended and unintended, positive and negative, e.g. rebound effects reducing gains from energy-efficient technologies), and what have been success factors and challenges?	• Level of achievement of project result indicators • Perception of project stakeholders regarding unintended project outcomes and results	• Desk research (e.g. evaluations of supported processes) • Interviews with local project stakeholders and partners • Interviews with project beneficiaries • Interviews with SECO WE
KQ 4 Was there an added value in projects brought by WEIN/Switzerland as a donor or through cooperation with Swiss educational, research or private sector partners and is there a potential for improvement in relation to “Swissness”?	• Comparison of value proposition of SECO WEIN support and projects compared to other donor funded initiatives • Perceived added-value of project stakeholders and international partners of SECO WEIN projects and support vis-à-vis other support instruments	• Desk research (e.g. evaluations of supported processes) • Interviews with local project stakeholders and partners • Interviews with international partners • Interviews with SECO WE • Comparative analysis of international processes and initiatives
SQ 2.1 Has the mix of instruments (bilateral versus co-financed and funds/facilities) been effective in achieving the overall objectives of the individual activities?	• Analysis of funding distribution (bilateral vs. co-financed) • Complementarity of objectives and results between bilateral vs. co-financed projects and achievements • Existence of country level complementarities between both types of instruments • Comparative analysis of impact: bilateral vs. co-funded	• Desk research (e.g. evaluations of supported processes, analysis of project database) • Interviews with local project stakeholders and partners • Analysis of programme intervention logic • Interviews with SECO WE

SQ 2.2 Has the chosen set of assistance modalities (e.g. the European Energy Award) been the most appropriate?	• Perception of programme stakeholders regarding the relevance and robustness of selected assistance modalities • State of the art of chosen assistance modalities compared to 'modality competitors' or 'alternatives' such as the Covenant of Mayors'	• Interviews with SECO WE • Interviews with international partners • Interviews with local project stakeholders and partners • Internal expert appreciation
SQ 2.3 Have WEIN projects that have been harmonised/coordinated with similar initiatives of other donors or complementary to what other agencies and/or the private sector offer contributed to more (i.e. compared to non-harmonised) effectiveness and impact or are they likely to do so?	• Comparative analysis of harmonised versus non-harmonised projects • Analysis of harmonised project-specific difficulties and challenges vs. other project difficulties and challenges • Likelihood of sustainability of results of harmonised projects vs. non-harmonised projects	• Comparison between harmonised and non-harmonised projects
SQ 2.4 To what extent have the activities contributed to the overall objective of increasing energy efficiency and scaling up renewables in cities as well as reducing CO2 emissions?	• Level of achievement of project result indicators • Existence of energy efficiency, RE & CO2 emission reduction objectives in project proposals and sheets • Capacity of projects to monitor and assess energy efficiency, RE & CO2 emission reduction objectives • Perception of project stakeholders regarding level of achievement energy efficiency, RE & CO2 emission reduction objectives	• Desk research (e.g. analysis of project database) • Interviews with local project stakeholders and partners • Comparative analysis of city performance • Interviews with project beneficiaries • Interviews with SECO WE
SQ 2.5 SECO WE has developed a comparative analysis of the three major tools (i.e. TRACE, The Global Covenant of Mayors and EEA). These approaches are all complementary, however, there is no real cooperation among them. What could be done? Who should take a leading role in the coordination, e.g. the World Bank, UN Habitat, or the Nationally Determined Contributions (NDC) Partnership or another institution?	• See Recommendations • Comparison of value proposition of SECO WEIN support and projects compared to other donor funded initiatives • Perceived added-value of project stakeholders and international partners of SECO WEIN projects and support vis-à-vis other support instruments	• Desk research (e.g. evaluations of supported processes) • Expert opinion of technical experts within the project and if relevant: • Interviews with local project stakeholders and partners • Interviews with international partners • Comparative analysis of international processes and initiatives
3.EFFICIENCY: evaluation question / sub-questions	Assessment criteria	Data source / evaluation method
KQ 5 Have the SECO WE projects, approach and instrument mix proved cost-efficient with regard to achieving the objectives and has the cost-benefit ratio at portfolio level <u>been adequate</u>?	• Cost-effectiveness analysis of a sample of projects • Analysis of programme/project overheads • Comparative analysis of SECO funded- project cost-efficiency vs. Other international initiatives (if feasible)	• Analysis of project database (i.e. inputs vs. Outputs) • Interviews with SECO WE • Interviews with local project stakeholders and partners

		Comparative analysis of international processes and initiatives
SQ 3.1 Have the implementation modalities for projects proven efficient to reach the objectives?	- Perception of project and programme stakeholders regarding the quality of implementation modalities - Analysis of implementation modalities of 'successful' projects vs. 'less successful projects'	- Interviews with local project stakeholders and partners - Interviews with project beneficiaries - Interviews with SECO WE - Comparative cost-efficiency analysis across projects with different implementation modalities
SQ 3.2 Has the steering, monitoring and management of activities by the team been appropriate in order to allow smooth implementation of the activities?	- Perception of project and programme stakeholders regarding the quality of central steering, monitoring and management modalities/procedures - Existence of an adequate M&E and governance plan - Resources (e.g. human and financial) allocated to the steering, monitoring and management of activities	- Literature review - Interviews with local project stakeholders and partners - Interviews with SECO WE
SQ 3.3 Are the applied indicators used in the log-frames/results frameworks adequate and sufficiently representative to measure the results of energy-efficient cities components?	- Analysis and commentary of the individual indicators and their representativeness - Comparison with indicators used by other funding agencies	- Analysis of intervention logic and results framework - Internal expert appreciation of indicators - Interviews with SECO WE
4.SUSTAINABILITY: evaluation question / sub-questions	Assessment criteria	Data source / evaluation method
KQ 6 Are the project outcomes likely to be sustained after project termination and what have been the success factors for sustainability?	- Existence of sustained sources of financing for project outcomes and other indications outcomes will be supported - Nature of the technologies introduced and financed (e.g. high or low maintenance, existence of domestic suppliers etc) - Political stability and continuity - Existence of a follow up project	- Technical literature on the used technologies - Interviews with local project stakeholders and partners - Interviews with project beneficiaries - Interviews with SECO WE - Project evaluations and reports
SQ 4.1 To what extent have reform-processes for improved sustainable energy supply based on energy-efficient technologies and management systems been initiated/implemented without direct intervention of SECO WE/the international community?	N/A	- Interviews with SECO WE - Interviews with international partners - Interviews with project partners and stakeholders - Interviews with national stakeholders - Case studies

SQ 4.2 To what extent have SECO WE case-study countries strengthened their perception of using energy-efficient cities as an instrument for sustainable growth and poverty alleviation?	• Perception of national & international stakeholders regarding using energy-efficient cities as an instrument for sustainable growth and poverty alleviation	• Interviews with SECO WE • Interviews with international partners • Interviews with project partners and stakeholders • Interviews with national stakeholders • Case studies
SQ 4.3 Has the harmonization/coordination of WEIN projects with similar initiatives of other donors or the complementarity with what other agencies and/or the private sector offer contributed or is it likely to contribute to projects' sustainability?	• Perception of harmonised project stakeholders regarding likely sustainability of results • Comparative analysis of harmonised versus non-harmonised projects • Analysis of harmonised project-specific difficulties and challenges vs. other project difficulties and challenges • Likelihood of sustainability of results of harmonised projects vs. non-harmonised projects	• Comparison between harmonised and non-harmonised projects

Appendix E Overview of project partnerships

Project	Key partnership assets and strengths	Partnership weaknesses
Renewable energy for District Heating Programme (part of the German "Promotion of Renewable Energies: Developing the Biomass Market in Serbia Programme")	- The programme has a long history in Serbia, having been driven by KfW and GIZ since 2013. - The programme is considered to be at the cusp of breakthrough, having garnered the support of the Ministry of Mining and Energy as well as commitment from local authorities	Technical and administrative capacities as local level are limited
Serbia: Municipal Energy Efficiency and Management Project (MEEMP), Serbia Energy City Project (Municipal Energy Efficiency Project, Municipal DRR Project)	- SECO finances the project coordinator within the Ministry of Mining and Energy, therefore has a dedicated person to move things forward within national government - Local NGOs are interested in the project and keen to participate	Municipal/local governments are primarily interested in the investment component of the project (EE measures/renovations in public buildings) and need to be won over to a greater or lesser extent to actively participate in the implementation of the EEA
Energy Efficiency Vinnytsia Project EE/RE Zhytomyr project / EEA in Ukraine	- The public utility and the city hall are beneficiaries and partners of the project which gave it high visibility. - Projects involved a wider circle of actors in EEA process and project implementation which increased project buy-in even further	The Ministry of Regional Development is also involved but not to a sufficient extent.
Energy Districts in Colombia	- A major local utility was involved in the project as the main implementing partner. This gave the project a lot of legitimacy and visibility. - The project also had the support of the national Ministry of Environment, and the Ministry of Energy also became actively involved in project governance. - Within each of the selected cities for the development of an energy district feasibility study, the project identified and brought on board a local focal point (e.g. local environmental agency) - Local business roundtables were developed for each of the selected cities which brought together representatives from the public sector, utilities, businesses, trade federations etc. - No missing actors identified. Perhaps only the National Planning Department.	Local utility not necessarily the best suited to oversee and coordinate work under the policy support / capacity-building component of the project
Eastern Europe Energy Efficiency and Environment Partnership	EU is a main donor with 40 MEUR. Sweden, Germany are big donors and there are a dozen smaller donors including SECO. SECO's participation in this partnership is highly relevant.	SECO participation in the process of reform might be enhanced

	The Implementing Agencies for E5P are EBRD, NEFCO, EIB, the Council of Europe Development Bank, KfW, Nordic Investment Bank (NIB) and the World Bank. E5P and hence SECO's involvement with these IFIs is highly relevant for coordinating overall efforts in Ukraine.	
Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa	- In the case of South Africa, SECO co-finance GIZ's existing activities and this approach where SECO-GIZ form a partnership has proven to be valuable in terms of working towards common objectives - There is a strong three-way partnership between GIZ, DOE and SECO such that each promotes and strongly makes visible the Swiss role in making this project a possibility	No issues identified
Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela / Belgrade	Recipient of EE measures/renovations grateful and committed partner	Neither City of Belgrade nor Ministry of Mining and Energy were responsive enough to ensure implementation of the CHP component
ESCI extension for the development of energy strategies in two Peruvian cities	- Operational support from the IDB - Very strong and large working groups of local stakeholders were developed as part of the ESCI work plan development process, as well as for the development of the local energy strategies	- SECO Peru not fully involved in the partnership in the early stages of the process - Weak buy in and no participation on behalf of Central Government
Earmarking energy and city - phase I (ESMAP): World Bank / ESMAP	- Organisation with worldwide coverage and ability to leverage actions in all regions of the world - Very extensive network of projects and partners - The key multilateral when it comes to international development aid, with a very strong track in energy and infrastructure - Capacity to mobilise other bilateral donors, and creates a platform for inter-donor cooperation - ESMAP has the capacity to influence the World Bank's energy project portfolio	SECO's contribution to the overall programme (e.g. in terms of budget is extremely low). Partnership asymmetry
Emerging Sustainable Cities Initiative (ESCI): Inter-American Development Bank*	- Multilateral bank with a very strong presence and visibility in Latin America, which is home to a number of SECO priority countries. Capacity to establish contact with local officials. - Capacity to mobilise other bilateral donors, and creates a platform for inter-donor cooperation - Previously existing collaboration with ETH Zurich	SECO's contribution to the overall programme (e.g. in terms of budget) is extremely low. Partnership asymmetry.

Cities Alliance (CA): United Nations Development Programme	• CA is a wide partnership of 33 members hosted by the UN. The adoption of a Strategy 'A Stronger Alliance: Cities Alliance Members' Partnership Strategy' is a proof that the partnership issue is of utmost importance. It is highly relevant for SECO as 'by becoming a more agile, collaborative and innovative Alliance, there is great opportunity to further scale its impact to play a key role in the delivery of the SDG 11 for cities'. • This strategy recommends that CA can and should act both as an institution and a platform for partnership as its 4 business lines require just such a flexible approach. Both depend upon an engaged and proactive membership to reach full potential and the Secretariat must play an important supporting role in each.	• No issues identified
Cities Development Initiative for Asia (CDIA): Asian Development Bank and GIZ	• Partnership with recognised EE cities players within CDIA is relevant as it is useful and effective • The partnership with the Asian Development Bank is highly relevant in view of leveraging its capacities, presence in the countries and follow-up funding • Partnership on project level are hard to evaluate but there is evidence that efforts are made to involve relevant local partners	• No issues identified
Cities and Climate Change in Africa (CICLIA): Agence Française de Développement (AFD) & the European Union (EU)	• AFD and the European Commission are very relevant partners to enhance SECO's presence in Sub-Saharan Africa	• Partnership can be further strengthened and promoted for better visibility
Platform Renewable Energies (REPIC IV): Agency for Development (SDC) and Cooperation, Federal Office of Energy (SFOE), Federal Office of Environment (FOEN)	• General cohesion of vision, objectives and functioning, as all agencies are ruled by the same government • Trustful and consensual functioning of representatives from each organisation, with due consideration to each agency's specific agenda and concerns • Very strong complementarity of competences and focus (energy, environment, local development and economics) from the four partner organisations in the project selection and monitoring • Great trust in the REPIC Secretariat, which allows partnership governance to be very simple and limited to the approval of new projects and annual monitoring • Critical support provided by local Swiss diplomats to help reaching out to local partners and monitor projects	• SECO WE's strategic objectives are only partially addressed in REPIC projects, due to the need to accommodate other donors' agenda

Appendix F Achievement of outcomes

Type of outcome	Judgement on (likelihood of) achievement of core and ancillary outcomes
Consumers, the population and the environment benefit from a sustainable, efficient and reliable energy supply provided by economically sound operating DH companies (Serbia DH)	The project officially started in June, so it is too early to make an assessment
Municipalities' energy management shall be better organised/Raised awareness about the EEA in Serbia/Reduction of GHG emissions/ Increased share of RES and reduction of fossil energy resource consumption/Improved maintenance and operation of public buildings (MEEMP)	Outcomes not achieved yet as too early in the project.
Sust. energy policy and urban development achieved through rational use of energy and increased use of RES/improved reliability of heat and warm water supply in selected districts, improved EE of the DH company, reduced GHG emissions/improved operat. management of the DH company, better informed municipality about the energy management in public buildings. (Zhytomyr)	Outcomes on good track of being achieved. Minor delays in KG insulation expected. Minor issues to be accounted for (see Annex for details)
La Alpujarra administrative center's energy district is operating efficiently and the ODS emissions are reduced/implemented EE measures to increase the positive envir. Impact/Institutional context improved to encourage the development of energy districts in Colombia/Concept of energy districts spread across Colombia and awareness raising measures undertaken (Colombia Energy Districts)	Most activities implemented but there are some questions on outcomes and impacts given the lack of data. Limited high-level outcomes.
At fund level: leverage of lending from IFIs and beneficiary co-financing; improvement of the regulatory frameworks for energy relevant sectors At project level energy savings; related cost savings; substitution of fossil fuel by RES; reduction of CO2 emissions; improved reliability of utility services to customers; increased awareness and behavioural change by energy consumers (E5P)	The 'leverage of funding' outcome has been largely achieved while the influencing policy outcome cannot be considered achieved before major EE-related reforms take place. Project level outcomes can be considered as achieved.
Reduced energy consumption and energy costs in up to five municipalities/Reduced CO2 emissions/Demonstrated adequate technological solutions for EE street lighting projects and enhanced capacities on EE/Improved security situation due to improved lighting and enhanced technical capacities for O&M of the installations (South Africa)	Too early to assess outcomes but as a flagship, an LED walkway is expected to be launched in November 2018 which will demonstrate various technologies to be used in further phases of the project and as a basis for technical assistance for the country. A first international procurement will be launched for retrofitting high masts in one municipality towards September/October (managed by GIZ)
Sust. energy policy and urban development achieved through the rational use of energy and increased use of	Outcomes almost fully achieved. The full-blown outcomes and impacts of the project can be

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RES/ improved reliability of heat and warm water supply in selected districts, improved EE of DH company, reduced GHG emissions/improved operational management of the DH company, better informed municipality about the energy management in public buildings. (Vinnitsia)	achieved only if EE reforms are implemented. (see Case study for details)
Reduction of the CO2 emissions by using biomass waste for heat and electricity generation and by increasing the EE of the public buildings to be heated/Sustainable use of RES for heat generation/Improved air quality and therefore living conditions of the local inhabitants/Reproduction of similar projects in Serbia (Padinska Skela)	The outcomes will only be achieved in part. Due to challenges in implementation, the decision was taken to cancel the installation of the CHP unit. The planned energy efficiency measures were delivered as planned.
Countries are able to deliver better energy strategies and investment decisions, while implementing innovative solutions/focus on the initiative concentrating on EE in cities and on fossil fuels subsidy reforms (ESMAP).	Until 2015, the programme had only managed to achieve 25% of its expected outcomes, which seems very low. Since then incremental progress has been achieved with regards to financing, policy and capacity outcomes
Better skilled local authorities applying the ESCI tools for a comprehensive assessment of the urban key challenges in terms of climate impact, economic benefits and public opinion and promotion of investment decisions in the prioritised sectors that consider a comprehensive view of the community/ETH applied urbanization research in a Colombian city leads to the development of innovative and replicable urban solutions (ESCI)	Good level of achievement of expected outcomes
National Policy Framework developed to address urban development needs/Local pro-poor and climate resilient strategies and plans developed and resources mobilised/Mechanisms to engage citizens/urban governance developed/Capacities of cities in governance and management strengthened (Cities Alliance)	Expected outcomes are on track of being achieved both on global level and on Tunisia country level
Increased capacity of city governments and national partner organisations in preparing sust. infrastructure investment projects/secured funding commitments for the implementation of prioritised sust. infrastructure projects/increased number of cities with planning processes reflecting lessons learnt from the support received by CDIA, and CDIA itself secures funding from Asian sources for its staff and administration costs (CDIA)	A very high level of achievement of results which is well-documented given the maturity of the project
Municipal authorities adopt CC mitigation and adaptation strategies for urban development/Link to urban low-carbon projects financing is established/Strengthened capacities of municipal authorities in implementing climate-oriented investment measures (CICLIA)	Impossible to judge the level of achievement of impacts as the project is in the very beginning.
Project promotion / implementation and knowledge transfer/successful information and communication as well as national and internat. partnerships and networking/coordination between the involved federal agencies. REPIC as a one-stop shop (REPIC)	A very high level of achievement of results which is well-documented and evaluated given the maturity of the project

Appendix G Achievement of high-level impacts

Type of impact and project	Likelihood of achievement of high-level impact from intervention logic
Consumers benefit from sustainable, efficient and reliable energy supply (Serbia DH)	The expected impact of the project has been largely achieved in line with the 3 high level impact from the IL
More sustainable energy management at the municipal level through the introduction of the EEA (MEEMP, Vinnytsia, Zhytomyr)	For Vinnytsia and Zhytomyr the high-level impacts are largely achieved or about to be achieved in line with the 3 impact from the IL. For MEEMP, it is highly possible to achieve the expected high-level impacts in case certain success factors are controlled and implemented (see recommendations)
Improved energy efficiency of public buildings (MEEMP, Zhytomyr)	For MEEMP, achievement depends on certain external factors (see recommendations) For Zhytomyr, the impact will be achieved despite minor problems and delays (see case study) For Colombia, the high-level project impacts and outcomes remain limited for the time being. This is partially due to the fact that the project has not yet come to an end.
Additional KWh from renewable energy and from energy efficiency measure through project interventions (Energy Districts in Colombia)	No data or evidence regarding the impact of the project on renewable energy production or energy efficiency
Improve municipal energy infrastructure (Vinnytsia, Zhytomyr)	For both projects, the high-level impact is on the right track to be fully achieved in the next six months.
Build capacity-building of municipal and public utility experts for EE and RES (Vinnytsia, Zhytomyr)	Fully achieved
Reduction of the national energy intensity by leveraging financing for investments into EE in municipalities, utilities and homeowners (E5P)	Because of the maturity of the project and the lack of quantitative targets we can say that both impacts are achieved in line with the Intervention logic.
Contribution to achievement of South Africa's pledge under the UNFCCC to reduce national GHG emission targets through an EE Street Lighting Project (SA)	The quantitative assessment of this project is not yet possible as there has not been any implementation from which energy and emission savings can be based. There were a number of obstacles related to the start of the project which have been overcome (agreement with the DOE on the implementation modalities and signing of the project agreement)
Showcase using biomass to produce heat and electricity implementing EE measures in selected public buildings, demonstrate the econ. feasibility and	The project has faced a number of challenges with regards to project design, weak project partners and insufficient regulatory framework. The EE measures

viability of energy production based on RES (Padinska Skela)	were completed, however the CHP plant construction was cancelled due to lack of support by implementation partners.
Knowledge generation and advise to countries to secure and implement affordable, reliable, and sust. energy supply strategy and policy. Reduction of the extreme poverty and promotion inclusive growth. (ESMAP)	Most of the evidence when it comes to its effectiveness for that period of time is qualitative and anecdotal. The programme has produced incremental improvements related to knowledge generation impact.
Support through a multidisciplinary approach emerging cities by addressing complex urban challenges to identify the path to long-term sustainability. (ESCI)	Despite certain weaknesses the project is on track to achieve the high-level project impacts.
Support cities in increasingly effective government management and active management to deliver improved service to the urban poor (Cities Alliance)	The project is not completed but it is fully on track to reach expected high-level impacts especially for those components where SECO has a soft earmarking.
Supports cities in preparing urban infrastructure investment projects which fulfil criteria of environ. and climate friendly development, pro-poor develop. and good governance, and in finding funding sources for their implementation. (CDIA)	The project is fully on track to reach expected high-level impacts despite the fact that there are several indicators in the red or orange zone. They are not pre-conditions for achieving the impact.
Support cities in turning urban climate strategies into actual urban projects with climate co-benefits. Accompany local gov. in the implementation of low-carbon and climate-resilient urban strategies into actual investments. The expected impact is that participating cities develop low-carbon and climate-resilient infrastructure on a priority basis (CICLIA)	Currently, none of the feasibility studies is completed so it is impossible to make a judgement of the effectiveness of the projects. As the projects are in the very beginning of their implementation at this point the only evidence of success are chances and commitments for the projects to be finances after the completion of the Pre-feasibility studies.
Contribute to the implementation of global climate protection agreements and to a sustainable energy supply in developing and transition countries. (REPIC)	Very few projects are classified as “failing to achieve objectives” (about 3-4%). About 60% can be considered as “fully achieving objectives” and the rest as “partly achieving objectives”. Without quantifiable greenhouse gas emission reductions, the actual impact on climate change cannot be accurately stated. Only one third of REPIC projects are reportedly replicated elsewhere.

Appendix H Overview of SECO leverage effect within Energy-efficient Cities portfolio

Note: The table also contains information which is not strictly in line with the definition of financial leverage, i.e. attracting additional funds which would not have happened without SECO's intervention.

Project	Total budget	Contribution SECO	Co-financing and financial leverage
Renewable energy for District Heating Programme/Serbia /East – Bilateral	EUR 27.1M	EUR 5.1M (20%)	The SECO grant facilitates access of municipalities to the credits provided by KfW.
Municipal Energy Efficiency and Management Project (MEEMP)/Serbia/ East – Bilateral	CHF 15.24M	CHF 13.5M (89%)	The EEA benefits will become evident over time, and municipalities will provide all required co-financing as the SECO contribution to renovations is very much appreciated. The grant element/renovation measures of the project enable and encourage participation of municipalities in the other components.
EE/RE Zhytomyr project / EEA in Ukraine - Bilateral	CHF 18.91M	CHF 15.4M (81%)	SECO investment also triggered own investments from Zhytomyr city hall (3 million CHF). The successful implementation of the bilateral project was a factor for receiving E5P project and a DemoUkraine project. EEA certification has the potential to trigger municipal expenditure for associated projects.
Energy districts in Colombia/South - Bilateral	USD 13.15M	USD 5.78 (44%)	The financial support provided by SECO trigger a significant investment on behalf of EPM for the development of the Alpujarra ED. The total investment cost of the ED is approximately \$20M USD, while the SECO contribution represents only \$2.1M USD. It also generated \$0.76M USD in co-funding form the MADS, mostly as an in-kind contribution of staff time. Local stakeholders also contributed with in-kind staff time and resources to organise local meetings and events.
E5P (Eastern Europe Energy Efficiency and Environment Partnership)/Ukraine/East – Bilateral	EUR 111.8M	CHF 3.5M (27%)	One of the eligibility criteria for E5P is that the grant-to-loan leverage factor should be at least 1:2 for district heating projects and 1:3 or higher for other projects. The calculation of the leveraged funds gave us a figure of 369 million EUR worth of loans leveraged by the 111 million EUR of E5P grants. The biggest amount of leveraged funding was achieved in the case of the Ukraine Residential Energy Efficiency Financing Facility where 17.25 MEUR of E5P grant leveraged a loan of 85 MEUR.
Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa/South – Bilateral	EUR 30M (not strictly leveraging in line with definition)	EUR 5.5M (18%)	The 30 MEUR is the budget of the German South African Energy Program and SECO is co-financing a small component on EE in Street Lights.

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Project	Total budget	Contribution SECO	Co-financing and financial leverage
Energy Efficiency Vinnytsia Project/Ukraine/East – Bilateral	CHF 27.154M	CHF 20.61M (76%)	SECO investment also triggered own investments from Vinnytsia city hall (2.840 million CHF). The successful implementation of the bilateral project was a factor for receiving E5P project. EEA certification triggered municipal expenditure for associated projects. In general, Vinnytsia is a preferred beneficiary for international donors due to the high capacity of municipal hall staff.
Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela/Belgrade/Serbia/East – Bilateral	EUR 8,318,200	EUR 6.818M Budget increase: EUR 1.692M (82%)	The SECO contribution did not leverage substantial additional financial contributions to the project. The SECO contribution was tied to a co-financing effort by the City of Belgrade, but this contribution was only planned for the latter stages of the project – the connection of the CHP plant to the district heating system. This late financial involvement might be seen as contributing to the lack of project ownership of the City of Belgrade.
Earmarking energy and city - phase I (ESMAP)/Global/South - Fund/Facility	2015-2017: USD 154M 2017-2020: USD 215M Overall budget: USD 215M	2015-2017: USD 4M 2017-2021: USD 8.05M (5%)	SECO's contribution to ESMAP is not generating a direct financial leverage per-se. However, ESMAP can be described as having a considerable financial multiplier effect given the influence of its activities on spending and investments carried out by the WB. As of 2016, ESMAPs portfolio influenced \$3.7 billion of World Bank IDA and IBRD financing, and leveraged an additional \$1.8 billion from other partners
ESCI/Global, Columbia, Peru/South - Fund/Facility	40.7 M USD	6.85 million CHF	Can be described as having a considerable financial multiplier effect given the influence of its activities on spending and investments carried out by the IDB. In many cases, ESCI also leveraged local resources from local or national governments for the implementation of the methodology at city level. SECO's contribution is helped create the critical mass of resources necessary for the operation of the initiative.
CDIA/Global/Asia/Oceania, Indonesia, Vietnam	64.7 M USD	8 M USD (12%)	According to the latest progress report, roughly 90/150 projects have led to concrete financiers. The project has leveraged about 6.8 billion EUR which is very significant despite the fact that it cannot be compared to a pre-existing target
CICLIA/Sub-Saharan Africa/South - Fund/Facility	12.41 MEUR	CHF 3.150 million (25%)	By definition, CICLIA is a programme which aims to leverage additional funding in terms of loans. As the projects are at a very early stage of implementation, there are no leveraged funds yet. However, at the stage of project approval there are estimated amounts of leveraged funds

Appendix I Detailed overview of key impact and outcome-level KPIs.

Project	Key impact/outcome KPIs	Relevance vis-à-vis SECO KPIs (weak, adequate, high)	Comments on quality of baseline and target values
Renewable energy for District Heating Programme (part of the German "Promotion of Renewable Energies: Developing the Biomass Market in Serbia Programme")	- Savings in t of CO2 emissions/year of at least 70% - Savings of at least 70% of SO2 emissions/year - The heat losses (on the basis of difference of the primary energy content of the fuel in MWh and the heat delivered at the substations) have been reduced by a minimum of 25% - At least 70% of the energy supply will be generated using renewable resources (on average of all DH companies and of the first 5 years after commissioning) - The number of service interruptions has been reduced by 50% to a maximum amount of XY interruptions (sum of participating DH companies) - Number of private persons and households, users and employees of commercial and public buildings having access to improved public services - Economic soundness indicator tbd - Domestic biomass raw material purchases (in RSD) are steadily increasing over the programme lifetime (cumulated)	high	Not available
Serbia: Municipal Energy Efficiency and Management Project (MEEMP), Serbia Energy City Project (Municipal Energy Efficiency Project, Municipal DRR Project)	- Increased energy planning capacity in partner cities - Improved energy management performance in partners cities - Improved quality of energy monitoring and reporting in partner cities - Savings in GHG emissions - Reduction of fossil energy resource consumption - Reduction of electricity consumption for lighting, heating, hot water boilers	high	No target values established for impact indicators established at the time of this evaluation (TBC)

EE/RE Zhytomyr project / EEA in Ukraine	- Sustainable energy policy and urban development are achieved - Reliability of heat and warm water supply in two districts increased - Living standards and comfort level of the end consumer increased - Energy efficiency of the DH company is increased - GHG emissions are reduced - Energy consumption of selected kindergartens is reduced - The operational management of the DH company is improved - Management and financial sustainability of the DH company improved	High	Target values established
Energy Districts in Colombia	- Savings in GHG emissions in t CO₂ achieved per year - Environmental savings compared to a conventional replacement: issuance of ODS production of substances with GWP and consumption of KW - Number of urban environmental authorities that include the promotion of ED in their strategies - Number and type of measure / reforms in energy policy implemented	- High - KPIs adequately reflect project ambitions and are compatible with SECO - Project also emphasises reduction of Ozone Depleting Substances (which is not a SECO priority)	- Weak baseline data, and no ex-post assessment of actual gains/improvements - Lack of clarity when it comes to the expected outcomes/impacts targets of component 2 (i.e. implementation of additional EDs)
Eastern Europe Energy Efficiency and Environment Partnership	- Energy savings and related cost savings; - A Substitution of fossil fuels with RES - CO₂ emission reduction - Improved reliability of utility services - Increased awareness and behavioural changes	High	Not available
Energy-Efficient Street Lighting Retrofit Pilot Project; South Africa	- kWh and financial savings from EE measures as a result of the Project - Savings in GHG emissions (in t CO₂) achieved through investments enabled by SECO - Nr. of persons having access to improved public services and improved security situation according to official reports	The KPIs identified in the project are highly relevant to SECO's indicators identified in the	Comprehensive baseline assessment

	• Technical assistance provided to municipalities • Procurement capacities in DoE and the municipalities available	Intervention Logic	
Energy Efficiency Vinnitsia Project	• More sustainable municipal energy management and more sustainable energy use • Reliability of heat and warm water supply in two districts increased • Sustainability of public utility increased	• High	• Target values available
Combined Heat and Power Plant (CHP) fuelled by biomass in Padinska Skela/Belgrade	• Reduction of the CO2 emissions by using biomass waste for heat and electricity generation and by increasing the energy efficiency of the public buildings to be heated • Sustainable use of renewable energy for heat generation within the Padinska Skela settlement • Improved air quality and therefore living conditions of the local inhabitants • Reproduction of similar projects in Serbia using comparable technology and renewable energy	• high	•
ESCI extension for the development of energy strategies in two Peruvian cities	•	•	•
Earmarking energy and city - phase I (ESMAP): World Bank / ESMAP*	• Double the global rate of improvement in energy efficiency (electricity savings resulting from efficiency improvements – MW equivalent and GWh / year) • Avoided GHG emissions (CO2 avoided over 20 years, million tons)	• High – ESMAP has included SECO KPIs in its monitoring and performance framework at the request of SECO – Difficult to estimate the extent to which ESMAP is producing figures on these KPIs (no data collected or	• No baseline data (and thus no targets)

		provided as part of this evaluation)	
Emerging Sustainable Cities Initiative (ESCI): Inter-American Development Bank*	The evaluation has not identified any programme or project level indicators to compare against SECO KPIs	Low given lack of information on programme level KPIs	N/A
Cities Alliance (CA): United Nations Development Programme	- Support of 7 countries developing national policy(ies) related to sustainable urban development - Support of 43 cities to develop local pro-poor climate resilient strategies - Support of 44 cities and 12 countries to have functioning governance mechanism to engage citizens in urban governance - Support of 21 cities in strengthening local government's	Highly relevant both on global level and on the level of Tunisian country programme	Not relevant
Cities Development Initiative for Asia (CDIA): Asian Development Bank and GIZ	- Partner organisations have been strengthen to support cities in preparing infrastructure investment projects - Cities have enhanced capacities to access finance for prioritised sustainable urban investment projects - Sustainable knowledge and innovation support for urban infrastructure investment is available and accessible to stakeholders	High	Baseline measured on a project-by-project basis
Cities and Climate Change in Africa (CICLIA): Agence Française de Développement (AFD) & the European Union (EU)	- CC mitigation and adaptation strategies adopted; - Sectoral policies incorporating CC issues - Number of cities with urban development measures; - Link to financing as demonstrated by EoI by potential financiers; - Number of inhabitants benefiting from sustainable urban development projects	High	Not relevant
Platform Renewable Energies (REPIC IV) (projects EEA): Agency for Development	REPIC projects are expected to contribute to energy efficiency, renewable energy production and/or resource efficiency. All projects are accepted on the basis of a logframe including expected impacts, outcomes and outputs. Upon completion of projects, an evaluation report is transmitted to the REPIC Secretariat and	Weak. REPIC relevance is limited due to the governance of the programme, which involves	All proposals submitted to REPIC must include a comprehensive description of the baseline in the region of implementation, including: Local needs

(SDC) and Cooperation, Federal Office of Environment (FOEN)	Steering Committee, which addresses the following aspects: • Project implementation (incl. changes in strategy and objectives) • Achievement of objectives • Potential multiplication/replication of the project • Measurable and foreseeable sustainability impacts of the project (environment, social, economic) • Lessons learned	other donors. Furthermore, a significant amount of REPIC projects are implemented in rural areas, which rules out SECO's urban development objectives and related KPIs.	• Legislative framework • Beneficiaries • Existing activities • Project distinctiveness (vs existing activities) Expected impacts must be described from a qualitative perspective (no target value)
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Appendix J Overview of project sustainability

Table 8: Likelihood of sustainability for projects/case study

Project/case study	Main outcomes	Continuous maintenance needs	Likelihood of sustainability
REPIC (Global)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Renewable energy production	High	Generally low, except in projects with strong commitment from local authorities (e.g. Chile, Bosnia)
	Waste management	High	Generally low, except in projects with strong commitment from local authorities (e.g. Chile, Bosnia)
	Policies & public services	Medium	Medium. Only projects with a strong commitment from local authorities (e.g. Chile, Bosnia) are likely to invest sufficient efforts and resources to adapt policies and maintain a high standard of public services.
	Academic training	Medium	Generally low, except in projects with strong commitment from local authorities (e.g. Chile, Bosnia)
	Capacity-building	Medium	Medium. Only projects with a strong commitment from local authorities (e.g. Chile, Bosnia) are likely to invest sufficient efforts and resources to adapt policies and maintain a high standard of public services.
ESMAP (Global)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Policies & public services	Medium	Medium-High Funding is secured until 2020, which increases the likelihood of improving the policy framework, maintain a high standard of public services and further replicate projects.
	Capacity-building	Medium	Medium-High. Funding is secured until 2020, which will allow continuing to train staff and further build capacity.
Cities Alliance (Tunisia)	Policies & public services	Medium	Low-Medium. The project management team recognises that, due to its difficulties to find donors and secure funding over the near future, the sustainability of the project is compromised.
	Capacity-building	Medium	Low-Medium. The project management team recognises that, due to its difficulties to find donors and secure funding over the near future, the sustainability of the project is compromised.
CICLIA (Africa)	Waste management plan	High	Low-Medium. The project managed to engage with governments and receive their commitments. However, no donors are confirmed for the future as of today.

	Street lighting	Medium	Medium. Although some maintenance is required, new equipment is likely to last in the near future without significant need for additional resources.
	Energy services	High	Low-Medium. The project managed to engage with governments and receive their commitments. However, no donors are confirmed for the future as of today.
	Urban development plans	Medium	Low-Medium. The project managed to engage with governments and receive their commitments. However, no donors are confirmed for the future as of today.
ESCI (Colombia, Peru)	Urban development plans + pre-financing	Medium	Low. According to this evaluation, the next phase (pilot/demo activities) is not expected to start soon and a phase-out plan for ESCI seems to have been initiated.
CDIA (Asia)	Urban development plans + financing	Medium	Medium-High. An autonomous legal structure is in place as trust fund, with secured donors, but available funds remain inferior to the demand.
Renewable heat for DH (Serbia)	Renewable energy production	High	N/A (Project just started)
	Capacity-building	Medium	N/A (Project just started)
MEEMP (Serbia)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Renewable energy production	High	Medium. The engagement from local authorities is good + large international donors (UNDP, GIZ) remain involved.
	Policies & public services	Medium	Medium-High. The engagement from local authorities is good + large international donors (UNDP, GIZ) remain involved.
	Capacity-building	Medium	Medium-High. The engagement from local authorities is good + large international donors (UNDP, GIZ) remain involved.
	EEA Certification	High	Medium. The engagement from local authorities is good + large international donors (UNDP, GIZ) remain involved.
Biomass CHP Padinska Skela (Serbia)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last. The engagement from local authorities appear limited.
	Renewable energy production	High	Aborted. It is unlikely that the project will resume in the future. The engagement from local authorities appears limited.

Energy District (Colombia)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Energy services	High	Medium-high. At local level, EPM is successful in setting a profitable business model and new clients are joining on a continuous basis. Sustainability at national level is less certain.
	Capacity-building	Medium	Medium. Profitable business model but actual investments in capacity-building remains to be demonstrated.
	Replication to other cities	High	Low. So far no tangible evidence of future investments taking place to replicate the project in other cities + uncertainty in the tax regime for ED services at national level.
EESTLRP (South Africa)	Street lighting	Medium	Medium-high. Commitment from government to continue the project but uncertainty over the maintenance of street lights. Although some maintenance is required, new equipment is likely to last in the near future without significant need for additional resources.
Zhytomyr (Ukraine)	Energy efficiency in buildings	Low	High. Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Energy services	High	Medium-high. The local utility providing energy services (owned by municipality) appears profitable but the context remains difficult due to law on repayment of the debt to the national gas company.
	Awareness raising	Medium	Medium-high. The commitment from local authorities appears significant and could maintain a good level of awareness locally.
Vinitsa (Ukraine)	Energy efficiency in buildings	Low	High- Progress in energy efficiency through the construction or renovation of infrastructures is expected to last.
	Energy services	High	High - public utility skilled to run new installation
	Awareness raising	Medium	High- excellent experience in EEA certification
E5P (Ukraine)	Financing	Medium	Medium-high. New donors were identified, which increases the likelihood of sustained financing in the near future.
	Policies & public services	Medium	Low-medium. The project seems to be missing a strong commitment from local authorities to invest sufficient efforts and resources to adapt policies and maintain a high standard of public services.
	Energy efficiency in buildings	Low	Medium-High. Progress in energy efficiency through the construction or renovation of infrastructures is expected

			to last. However, a lack of commitment from cities was reported during this evaluation.
	Capacity-building	Medium	Low. The project seems to be missing a strong commitment from local authorities to invest sufficient efforts and resources in capacity-building.

06 August 2018

SECO WE Independent Evaluation of Energy-Efficient Cities

Case study report: Colombian Energy Districts project

technopolis |group|, E4tech, Fraunhofer IBP

9 October 2018

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1 Introduction

1.1 Objective and rationale of the case study

In line with the Approach Paper ‘SECO WE Independent Evaluation on Energy-Efficient Cities’, the purpose of the case studies is ‘to provide a fair sample of projects covering the relevant areas of activity in energy-efficient cities’ by carrying ‘an in-depth assessment of the concrete implementation of relevant approaches and achievements’. The purpose of the case study is also to produce specific lessons and recommendations which could inform future SECO activities in Colombia and elsewhere. The projects selected for the in-depth analysis as part of the evaluation were identified in collaboration with the SECO evaluation steering group, on the basis of several criteria including: geographical spread, state of maturity/advancement of the project, and type of project.

1.2 Scope of the case study

The current case study covers only one project “Energy Districts in Colombia” (2013-2018). Equal focus is set in the case study on both components of the project, as will be explained later in the report. As specified in the Inception report, the case studies focused on addressing the DAC evaluation criteria relating to relevance, efficiency, effectiveness and sustainability. Case studies also include additional insights which have been deemed useful for the purpose of developing recommendations and lessons learned.

1.3 Methodology

The case studies were drafted based on a documentary analysis of project documentation and a number of interviews carried out by phone and during a three-day site visit in Colombia (June 2018). The interviews conducted in Bogota were conducted on a bilateral and individual face-to-face basis. A debriefing session with representatives of the Colombian SECO-office was organised at the end of the field visit.

2 Brief overview of the Colombian energy districts project

Table 1 Basic project data of the Colombia energy districts project

PSP No	UR-00816.10.01
Title	Energy Districts in Colombia
Total budget	\$13.1 million USD (at the time of project approval)
SECO financing Other financing	\$5.7 million USD in SECO financing Addition financing provided by Empresas Públicas de Medellín (EPM) and the Colombian Environment and Sustainable Development Ministry (MADS)
Project duration	2013-2018
National Partner/Project Owner	Empresas Públicas de Medellín Colombian Environment and Sustainable Development Ministry (MADS)
Consultant	First Climate Consulting

Colombian cities are expected to play a major role in efforts to fight climate change, given the very high share of the country’s population and economic activity they host (around 70% of the population is

urban). In addition to transport, the building sector is one of the main sources of energy consumption, triggering significant GHG emissions stemming from the use of non-renewable and fossil energy sources. Within the existing building stock located in urban areas, as well as in future construction projects, air conditioning (AC) is one of the main sources of energy use. In many cases, existing AC systems are outdated and are operating under very poor energy efficiency standards. As a result of this, significant energy-saving opportunities exist in the renewal and updating of AC systems in commercial buildings.

Prior to the implementation of the project, the public utility of the city of Medellin – *Empresas Públicas de Medellín* or EPM had begun working on the potential development of a pilot district cooling system as a means to diversify its service portfolio. In parallel, the Ozone Unit hosted within the Ministry of the Environment and Sustainable Development (MADS) had been implementing actions seeking to replace high Ozone Depleting Substances (ODS)-based cooling systems in the country. These two actions were at the outset of the SECO project aimed at promoting the development of Energy Districts in Colombia.

The overall objective of the project is therefore to foster the implementation of energy districts (cooling) in Colombia, in light of improving energy efficiency in building and substitute coolers that make use of Ozone Depleting Substances (ODS) as cooling agents contributing to the fulfilment of Montreal Protocol commitments; the low carbon development Colombian strategy and the rational and efficient use of energy programme.

The project is structured around two main pillars:

- The first pillar was aimed at supporting the implementation of a pilot energy district located in an administrative district of the City of Medellin which is host to a large number of public administration office buildings. This pilot would serve a double purpose:
 - Contribute to the elimination of old and highly energy-consuming ODS coolers in the district and,
 - Serve as a pilot and real-scale model of a successful and viable energy district, with potential for replication at the national and regional scale.
- The second pillar of the project is intended to improve the regulatory framework conditions and to provide technical assistance for the development of technical, institutional, legal and financial sustainable mechanisms in order to promote the replication of several energy districts in other cities (Bogota, Medellin, Cali, Barranquilla, Bucaramanga, and Cartagena)

The following table presents the different sub-components of each of the two main project pillars described above, as defined in the original credit proposal. It also presents the project's expected outcome and output indicators.

Table 2 Project components and performance indicators

Components (and expected outcomes)	Sub-components (expected outputs)	Outcome indicators	Impact indicators
Implementation of the Energy district in Medellin's Alpujarra administrative centre (outcome 1)	• Construction of the La Alpujarra administrative centre's energy district • Operation of the La Alpujarra administrative centre's energy district • Energy Efficiency measures for the La Alpujarra administrative center energy district's buildings	• Savings in GHG emissions in tCO₂ achieved per year (<34.14%) • Environmental savings compared to a conventional replacement: issuance of ODS (100%); production of substances with GWP (>81.33%), and consumption of KW (>31.40)	• Additional KWh from renewable energy and from energy-efficiency measure through project interventions • Elimination of ODS, high impact on global warming and energy consumption • Reduction of harmful emissions

Promotion of new energy districts at the national level (outcome 2)	• Normative, fiscal and institutional measures and tools • Technical and business measures and tools • Energy district projects in five Colombian cities • Trainings and diffusion of the energy district benefits	• Number of urban environmental authorities that include the promotion of ED in their strategies (5) • Number and type of measure / reforms in energy policy implemented	• Demonstration of the environmental and welfare benefits of the ED as well as its potential for replication
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Source: Credit Proposal

The main beneficiaries of the project are EPM and the MADS, which are also the main project partners. Additional beneficiaries include the users and clients of the pilot energy district in Medellin, as well as the additional cities benefitting from technical assistance for the potential development of an energy district, as well as the stakeholders participating in the business workshops organised within each of these cities (e.g. other public and private utilities interested in investing in this field).

The project was approved in 2013 and was expected to conclude by the fourth quarter of 2017. However, given some delays in the launching phase of the project, the project has been extended until the end of 2018. The approved contribution on behalf of SECO represents \$5.78 Million USD, which originally represented approximate 40% of the total estimated cost of the project (and 25% of capital expenditure for the development of the pilot district in Medellin). However, as will be explained in the following sections, SECO co-investment only ultimately represented around 25% of total costs, mainly due to the fact that the cost of component one (i.e. development of the pilot energy district in Medellin) was originally underestimated. The project received co-funding from EPM and the MADS. It is important to highlight that one of the rationales behind providing financial support for the development of the pilot project in Medellin to be operated by EPM, is that the utility needed external assistance in order to reach its Internal Rate of Return (IRR) necessary for internal approval (10%). As such, SECO support was intended to mitigate the financial risk linked to the development of an innovative infrastructure project in the energy field.

2.1 Relevance of the Colombia ED project

2.1.1 Relevance of project objectives to the SECO WE strategic goals and objectives

The relevance of the project vis-à-vis SECO WEIN priorities, both at the global level as well as at the national level, is duly justified and explained in the credit proposal. The evaluation finds this justification to be robust and backed by the evidence collected as part of the field visit interviews.

As mentioned, at the time of its formulation the project and its ambitions were “fully in line with the ‘Message on International Cooperation 2013 – 2016’ and more specifically with SECO’s priority theme II ‘Extension of city infrastructure and supply structures’ and priority theme V ‘providing stimulus for climate friendly growth’”. The proposal also clearly explains the links between the project and the priorities for cooperation identified in the SECO Colombian 2013 – 2016 country strategy, particularly under the third pillar “strengthen climate change risk management and sustainable urban development to mitigate the impact of climate change and manage rapidly growing urbanisation”.

Despite the fact that both of these strategic documents have now come to an end, the project and its ambitions are still fully in line with SECO strategic priorities at the global and Colombian level.

- **At the global level:** the energy district project directly addresses target outcome IV under business line 2 of the current Message to Parliament (sustainable energy supply). The focus of the project is demonstrating the viability of and encouraging the use of more sustainable cooling solutions as an alternative to incumbent, highly consuming/polluting technologies. Implicitly, the project also addressed the issue of energy efficiency. That said, the focus of the project is as much on reducing reliance on technologies making heavy use of ozone-depleting substances, as it is on generating efficiency gains and energy savings. There is not a focus on renewable energy. Indirectly,

the project is also addressing target outcome I, under business line -reliable basic public services – given its emphasis on encouraging the update of energy district solutions on behalf of public energy utilities. Finally, there is also an integrated urban development component to the project (i.e. target outcome IV, business line I) given the way in which ED development is being integrated to larger reflection on urban planning at the local level.

- **At the national level:** the project is in line with SECO's international cooperation strategy in Colombia for the 2017-2020 period and, more specifically, with objective 3 dealing with sustainable and inclusive development. This objective covers actions aimed at combating climate by promoting integrated urban development. However, the Energy District project can also be seen to contribute to additional components of the SECO country strategy: improving competitiveness of high job-creation potential sectors; and improving public institutions at a national and local level for them to offer efficient services to all.

It is also worth noting that the project has synergies with other existing SECO initiatives such as the Colombia green building initiative¹ implemented in collaboration with the International Finance Corporation (IFC), the recently started *Ciudades Energéticas* project, among others.

The relevance of the project vis-à-vis SECO strategic priorities was confirmed by SECO representatives in charge of overseeing the project (at its headquarters and the Colombia national office).

2.1.2 *Relevance projects to country/regional needs and challenges and strategic objectives (including international commitments)*

The project is also fully in line with national- and city-level needs, challenges and strategic priorities. Its local relevance can be said to exist at three levels:

- **At the national level:** improving energy-efficiency standards within urban centres remains a key challenge in the Colombian context. The building sector represents one of main targets for achieving higher energy efficiency, as it represents one of the main sources of energy demand. The Green Building Mapping study conducted by the IFC revealed that there is an untapped potential for energy savings not only during the building construction phase, but also during the subsequent use of buildings. More specifically, the study indicated that the main energy-saving opportunities for commercial buildings are in lighting and air-cooling.

The project is also fully consistent with Colombia's international commitment to reduce its GHG and ODS in the framework of the Paris Agreement and the Montreal Protocol. That said, Colombia's contribution to global GHG emissions represents less than 0.5% of the total, of which energy accounts for approximately 30%². As a result, while the project is relevant to efforts to reduce GHG, it is perhaps even more relevant in light of the much-needed efforts to improve air quality, living standards, and urban development.

- **At the city level:** Interviewed city representatives were also unanimous about the fact that the project contributed to a pressing challenge in order to improve environmental performance at the local level, as well as to the need to reduce costs stemming from the consumption of energy. Perhaps the only exception to this is the city of Bogota which has a more moderate climate, and where the use of AC is much more limited than in other, warmer regions of the country. Local stakeholders thus considered a cooling district to be less relevant than in warmer regions of the country. The environmental ambitions of the project were valued by local public stakeholders, while the economic ones were frequently mentioned by private stakeholders (e.g. other utilities and trade groups in the tourism sector).
- **At the project beneficiary level (i.e. institutional):** This is notably illustrated by the fact that the project was funded as a result of a proposal made by the MADS and EPM, which had already identified Energy Districts as a relevant solution to their respective lines of work. There is thus a

¹ <https://www.edgebuildings.com/wp-content/uploads/2017/09/Colombia-Green-Building-Market-Intelligence.pdf>

² <http://www4.unfccc.int/submissions/INDC/Published%20Documents/Colombia/1/Colombia%20iNDC%20Unofficial%20translation%20Eng.pdf>

directly link between the SECO energy district objectives, and the strategic priorities and interests of two of its main beneficiaries.

It is worth highlighting that the relevance of the project was verified and confirmed by an independent external expert hired by SECO (and interviewed as part of this evaluation), leading to the approval of the project. This verification mission came to the conclusion that “SECO’s gap financing and technical support responded to relevant needs and that the project complied with SECO’s criteria”.

2.1.3 Relevance of project-level key performance indicators (in general and vis-à-vis SECO KPIs) and baseline / monitoring techniques

The KPIs adopted as part of the project performance framework adequately reflect the project’s ambitions and are compatible with the KPIs identified at the portfolio level of SECO actions in the field of energy-efficient cities (see SECO energy-efficient cities portfolio intervention logic in the appendix of the final evaluation report). In spite of this, the project KPI framework is weakened by two factors:

- The absence of economic indicators reflecting the added value of the ED in terms of, for instance, reduced spending on energy by ED users and clients, increased turnover from ED operators and suppliers, etc.;
- The performance framework and related indicators do not make it explicitly clear how far the project intends to go in the actual implementation and roll-out of the additional ED projects promoted under component 2 (i.e. energy district project in five Colombian cities). As a result, it becomes difficult to assess to what extent this component has been fully successful.

2.1.4 Relevance of the approach and technical solutions used in the framework of projects vis à vis project ambitions and local context (e.g. EEA or other standard methodologies)

This project did not follow any specific methodological approach, as may be the case in other projects using EEA or other similar methodologies. The project did however build on expertise and know-how regarding the development of energy districts in the European context, which was in general terms assessed as relevant and useful by project stakeholders. It is important to note that in the final stage of the project, two additional cities have been added for the analysis of an ED development potential which are also participating in the *Colombia Ciudades Energéticas* project³, which is based on the EEA methodology and a previous experience doing the same in Chile. This is an interesting example of how ED can be built into a larger reflection and strategy development process on sustainable and efficient energy use at the urban level.

2.1.5 Added value of the projects vis-à-vis other existing and similar projects or initiatives

The ED project is unique both at the level of Colombia, as well as at the regional Latin America and Caribbean level. The analysis did not identify other similar projects or initiatives pursuing similar ambitions. The project can be considered a frontrunner given that it appears to be one of the only donor-supported examples of a full-scale development of an ED (infrastructure development), combined with technical assistance for the development of other viable projects. As a result of this, the project can be considered to be truly innovative in nature. As a result of this, the project and its results are drawing significant attention from other regions in Colombia and elsewhere, as well as from other donors interested in working on similar subjects, such as the UNEP energy districts initiative⁴.

2.1.6 Relevance of project goals vis-à-vis economic development ambitions of beneficiary countries and cities

Promoting economic development and generating economic savings is not explicitly built into the project’s rationale and ambitions. This is reflected by the fact that economic indicators are absent from the project’s performance framework and related KPIs. In spite of this, in hindsight, the project has generated positive economic development spill-overs, which should by no means be neglected. In

³ Not part of the project portfolio being analysed under this evaluation.

⁴ <http://www.districtenergyinitiative.org/>

supporting the development of the country's first ED, the project has contributed to paving the way for the development of a new sub-sector of the energy value chain. Specifically, economic achievements can be appreciated for each of the following levels:

- First and foremost, the La Alpujarra ED now represents a new line of business and service for EPM. The local utility is now selling energy to a number of clients based in the administrative district which represents a new and additional revenue stream.
- Based on the results achieved by the project, several other local and national utilities are now building a stronger business case for the development of an ED service portfolio. While some of these companies had already engaged in this internal discussion, the evidence and exposure that the SECO project has brought to the issue has catalysed this process and facilitated buy-in from these companies.
- Although limited for the time being given the lack of a more widespread use of ED solutions, many other players who already operate within the AC sector also stand to gain from further development of ED within the country. This is mainly due to the fact that ED can be built and operated using instruments, technology and know-how which are in many cases already available on the traditional AC market.

2.2 Effectiveness of the Colombia ED project

2.2.1 *Aggregated impact of the portfolio of energy efficient city projects: qualitative and quantitative outputs, outcomes and impacts*

There is no overall monitoring report of the project providing a concise overview of where the project currently stands regarding each of its expected outputs, outcomes and progress towards impacts. This effort has been conducted as part of the evaluation, and presented in the following tables. However, as a whole and given that the project is reaching its conclusion, the evaluation has revealed that the great majority of expected activities and outputs have been conducted as part of the project. Some questions remain however regarding the project outcomes and impacts given lack of reliable and updated data.

2.2.1.1 Overview of expected outcomes and impacts

The high-level project impacts and outcomes are mostly concentrated under Component 1: the development of the Alpujarra pilot ED. for the time being. This is partially due to the fact that the project has not yet come to an end. Were the subsequent four ED projects established in the short term, the project would indeed have the potential to achieve a number of its high-level expected impacts and outcomes.

When it comes to the pilot project, information provided by the project team⁵ indicates that the energy consumption index for the ED in La Alpujarra is 0.61 kWh/TR. On this basis, it is estimated that the implementation of the ED has led to a 34,3% in energy savings, compared to the baseline scenario. In addition to this, it has estimated that the project has enabled a total reduction of 2,586 tCO₂/year (i.e. - 56.4% compared to the business as usual scenario).

The following table provides an overview of the state of play of each one of the project's impact and outcome KPIs.

Table 3 Project outcome and impact KPIs

KPI	Project achievements until July 2018
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⁵ This data has been provided by the project team at a very late stage of the present evaluation. As a result, the evaluation team has not had the time to verify the robustness or level of reliability of the data provided. The data has been generated by the same team of consultants responsible for the design and implementation of other project components (i.e. not an external assessment of project impact).

Impact: Additional KWh from renewable energy and from energy efficiency measures through project interventions	- There is no data or evidence regarding the impact of the project on renewable energy production - Implementation of the pilot ED has led to a 34,3% in energy savings
Impact: Elimination of ODS, high impact on global warming and energy consumption	- The implementation of the La Alpujarra District had led to the suppression of traditional and outdated AC systems and unit, giving way to the reduction of ODS in the user buildings. - The pilot project has enabled a total reduction of 2,586 tCO₂/year (i.e. - 56.4% compared to the business as usual scenario).
Impact: Reduction of harmful emissions	The pilot project has enabled a total reduction of 2,586 tCO₂/year (i.e. - 56.4% compared to the business as usual scenario)..
Impact: Demonstration of the environmental welfare benefits of the ED as well as its potential for replication	The La Alpujarra pilot demonstration ED has clearly allowed to generate a body of evidence and information which demonstrates the environmental, technical and economic benefits of the ED, as well as its potential for replication. This information is currently being disseminated with other stakeholders in interested parties in the country. However, most of the evidence on the benefits of ED is based on quantitative forecasts which are produced ex-ante to the development of the Alpujarra District. Additional work needs to be conducted to verify the precision of these estimates.
Outcome: Savings in GHG emissions in t CO ₂ achieved per year (<34.14%)	- Implementation of the pilot ED has led to a 34,3% in energy savings - The project does not make it clear at what scale it intends to achieve this outcome (e.g. city, ED, country).
Outcome: Environmental Savings compared to a conventional replacement: issuance of ODS (100%); production of substances with GWP (>81.33%), and consumption of KW (>31.40)	- The Alpujarra ED has allowed to eliminate the great majority of ODS-dependent cooling solutions in the client buildings The ED itself makes use of a limited amount of ODS. - It remains unclear to what extent the GWP target has been reached - It remains unclear why the project would aim to increase consumption in KW by 31%
Outcome: Number of urban environmental authorities that include the promotion of ED in their strategies (5)	The project has led to the introduction of ED as a potential solution in the wider framework of urban environmental, climate change and energy efficiency strategies and plans. 7 cities that are in the process of including ED in their development strategies, Cartagena has already done it.
Outcome; Number and type of measure / reforms in energy policy implemented	The project has generated a number of policy change at the national level, which are improving the framework conditions necessary for the development of ED projects. Examples include the air conditioning NAMA which is in the process of being developed, the regulation for heating installations in buildings (<i>Reglamento Instalaciones Térmicas en los Edificios</i>), and the action plan of the Energy and Mining Unit of the Government of Colombia.

2.2.1.2 Overview of project outputs

The following table provides an overview of the state of play of each of the project outputs and related indicators.

Table 4 Overview of state of play of project outputs

Outputs	Expected output KPI and target values	Project achievements until July 2018
Construction of the La Alpujarra administrative centre's energy district	The energy district is constructed by 2015	The ED is constructed
Operation of the La Alpujarra administrative centre's energy district	- The energy district is operating by 2015 - Agreements / MoU signed with clients (5)	- The ED is operating and has a client base - Although customer surveys have been planned, they have not been carried out at the

	• Temperature of cold water (>5C°) • Number of customer surveys (ex post and final: 10) • Customer satisfaction (>80%) • Document of learned lessons from ED “La Alpujarra”	time of this evaluation . There is no quantitative appraisal of customer satisfaction. The evaluation did verify customer satisfaction of one of the ED clients. • A ‘lessons learned’ document has been developed. There are now available indicators on how it was circulated and to whom.
Energy Efficiency measures for the La Alpujarra administrative centre energy district’s buildings	• Number of agreements with customers (>4) • Number of supported proposed adjustments for the EE in buildings connected to the ED (>5) • Value of customer input for investment (>80%)	• This activity was replaced in the end by another activity aimed at providing consultancy services to ED clients, in order for them to introduce better building energy management systems. It is unclear how many of these recommendations stemming from the consultancies were actually implemented. As a result, there is not data on value of customer input for investment. • It’s worth highlighting that the project allocated close to \$660k USD to this particular component under component one, the outcomes are not clearly quantified (e.g. concrete measures taken as a result of the consultancies undertaken).
Normative, fiscal and institutional measures and tools	• Barriers analysis report • # of rules (laws, decrees, regulations) as amended and / or published (>1) • Number of users (companies, customers) of new financing mechanisms • NAMA in the AC sector in Colombia is published	• The NAMA on AC is in the process of being finalized • Barrier analysis report is finalized. • The project contributed to the decision taken at the national level to exempt ED-related imports from being taxed • There is no data or evidence available on the number of users of new financing mechanisms
Technical and business measures and tools	• Methodology for the identification and selection of DT: – # of identified technologies – # of financial models – # of business models – #of institutional models – # of financing solutions • Number of contracts • Number of type enforcement policies	• It is unclear what the contracts and enforcement policies refer to under this specific activity • Contract types for the selling of cold water and insurance framework have been developed • Revision of building code ongoing • Development of energy density maps in 5 cities, identification of 15 priority areas for DT and development of 5 business plans, in addition to a pre-feasibility study for an industrial DT
Energy district projects in five Colombian cities	• National Mapping of ED (5) • Number of business proposals of ED (5)	• Feasibility studies and business cases developed for 5 ED at the national level • None of the identified ED have been implemented, nor is there evidence of there being concrete actions or plans for roll out in the short term. The project has led to the signature of 8 Letters of Interest with interested companies. • Business workshops have been developed in each of the cities
Trainings and diffusion of the energy district benefits	• Selection of key target groups	• Capacity building is currently being implemented

2.2.1.3 Other significant (i.e. intended and unintended) project results

The project performance framework used in the previous sections to present project achievements to date fails to fully present the results generated as a result of its implementation. The first and most important result stemming from the project is the introduction of a new technological solution – in a context where it was virtually inexistent previously – with the potential to turn climate change commitments into tangible results. The project has had a significant demonstration effect which has led to a ripple effect across the public (national, regional and local) sector, as well as the private sector. To this extent, the project has significantly bridged the technology demonstration gap which now makes the ED solutions much better suited to sustainably enter the Colombian market. The demonstration effect is based on the generation of verifiable technical and economic performance data from the Alpujarra District, technical and economic feasibility studies conducted by high-level experts and consultants. Most importantly, the project has supported the development of an attractive ED in Medellin which people can see and from which they can draw inspiration. Being the first district cooling system in Colombia and all Latin America, the new facility also serves as a centre for information and technology transfer. Given its location in an urban area in transformation, EPM has been requested to include in its district cooling facility a small public park for the local population (which is today maintaining it) and to build an attractive green building with plants.

The project has also had an important capacity-building effect at several levels:

- At the level of EPM, the project has certainly contributed to the utilities' capacity to effectively design, implement and manage an energy district of this nature and scale.
- At the participating city-level, the project has increased capacity to adequately measure energy use at the local level via the use of energy diagnosis methodologies; but has also provided a significant and useful body of energy consumption data which is helping to inform other policy actions and decisions at the local level.
- The project has also facilitated working groups of stakeholders interested in the subject, which have actively engaged with the project and acted as recipients of project-generated information. The development of these working groups has enabled the sharing of information not only from the project to third parties, but also across different project stakeholders. In some cases, the project has even led to private data and information sharing among energy utilities (both private and public). The likelihood of this happening without the support of the project and the trust it managed to generate among partners is very low. For instance, the project led to the signing of a confidentiality agreement which enabled the sharing of information on energy consumption between two utilities (EMCALI and Gases de Occidente).
- There is an increased awareness of how the energy district is closely related with urban planning and how it improves it.
- The project has also reinforced the capacities of energy and maintenance managers and engineers within each of the different client buildings of the Alpujarra district; who are much more knowledgeable regarding the added benefits linked to the use of the ED as a cooling provider.

At the policy-making level, the project appears to have acted as a real eye opener for policy makers and practitioners who were generally unaware of the existence of this type of technology and of the utility it could have in the Colombian context. This has led to the introduction of ED into a number of national and local policy documents, as well as to an increased level of awareness and buy-in for the ED solutions. The project has shed significant light on ED in Colombia, and appears to have led to similar spill-over effects in other countries in the region which have expressed interest in learning more about the Colombia experience in developing ED.

In addition, several stakeholders highlighted the project's achievements in terms of creating a multi-level government discussion and dialogue. According to them, the project created a relevant platform for collaboration between national agencies and ministries (e.g. MADS) and regional stakeholders (e.g. local environmental agencies). The project also created a platform between the private and the public

sector on an issue of common interest. Both of these elements were highly valued given that they are not widespread and common practice in Colombia.

Last but not least, the La Alpujarra ED has generated a number of direct benefits for its operator (i.e. EPM) as well as for its clients and users. Since transitioning into the use of ED-generated cooling, one of the interviewed users cited the following benefits:

- Lower costs linked to energy consumption compared to before;
- More comfortable working conditions for employees, and more reliable temperatures in the building;
- Additional space in the building, in places where chillers used to be.

Overall, while it remains likely that Colombia would have eventually taken up ED solutions at some point, the SECO project appears to have acted as a catalyst for this to take place. The project is indeed actively contributing to overcoming some of the main market failures preventing a more widespread deployment of a relatively proven technological solution. In spite of this, there is still a very high level of uncertainty regarding the actual deployment of the ED projects in the four remaining cities involved in the project.

In Bogota, city officials clearly stated that the implementation of the ED was not viable nor a short-term priority. In other cities, while the level of interest in the project appears to be high, the evaluation found no evidence of concrete steps being taken in order to go into an investment phase of these projects.

2.2.2 Financial leverage effect of SECO contributions to energy efficient city projects

The financial leverage of the SECO project is two-fold:

- The financial support provided by SECO triggered a significant investment on behalf of EPM for the development of the Alpujarra ED. The total investment cost of the ED is approximately \$20M USD, while the SECO contribution represents only \$2.1M USD. This represents a 1:10 co-financing ratio, which in theory, was enabled by the SECO Energy District project. While it's difficult to demonstrate whether and the extent to which EPM could have financed this endeavour in its own, it appears that the SECO contribution did not as much trigger the EPM investment, as it did provide upper EPM management with some sense of reassurance regarding the quality and feasibility of the project.
- The SECO project also generated \$0.76M USD in co-funding from the MADS, mostly as an in-kind contribution of staff time.
- Local stakeholders (i.e. other participating cities) also contributed with in-kind staff time and resources to organise local meetings and events.

The SECO financial contribution can be seen to represent seed funding for the development of the ED pilot. The benefits of having this pilot have been clearly set out in previous sections of this report. Most importantly however, the remaining SECO contribution for the operating budget of component two of the project (i.e. over \$1.2M USD) has enabled to disseminate information generated through component 1 to a broader network of local stakeholders (i.e. pilot project capitalisation), as well as to improve the framework conditions at the national and local levels for the implementation of future ED projects. The decision to co-finance less than 30% of the original budget of component one (i.e. investment costs of the ED), and more than 80% of component two appears to be completely justified and reasonable.

2.2.3 Contribution of the project to SECO visibility and clout on the international stage

The project has spurred a significant amount of interest both nationally and internationally, which has in turn generated a good level of exposure for SECO and the Swiss government. All of the interviewed stakeholders were aware of the fact that this initiative was being supported by the Swiss government, and several of them had participated in the study visit to Switzerland which took place in the early stages of the project. Of course, given that this is a bilateral project, exposure is mostly limited to the national context. In spite of this, in terms of promoting Swiss visibility, this project appears to have gone very far. Thanks to this, Switzerland has gained significant exposure, even among other donors which are aware

of the project, as a donor having supported a highly successful and innovative project. The Swiss flag and SECO logo generally appear on project documents and presentations, and SECO representatives have been directly involved in the delivery of a wide range of project activities and events. The evaluation has not revealed any missed opportunities which would have allowed the project to further promote Swiss visibility and promote strategic priorities.

2.2.4 Level of harmonization of projects with other (i.e. external or non SECO funded) projects, initiatives or donors; and added-value/constraints brought about by harmonization

There has been very little interaction between the SECO energy district projects in Colombia and other non-SECO funded activities (e.g. projects implemented by other donors such as the World Bank, the Inter-American Development Bank, the Global Covenant of Mayors). The evaluation did not reveal the existence of other non-SECO initiatives with high potential for synergy-development.

This said, an analysis carried out as part of the evaluation did reveal that Bogota is a signatory of the Global Covenant of Mayors⁶; and that the Emerging and Sustainable Cities Initiative supported by the IDB (and financed in part by SECO) has been deployed in the cities of Barranquilla and Cartagena⁷. It is unclear whether SECO took into account the participation of these ED project cities in these external initiatives in the project design or implementation phases of the ED project.

2.2.5 Appreciation of the Swissness of the project

The Swissness of the project can be linked to the following three project elements:

- The use and reliance of the project of Swiss know-how in the field of ED development, which was channelled via the project back stopper. The consultancy hired to carry out the role of project back stopper⁸ (i.e. First Climate Consulting) has significant experience developing ED projects in Switzerland and Europe as a whole. The consultancy provided a steady flow of technical assistance and advice (e.g. technical, methodological) to the project team throughout the course of the project, which in many cases was based on Swiss know-how and expertise. The project back stopper was also directly involved in the design of the ToR for the consultant responsible for conducting the energy diagnostics in the participating cities of component 2, which allowed for an influx of a Swiss approach to the methodology being used for that purpose. Another example of Swissness is the suggestion made by the technical consultant to use ammonia chillers as part of the EDS development, which is a more natural solution compared to other incumbent technologies.
- The implementation of a study visit to Switzerland which allowed to carry out a number of site visits of existing ED, which served as inspiration to Colombian stakeholders involved in the different components of the project.
- The project management procedures and working culture which in many cases were described by local stakeholders as being very “Swiss”. This referred to elements such as punctuality, flexibility and willingness to focus on solutions rather than problems.

In addition to these elements, direct project partners and beneficiaries expressed a high level of gratitude and appreciation with regard to working with SECO as a donor. One of the main cited advantages of doing so is positive image Switzerland has abroad which reflects positively on the project and increases its visibility and legitimacy.

The evaluation has not revealed any missed opportunities which would have allowed the project to further enhance its Swissness.

2.2.6 Role of European Energy Award in delivering support to energy efficient cities

The European Energy Award is not directly relevant to this project.

⁶ <https://www.globalcovenantofmayors.org/cities/bogota/>

⁷ <http://servicesaws.iadb.org/wmsfiles/images/oxo/mapa001-42602.jpg>

⁸ The credit proposal officially refers to this role as ‘technical consultant’

2.3 Efficiency of the Colombia Energy District project

2.3.1 Global appreciation of the cost-efficiency of the project

The overall appreciation of the project's cost-efficiency is positive, particularly when looking at the total outputs and outcomes of the project and the total volume of resources investment (by SECO and other project funders).

However, one caveat needs to be introduced to this appraisal linked to the fact that a project officer in the SECO Colombia office spent a significant amount of time on project management and coordination functions. This effort is not accounted for in the project's budgetary table/forecast, nor has SECO produced or recorded figures on the amount of time dedicated to these tasks. This makes it impossible to provide a detailed estimate of the additional in-kind funding provided by SECO to project management and coordination via the local project officer. However, on the basis that project management represents \$300,000 USD and that the technical consultant was allocated \$580,000 in the project budget, the total overhead of the project (e.g. project management, evaluation and contingencies) appears to be relatively high. If an additional \$100,000 in in-kind contributions stemming from the Colombian project officer's time were to be added to this total, it would appear that project overhead represents approximately 12% of the total SECO contribution⁹.

2.3.2 Global appreciation of the quality / relevance of project management/steering/oversight (i.e. backstopping) arrangements and potential for improvement

The project organisation and governance schemes which were implemented in practice differ to some extent from the arrangements initially foreseen in the credit proposal. The main differences are:

- EPM was originally designated to act as the implementing partner of the project (listed as the implementation agency in the credit proposal), in charge of the overall implementation of both of the project's components. Under this role, EPM was meant to be responsible for contracting construction works, external consultants, managing procurement processes and reporting to SECO. EPM was expected to appoint a project coordinator to ensure the proper implementation of each activity and the formulation of the Annual Operating Plans. In practice however, EPM ran into significant difficulties carrying out the necessary procurement processes as part of the project, given the fact that it is a semi-public entity with heavily bureaucratic purchasing process. As a result, it was decided that SECO would take an active role in facilitating procurement procedures (contracts with specialised consultant firms) with permanent support and monitoring of the MADS and the back-stopper, in addition to technical consultation to the EPM team for all the technical products provided by the consultant firms. EPM still provided biannual progress reports on the project. A staff member from the MADS Ozone Unit, seconded to EPM with the support of SECO funding, played a key role in managing and coordinating the project. It is understood that this consultant's work was covered via the project management line in the project budget (i.e. \$300,000).
- The membership of the Steering Committee¹⁰ is not the same as what was envisaged in the project proposal. In reality, membership appears to have been delegated to lower level representatives of the member institutions. For instance, the project proposal originally foresaw that the MADS Vice-Minister would sit on the Steering Committee of the project, which was not the case in practice. This change does not seem to have generated any negative consequences on the project or its capacity to deliver on its commitments. However, politically and strategically speaking, the project may have incurred an unnecessary risk of limiting the amount of information going to higher levels of management in key partner institutions, regarding project performance and outcomes.

⁹ This figure has been developed on the basis of half of the technical consultant's time being used for project management, backstopping and coordination tasks.

¹⁰ Steering Committee and Advisory Committee meeting minutes were not made available to the evaluation team.

- The technical consultant¹¹ role described in the credit proposal was carried out by an external consultant. However, the technical consultant seems to have played a much broader role in the project than the one described in the proposal. Indeed, the technical consultant played a key role in the overall project management and coordination, as well as project back-stopping (e.g. he is often referred to as the project back-stopper). The credit proposal mainly focused on the role as a facilitator of knowledge transfer with Switzerland.

The adjustments described in the previous bullet points were taken in order to ensure a proper implementation of the project, after an initial difficult launching phase. As such, this new arrangement played a key role in allowing the project to reach its goals. This said, several stakeholders indicated that in hindsight, the project management structure and oversight may have benefitted from a different design scheme. In particular, the project may have been run more efficiently through the use of an external third-party implementing agency (which is common practice in other SECO projects). This would have allowed to: reduce the work burden on the SECO project officer in Colombia, facilitate the procurement process, and get the project launched more promptly.

In spite of the adjustments which were made to EPM's role, EPM and the MADS still played a key role in project delivery and implementation. It would be difficult to envisage the same level of project success without such a proactive engagement and commitment on behalf of these two local partners. Both were key to opening doors locally and nationally, creating local networks and spurring interest and stakeholder commitment and buy-in for the project. They also gave the project a significant legitimacy.

The value and the importance of having the technical consultant involved in the project was universally highlighted by interviewees. The consultant and the related team appear to have been strongly committed to the project and were closely involved in the majority of the project activities. However, it is difficult, from an evaluator's perspective, to judge the extent to which the resources allocated to the technical consultant match the quality and volume of the support provided.

2.3.3 Degree and quality of project monitoring and evaluation

The project implementation was regularly monitored by EPM (see project implementation reports produced by EPM) as well as by the technical consultant (see implementation reports produced by the technical consultant). Both reports provide a good overview of the project implementation process, main achievements and level of spending. This allowed the project's evolution to be closely monitored as well as to address any emerging issues or challenges via notably the project advisory committee. In addition to this, external financial audits were carried out as part of the project.

It is regrettable however that project monitoring did not make use of the official project performance framework and related KPIs as per the project credit proposal. Most of the information presented in the progress reports is qualitative in nature and does not always refer to the original project performance framework.

The project foresees \$200,000 for financial audits and an external final evaluation. The latter has not yet been carried out.

2.3.4 Level of spending (vis à vis original plans) of the project

In general terms, the level of spending is line with original project forecasts and timetable. There have been no notable shifts across budget lines. Some of the most important adjustments introduced to the original budget (and work plan) include: the approved the use of the contingency budget (around \$500,000) to purchase ammonia chillers for the Medellin ED, involving two additional cities and carry out an ED feasibility analysis, broaden the C2 subcomponent on institutional strengthening, among

¹¹ According to the project proposal «a technical consultant will be contracted by SECO to assist EPM and the MADS with the implementation of the project and to provide technical support to SECO. The Technical Consultant shall ensure a knowledge transfer with Switzerland and therefore will be responsible for identifying one or several Swiss public utilities that have implemented enery districts, cooperating with research centers, and organizing study trips and or exchanges to Switzerland”.

others. The two additional cities (Monteria and Pasto) are also part of another recently launched SECO-funded project in Colombia 'Ciudades Energéticas' (EEA).

This said, the total overall cost of component 1 of the project was significantly underestimated at the project development phase. As a result of this, the financial contribution made by EPM for the development of the pilot ED in Medellin ended up being considerably higher than originally foreseen.

2.4 Sustainability of the Colombia ED project

The degree of sustainability of the project varies strongly between both of its components. For component 1 (i.e. La Alpujarra energy district), the degree of sustainability is very high now that the ED is operating in full throttle. The ED still has capacity to take on additional clients, which would probably contribute to fully stabilise its business model and sales pipeline, but this is likely to happen in due course and as additional buildings in the district decide to invest in renewing their AC systems¹². EPM has the capacity to independently manage and maintain the ED in the medium to long term.

On the other hand, there is a higher degree of uncertainty when it comes to component 2 of the project (i.e. promotion of new energy districts at the national level in Colombia). While the project has heavily contributed to bridge the gap between cities unwilling or unable to invest in an ED project, and those which are prepared to invest in such a project, it is uncertain whether after the end of the project this will actually take place¹³. This uncertainty can be attributed to several factors including the fact that cities and utilities are unsure of the level of demand that would exist for an ED; as well as a current fiscal loophole which exists in Colombia with regard to Value Added Tax on the provision of this type of service. Regarding the latter issue, cities and utilities fear that if VAT were to be applied to the provision of cooling services via ED, the financial feasibility of implementing ED would be considerably reduced. The existence of sources of funding for the implementation of the ED does not appear to be at the top of the list of exiting barriers to ED project implementation.

It is worth mentioning however that at the time this evaluation took place, several component 2 activities were yet to take place. It is thus likely that during the remaining lifetime of the project further results are to be achieved under component 2.

This said, the SECO project does seem to have planted seeds and developed information which is likely to enable other players (i.e. outside of the five selected cities) to implement ED in different contexts and formats, compared to those envisaged for the five component 2 cities. One utility interviewed as part of this evaluation clearly signalled their interest to continue investing in both intramural and extra-mural ED solutions of their own, but mainly in new buildings or districts. A second utility highlighted the value of SECO related analyses of EDs, because the numbers they produced were very much in line with their internal calculations regarding the ROI for such a project.

In addition to this, governmental authorities in Colombia are also working on improving the regulatory framework for a more rapid deployment of ED solutions (e.g. reduced transactional cost and regulatory risks for potential investors). The efforts undertaken by government actors such as the ministry of energy – which are directly linked to the SECO project - are likely to generate medium-term effects which will considerably improve the ED market and business environment. This is also very like to spur additional investments in places where SECO is not currently working.

The importance of thinking beyond the five cities supported in the context of this project should not be underestimated. The national and regional relevance of this project has been highlighted from its early phases, and the interest it has generated beyond the Colombian borders is a clear indication of this. As a result, a key driver of sustainability (as well as of broader project spill overs) lies in the project's capacity to codify and capitalise on the wealth of experience and information it has managed to produce

¹² Currently, many potential new clients are unwilling to plug into the ED given that their cooling systems are fairly new and do not require replacing.

¹³ Eight Letters of Interest have been signed with interested companies.

so far. The efforts to communicate on project results beyond direct project stakeholders and beneficiaries remains limited¹⁴. If no further actions are taken to enhance this, the project's capacity to generate change beyond its existence (i.e. project replicability) will be limited. The likelihood of generating long-lasting and wider change would be greatly increased were the project able to package and normalise the information drawn from its experience, so that other cities or utilities interested in undertaking a similar endeavour could start at a more advanced level of the learning curve. According to project representatives, the development of a ED guidebook is foreseen at the end of phase 2 of the project.

3 Conclusions and recommendations of the case study

The analysis conducted as part of the case study has shown the Colombian Energy Districts project has been successful in reaching the majority of its expected objectives (mainly in terms of activities and outputs) and has led to the generation of a number of positive changes. The project addressed a clear and relevant issue, which is fully in line with the needs and priorities of a number of beneficiaries and stakeholders in Colombia. The project is also – in general terms – in line with SECO priorities and its approach to supporting energy-efficient cities. The expected results under component two of the project have not yet fully materialised, but it can be expected that further progress will be achieved given that activities had not yet been fully implemented at the time this evaluation was conducted. In spite of this, it appears unlikely that any of the five additional ED projects will see the light of day without further SECO support beyond the current project.

In spite of this overall positive appraisal, the case study has shed light on a number of issues which could help SECO further improve the implementation of similar projects in the future. Given that the project is reaching its final months of implementation, recommendations presented in the following table relate to the potential for an extension of the project, as well as general recommendations for SECO bilateral projects; rather than to adjustments to be implemented during the remaining lifetime of the project.

Recommendation 1: In the future, further due diligence should be conducted to ensure that the appointed implementing partner is fully equipped to conduct their role.

EPM was not well-equipped to act as the main implementing partner of the project, and particularly its second component. This led to adjustments which significantly increased the level of direct involvement of local SECO staff in the management and coordination of the project, which in all likelihood increased the overhead of the project and limited its cost efficiency. Future projects should thus conduct a more detailed due diligence of potential implementing partners to avoid this from occurring.

Recommendation 2: Potentially diversify the types of ED being promoted and supported in the Colombian context.

Project focus was set only on promoting the development of extramural ED in previously existing urban areas, and particularly those which are occupied by state or local public institutions. This approach makes for a very particular types of ED, and perhaps the most complex one compared to other alternatives such as: intramural ED, extramural EDs in new urban areas (yet to be constructed), or extramural areas with mainly private clients. While the selection of the EDs was the result of a bottom-up approach, future initiatives could also look at promoting the development of less complex and costly EDs for the purpose of demonstration. Albeit less ambitious, intramural EDs also offer the possibility of achieving efficiency gains and are less complex to implement given that there is a single source of supply and demand.

Recommendation 3: Ensure that project results are communicated and capitalised on, to reach broader audiences and increase the likelihood of uptake beyond project's lifetime.

¹⁴ The project has been presented at some international fora, and some ad-hoc presentations have been prepared.

The efforts to communicate project results beyond direct project stakeholders and beneficiaries was limited at the time the evaluation took place. The project should thus ensure that additional communication and capitalisation measures (many of which are foreseen) are implemented, in order to increase the likelihood of generating long-term change and facilitate replication in other contexts.

Recommendation 4: In the future, similar urban energy infrastructure projects should be implemented in the framework of broader urban planning and renewal strategies.

The Energy District project in Medellin and the different feasibility studies it conducted as part of its second component were not part of more global urban development plans or urban energy strategies. Developing these types of initiatives in the context of broader urban renewal and development strategies would not only increase the likelihood of implementation but could also generate additional positive social and environmental spill-overs. As captured in the present case study, ED projects have the potential of transforming their immediate urban environments.

Recommendation 5: Ensure the project reports on progress and results achieved under each of its KPIs on the basis of real data.

While there is a global positive appreciation of the project and the results it has managed to achieve, further work should be undertaken to accurately report on each of the KPIs identified in its performance framework. If the project is unable to report on such indicators, then it is recommended that this be formally acknowledged, and that KPIs are updated in order to better reflect project achievements. In addition, the project should provide further clarity on the results and outcomes of the energy management studies conducted for the La Alpujarra ED users, which represent an important share of project funding.

15 November 2018

SECO WE Independent Evaluation of Energy-Efficient Cities

Case study Ukraine

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List of abbreviations

CHP: Combined Heat and Power

CHF: Swiss Francs

CoM: Covenant of Mayors

E5P: Eastern Europe Energy Efficiency and Environment Partnership

EEA: European Energy Award

EBRD: European Bank for Reconstruction and Development

EE: energy efficiency

EIB: European Investment Bank

ESCO: Energy Saving Company

GHG: Greenhouse Gas

GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)

KfW: Kreditanstalt für Wiederaufbau

KPI: Key Performance Indicators

M&E: Monitoring and Evaluation

MoU: Memorandum of Understanding

NDC: Nationally Determined Contributions

NEFCO: Nordic Environment Finance Corporation

O&M: Operation and Management

ORC-CHP unit: Organic Rankin Cycle-Combined Heat and Power SC: Steering Committee

SEAP: Strategic Energy Action Plan

SECO: Secrétariat d'Etat à l'économie (State Secretariat for Economic Affairs)

SFOE: Swiss Federal Office of Energy

WEIN: SECO WE Infrastructure Financing Section

WB: World Bank

UAH: Ukrainian hryvnia

UNDP: United Nations Development Programme

USAID: US Agency for International Development

ZTKE: ZhytomyrTeploKomunEnergo

1 Introduction

1.1 Objective and rationale of the case study

In line with the Approach Paper ‘SECO WE Independent Evaluation on Energy-Efficient Cities’, the purpose of the case studies is to provide an in-depth assessment of the concrete implementation of relevant approaches and achievements. Additionally, the objective of the case study is also to come up with specific lessons and recommendations which could inform future SECO activities in Ukraine and elsewhere.

The choice of Ukraine as a case study was based on SECO’s activities in the country: SECO has funded several projects, including two Energy Efficiency projects in Vinnytsia and Zhytomyr, in addition to contributing to the E5P Fund. As EEA implementation has progressed, especially in Vinnytsia, there are also a number of lessons to draw on from the EEA. This gives a more comprehensive overview of the variety of tools and projects offered by SECO.

1.2 Scope of the case study

The current case study covers two projects:

- Energy Efficiency project, Vinnytsia;
- Energy Efficiency project, Zhytomyr.

The case studies focused on addressing the DAC evaluation criteria relating to relevance, efficiency, effectiveness and sustainability. We have included any additional insights on the European Energy Award (EEA) and ‘Swissness’ of the projects which we could be useful in terms of lessons learned.

1.3 Methodology

The case study was drafted based on an analysis of project documentation and interviews carried out by phone and during a three-day site visit to Vinnytsia and Zhytomyr. The interviews in Vinnytsia and Zhytomyr were conducted in the format of a focus group with the beneficiaries and other relevant experts and consultants related to the project. Follow-up discussions with project managers were used for clarifying certain issues. SECO staff comments and feedback during a Capitalisation workshop which took place on 26th September 2018 in Bern were also taken into consideration.

2 Ukrainian context and project overview

2.1 Ukrainian context in brief

Ukraine is one of the least energy-efficient countries in Europe. As the energy sector represents more than 10% of the national economy its inefficiency is a major obstacle to economic development. At the same time the sector is highly dependent on imported Russian gas, the price of which has been rising over time. For a number of years there have been efforts to reform the energy sector with the purpose of addressing environmental, climate and security issues. Cities, and especially their district heating systems (consuming up to 45% of Ukrainian energy consumption), could be considered main actors in the transition to an improved energy management approach. Both the Vinnytsia and Zhytomyr projects could be placed firmly within this context.

2.2 Vinnytsia Energy Efficiency Project (UR-0469.01.01)

Figure 1 Vinnytsia project parameters

PSP No	UR – 00469.01.01
Title	Energy Efficiency in Vinnytsia

Total budget	27.15 million CHF
SECO financing	20.6 million
Project duration	01.07.2011 – 31.12.2015. No-cost extension until 2019.
Project beneficiary	Municipality of Vinnytsia; Public Utility Vinnytsia Misk Teplo Energo

The Energy Efficiency project in Vinnytsia was designed to support the city on its way to becoming more energy efficient through the rehabilitation of the municipal district heating system and by building the capacity of the municipal heat-providing public utility. It is a bilateral project and the project's beneficiaries are the Municipality of Vinnytsia and the Public Utility Vinnytsia Misk Teplo Energo, which supplies 89% of the city's heat and warm water. The project is the second phase of a partnership which started as a transport programme involving the transfer of old trams from Switzerland to Ukraine. It is also the first of the three Ukrainian projects funded by SECO with an energy efficiency component.

Table 1 Project components and performance indicators for the Vinnytsia project

Component (and expected outcomes)	Sub-components (and expected outputs)	Outcome indicators	Impact indicators
European Energy Award Policy Component (More sustainable municipal energy management and more sustainable energy use)		Development of municipal energy management (Sustainable Energy Action Plan)	GHG emission reduction
Investment component (Reliability of heat and warm water supply in two districts increased)	Rehabilitation of Karl Marx boiler station Rehabilitation of Tarnogradskogo str. boiler station (renamed to Zulinskogo in 2016) Supply of hot water in Vishenka	Development of heat and warm water supply in two districts	
Capacity-building component (Sustainability of public utility increased)		Development of heating utility performance (financial figures)	

2.3 Zhytomyr Energy Efficiency Project (UR-00645.10.01)

Figure 2 Zhytomyr project parameters

PSP No	UR – 00645.10.01
Title	Energy Efficiency Project Zhytomyr
Total budget as per MoU	18.6 million CHF
SECO financing as per MoU	15.1 million CHF
Project duration	2014 - 2018

Project beneficiary	Municipality of Zhytomyr, Public Utility ZhytomyrTeploKomunEnergo
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The Energy Efficiency project in Zhytomyr is remarkably similar in nature to the one in Vinnytsia and, in part, takes its inspiration from it. As in Vinnytsia, it is also a bilateral project and includes the rehabilitation of the municipal district heating network, building the capacity of the public utility and raising public awareness about energy efficiency and renewable energy. Zhytomyr City Council and ZhytomyrTeploKomunEnergo (ZTKE) are the beneficiaries of the project.

Table 2 Project components and performance indicators for the Zhytomyr project

Component (and expected outcomes)	Sub-components (and expected outputs)	Outcome indicators	Impact indicators
European Energy Award Policy Component Outcome: Sustainable energy policy and urban development are achieved in Zhytomyr and other participating cities through the rational use of energy and use of renewable energy	Introduction of EEA in Zhytomyr National introduction of the EEA	Zhytomyr is awarded the EEA Zhytomyr Energy Policy Programme is developed. Measures in the EPP are implemented Long-term financial strategies for sustainable energy efficiency measures are developed and approved in selected cities	GHG emission reduction
Investment component Outcome: Reliability of heat and warm water supply in two districts increased Outcome: Living standards and comfort level of the end consumer increased Outcome: Energy efficiency of the DH company is increased Outcome: GHG emissions are reduced Outcome: The energy consumption of selected kindergartens is reduced	District heating network rehabilitation Thermal rehabilitation of public buildings	Hours of service, duration of repair and number of breakdowns Temperature in the network and households is better regulated Annual GHG emissions Additional KWh from renewable energy and energy efficiency measures Number of persons having access to improved public services Energy consumption per kindergarten	
Corporate development and capacity-building Outcome: The operational management of the DH company is improved Outcome: Management and financial sustainability of the DH company improved Outcome: Responsible departments of the municipality are better informed about the energy management of public buildings	Corporate development within ZTKE Corporate development within the municipality	O&M costs of ZTKE decreased Financial performance of ZTKE as well as product/service quality increased O&M costs of public buildings decreased	

2.4 Similarities and differences between the projects

The structure of both projects is similar. **Both projects** have an investment component (the rehabilitation of district heating networks representing a large part of the costs); a capacity-building

component of a mostly technical nature (directly linked to the investment component); and EEA as a tool for energy management and energy planning. Both projects have the same beneficiaries (the municipal council and utility) and end beneficiaries (citizens). The **difference** between the two projects comes from the fact that the Zhytomyr project includes demand-side measures covering a complex thermal insulation of five kindergartens, meaning that there is an additional category of beneficiaries in this project.

The fact that both projects have three components including a capacity-building and EEA component has been assessed as very positive by all interviewees. This approach is markedly different from the situation until several years ago, when SECO only financed ‘hard’ components (such as infrastructure and equipment) in certain countries.

There is also a difference in the **technical solutions** for both projects: a wood-fired boiler station was introduced in Vinnytsia (one of the first of its kind in Ukraine) and a biomass-based combined heat and power (CHP) boiler in Zhytomyr.

A SCADA system for energy management has been installed only in Vinnytsia so far; the Zhytomyr project does not currently cover SCADA installations.

There is an additional, slight difference between the projects with regards to the EEA component, whereby the Zhytomyr project also includes the extension of EEA at the national level with the support of an intermediary in the form of the Ministry of Regional Development, Building and Housing and Communal Services of Ukraine.

2.5 Developments since the signature of the credit proposal

As signalled by the interviewees, there have been certain project developments that had not originally been foreseen in the credit proposals. These occurred in order to respond and better adapt the projects to changing circumstances.

Given that over its second phase (2011) the **Vinnytsia project** had proved remarkably successful, with some savings being realised within the investment component (due to tenders being below initial estimations), additional activities were added and the project was extended to encompass interventions in a total of four districts. The MoU has been updated with the additional activities. The additional measures were in line with the original action plan and the EEA (e.g. co-funding of bike rental system and bike parking lots, and awareness raising measures around energy efficiency such as the green office – a one-stop shop for citizens on EE). A further extension of around 9 months is meanwhile foreseen in order to complete the latest activity within the investment component (hot water supply in Vishenka district), which is to be financed with project savings.

In **Zhytomyr**, the technical part of the project differs from what is included in the credit proposal. Instead of rehabilitating several boiler houses, the decision was taken to reconnect some networks and to use Organic Rankin Cycle-Combined Heat and Power (ORC-CHP) units as an alternative to boilers. The changes have been agreed by the Steering Committee.

3 Relevance

3.1 Relevance of the project to the SECO WE Strategic goals and objectives

The challenges addressed by the two projects correspond to the challenges identified in the SECO Energy Efficient Cities Intervention logic: a lack of reliable and clean energy infrastructure; increasing demand for energy (especially pertinent in terms of Vinnytsia’s growing population); energy accounting for approximately two-thirds of overall GHG emissions (valid for the whole of Ukraine due to its low energy efficiency); a low level of energy planning, management and monitoring; and a lack of necessary knowledge.

The expected outcomes of both projects are fully in line with the outcomes envisaged in low-emission and climate-resilient economies (i.e. target outcome IV of the New Message to the Swiss Parliament on International Cooperation 2017–2020) and more effective institutions and services (i.e. target outcome I of the New Message to the Swiss Parliament on International Cooperation 2017–2020). These two outcomes comprise SECO's activities on energy efficient cities. The projects are also in line with the intermediate outcome of Business line 2 under target outcome IV 'an increase of sustainable sources of energy supply' and with the intermediate outcome of Business line 3 under target outcome I - more reliable and affordable public services offered by public utilities. The two projects are in line with Domain 3 Sustainable energy management and urban development of the Swiss cooperation strategy for Ukraine 2015-2018.

3.2 Relevance of the project's objectives vis-à-vis country needs and challenges

At the **national level**, both projects are highly relevant to the efforts of the Ukrainian government to improve the energy intensity of the economy which is among the most energy-intensive economies in Europe. The projects are also pertinent to the government's attempts to reduce the country's dependence on imported gas from Russia. It is worth noting that the Ukrainian economy is still largely dependent on Russian energy imports which represents a highly contentious political issue linked to national energy security.

Both projects' objective to improve the capacity of the district heating companies as the main gas consumers, as well as that of the GHG generators and municipalities as their owners, is also highly relevant to the Ukrainian context. Only highly skilled public utilities and regional administration can benefit from future regulatory reforms and improve the standing of the energy sector.

Both projects are in line with international commitments Ukraine has undertaken with regards to the Paris Agreement (ratified on 19 September 2016). Within its intended Nationally-Determined Contribution (NDC), Ukraine committed "to reduce its GHG emissions by at least 40% of its 1990 GHG emissions in 2030". The Vinnytsia project was approved in the context of the Programme of Economic Reforms (2010-2014) while the Zhytomyr project was approved in the context of the Energy Strategy of Ukraine 2030 (including the application of RES technologies). The projects are also in line with the Law on accession of Ukraine to the Energy Community adopted in 2011 and stipulating the need to increase the share of clean energy to at least 15% after 2015.

At the **local level**, the projects are highly pertinent to both cities' goals to embark on a more professional and sustainable approach to municipal energy management.

The **Vinnytsia** project is highly relevant to the local priorities defined in the Development Strategy Vinnytsia 2020. Within strategic priority 3, "significant losses in production, transportation, distribution and consumption of heat energy" have been identified as a major problem for the city. With regard to sustainable transport, the "introduction of cycling as alternative and environmentally friendly transportation mode" is one of the adopted measures.

The **Zhytomyr** project is also fully in line with local priorities set out within the Zhytomyr Municipal Energy Plan 2017-2020 and Sustainable Strategy of Urban Planning and Program of Social, Economic and Cultural Development, 2018.

At the **project beneficiary level**, the project is particularly relevant as it significantly increases the sustainability of the two public utilities, making them among the most progressive in Ukraine. The project fits with the utilities' goals of reducing costs and losses in the district heating systems by improving combustion efficiency; reducing leakages in supply and distribution networks, as well as supplying heat on a demand-driven basis.

3.3 Relevance of project-level key performance indicators (in general and vis-à-vis SECO KPIs) and baseline/monitoring techniques

Both in Vinnytsia and in Zhytomyr the KPIs adopted as a part of the project logical framework approach (LFA or Logframe) correspond to the project goals and objectives and are compatible with the KPIs on portfolio level.

Table 3 Correspondence between project level indicators in Vinnytsia and SECO Energy Efficient Cities Indicators

Project outcome indicators	SECO EE Cities outcomes on portfolio level	SECO Business Lines
Development of municipal energy management (Sustainable Energy Action Plan)	More integrated sustainable urban development	Business Line 1/target outcome IV
Development of heat and warm water supply in two districts	More sustainable sources of energy supply	Business Line 2/target outcome IV
Development of heating utility performance (financial figures)	More affordable and reliable public services offered by public utilities	Business Line 3/target outcome I

Table 4 Correspondence between project level indicators in Zhytomyr and SECO Energy Efficient Cities Indicators

Project outcome indicators	SECO EE Cities intermediate outcome and indicators on portfolio level	SECO Business Lines
Zhytomyr is awarded the EEA Zhytomyr Energy Policy Programme is developed. Measures in the EPP are implemented Long-term financial strategies for sustainable energy efficiency measures are developed and approved in selected cities	More integrated sustainable urban development - Number of urban plans	Business Line 1/target outcome IV
Hours of service, duration of repair and number of breakdowns Temperature in the network and households is better regulated Annual GHG emissions Number of persons having access to improved public services Energy consumption per kindergarten	More affordable and reliable public services offered by public utilities	Business Line 3/target outcome I
O&M costs of ZTKE decreased Financial performance of ZTKE as well as product/service quality increased O&M costs of public buildings decreased	More affordable and reliable public services offered by public utilities	Business Line 3/target outcome I
Additional KWh from renewable energy and energy efficiency measures	More sustainable sources of energy supply	Business Line 2/target outcome IV

For both projects there is a direct correspondence between the project-level indicators and portfolio-level outcomes and outcome indicators.

In general, the correspondence goes as follows:

- The indicators related to the EEA components of the two projects correspond to the SECO Energy Efficient Cities portfolio indicators related to *More integrated sustainable urban development* which is Business Line 1/target outcome IV and Business Line 3/target outcome.
- The indicators related to the infrastructure components of the projects correspond to the SECO indicators related to *More affordable and reliable public services offered by public utilities* (Business Line 3/target outcome I)
- The Corporate development and capacity-building component indicators correspond to SECO indicators
 - More affordable and reliable public services offered by public utilities (Business Line 3/target outcome I)

Both projects have a monitoring system which is logframe-based. The results are updated by the local consultant every six months.

3.4 Relevance of the EEA approach used in the framework of the project vis-à-vis project ambitions and local context

Based on the review of the EEA certification process from inception and based on interviews with various stakeholders we assess the relevance of the EEA approach as very high. This has been the case as the EEA favours an integrated approach to energy efficiency which had been entirely lacking in both cities. Additionally, the EEA process is associated with a certain level of discipline at a municipal level which also needed to be introduced. It also integrates a hitherto missing culture of measuring baselines, setting targets and striving to achieve them.

The entirety of the EEA process and its impacts are reviewed in the effectiveness chapter.

3.5 Coherence with other projects in both cities and added value of approach vis-à-vis other existing and similar approaches for project stakeholders

Both Vinnytsia and Zhytomyr receive funding through the Eastern Europe Energy Efficiency and Environment Partnership fund (E5P). There has also previously been a WB (IBRD) project in Vinnytsia focused on district heating. The aim of the DemoUkraine Zhytomyr project (with NEFCO as an implementing agency) is to introduce demand-driven energy supply to customers, reduce losses in heat distribution and improve the efficiency of heat production. There is a second E5P project in Zhytomyr (with EBRD as an implementing agency) covering the introduction of modern technology; improving the reliability of services to consumers; the adaptation of metering, and the introduction of demand-side management measures changing consumption behaviour. Both projects are complementary to the project under review and demonstrate the willingness of Zhytomyr City Council to undertake a comprehensive modernisation of the district heating sector. However, the existence of several projects with a similar scope requires a degree of caution to avoid any overlapping or duplication.

The major added value of the project vis-à-vis other similar approaches is the unique combination of infrastructure investments (which would have not happened in a foreseeable future) with the capacity-building component and the EEA introduction. It has been acknowledged that the project would not have happened without the SECO contribution. Municipalities would have invested little of their own funds due to constrained financial capacities.

3.6 Relevance of the project partnerships

The municipalities and public utilities are the main beneficiaries and partners of the project. The Ministry of Regional Development, Building and Housing and Communal Services of Ukraine is the formal grant holder and participates in the Steering Committee. They are the relevant partners for this project. Both city halls appear to have adopted an inclusive culture, thereby involving a wider group of

stakeholders and citizens at a local level, especially with regards to the EEA component. These form part of a wider circle of partnerships which has been triggered by the project. This partnership is an indication that civil society (NGOs, active citizens, business representatives, etc.) believes not only in the project itself but also in the wider goal of a transition to a more sustainable energy management.

The Ministry plays a larger, more comprehensive monitoring role, whilst the city also monitors the utility. It has been noted by interviewees in both cities that at the city level, the collaboration between the three actors works very well and that there are no undue interferences.

3.7 Relevance of project goals vis-à-vis economic development ambitions

The project is associated with a strong economic case for individual households. Anecdotal evidence from Vinnytsia (not cross-checked with documentary evidence) from the winter of 2017/2018 tells us that buildings heated by gas could pay up to 42 UAH/m² (in 02/2018) while renovated buildings fitted with Individual Heating Stations (IHS) have been paying between 15-25 UAH/m² during the coldest months. This cost rises to between 28-60 UAH/m² for buildings without IHS. This highlights a very solid economic case for these stations in terms of (energy) poverty reduction.

Additionally, one of the main problems within the Ukrainian economy is the negative trading balance: 6.3 billion USD in 2017 (4 times larger than in 2016), which is mainly due to the impact of imported fossil fuels. In this sense, reducing its dependence on fossil fuel imports is a priority for both the country and the cities.

The EEA approach motivated the Vinnytsia City Council to seek other energy efficiency opportunities, including the renewal of the city's lighting system for which the City Council is installing between 1,800-2,000 LED lamps per year, showcasing the strength of the business case of the project. Vinnytsia's electricity consumption is rising by 20% per year because of electrical equipment and city lighting. For example, in 2006 6,000 bulbs were installed, whilst in 2018 this number had risen to 24,000. The additional efforts needed to thermally insulate public buildings would boost the service market, as just one-sixth of public buildings have already been insulated.

3.8 Relevance of technical solutions

The technical solutions have been assessed as relevant to the Ukrainian context. The combined heat power (CHP) plant installed in Zhytomyr is innovative and using biomass is adding to the innovative aspect of the solution. Previously, this solution had not been developed because of the cheap gas imports coming from Russia. One of the challenges the public utility needed to address at the municipal level was the supply of wood chips. The supply system was non-existent at the start of the project, which is testament to the degree to which these energy sources were neglected. The energy crisis with Russia served as a tipping point for triggering a more general application of these new solutions. Although the project was initiated before, with the arrival of the crisis this type of solution became mainstream thinking in Ukraine.

Comparison between the two solutions.

The technical solution for Vinnytsia (the wood-fired boiler) was state-of-the-art in Ukraine at the time of its launch in 2016 and one of the first in the country. It was promoted as having the biggest municipal bioenergy heat generation capacity in Ukraine and was showcased by the Prime Minister, the State Energy Efficiency Agency and other donor projects, such as USAID's Municipal Energy Reform in Ukraine (MERP). The ORC-CHP technical solution for Zhytomyr is very innovative, with Zhytomyr self-proclaiming that they leapfrogged and got inspired by example of Vilnius. In Zhytomyr, the installation will be able to burn several types of waste (forestry, agriculture and others), wood and even poplars. They will have electric-static filters and flue gas condensers as well. It has to be noted that CHPs on wood chips are included in EBRD projects under E5P. Wood-fired boiler solutions have been identified as the right direction of technical development. It fits in a context of a fluctuating gas market and it also makes operating the local system easier. Additionally, the sale of electricity in Zhytomyr will produce revenue which will not be diverted towards the repayment of debts to Naftogas.

4 Effectiveness

4.1 Aggregated impact of the portfolio of energy efficient city projects: qualitative and quantitative outputs, outcomes and impacts

4.1.1 Overview of the (expected) outcomes and impacts

The high-level project outcomes have been realised to a big extent in Vinnytsia, but only to a very limited extent in Zhytomyr, as the project has not yet come to an end. Interviewed stakeholders are convinced that the expected outcomes and impacts will be fully achieved for both projects and there is no evidence of the opposite.

Besides the benefits listed in the table below and the capacity-building benefits, the positive impact of the two projects are also associated with their demonstration effects.

Table 5 Vinnytsia Project outcome and impact KPIs

KPI	Project achievements until May 2018
<i>Impact:</i> improvement of municipal infrastructure and its energy efficiency	Sustainable Energy Action Plan has been developed EEA awarded in 2015
<i>Outcome 1.1.:</i> More sustainable municipal energy management and more sustainable energy use	Achieved: SEAP has been developed and submitted in July 2013, Baseline Emission Inventory (BEI) is done, SEAP measures have been merged with EEA activity program. Initial review with EEA management tool was done Due to enlargement of Vinnytsia's city limits, an updated SEAP was adopted by City Council and submitted to CoM in February 2017
<i>Outcome 1.2.:</i> Improved financial situation and developed financing strategies for sustainable energy efficiency measures	There is a significant and regular increase of municipal spending for EE since the project's inception, except for 2017 (spending was still almost 4 times higher in 2017 than baseline figures from 2012)
<i>Outcome 1.3:</i> Increased level of energy efficiency program management	Successful application to EEA; 66% EEA points (target was >50%); Securing continuation of process and improvement after EEA award is in process
<i>Outcome 2.1.:</i> Increased reliability of heat and warm water supply in three districts	Achieved and in the process of further improvement
<i>Outcome 2.2.:</i> Increased efficiency of the municipal district heating system	Efficiency has been increased for all impact indicators by several percentage points For all rehabilitated districts the specific GHG emissions reduced by 17%-48% (tCO ₂ /Gcal delivered heat)
<i>Outcome 2.3:</i> Reduced consumption of fossil fuels (gas) in three districts	For all completed sub-stations the value is already lower than the target For all districts where the project measures were implemented, specific fossil fuel consumption was reduced by 17%-51% (m ³ /1 Gcal of delivered heat). This wide range is due to the varying scope of support by the project pro district: reduction is highest where the project funded new boilers and rehabilitation of the network + sub-stations, while it is lower where the project intervened only partially and where former investments by the public utility had already improved the system's efficiency.

<i>Outcome 2.4:</i> Reduced consumption of electricity in two districts	For two out of three sub-stations the values are better than the target values. According to implementation consultant, for all districts where the project measures were implemented, specific electricity consumption was reduced by 13-19% (kWh/Gcal of delivered heat)
<i>Outcome 2.5:</i> Reduced generation of CO ₂ in two districts	Values are lower than the target value, but it must be taken into account that the load for one boiler houses was lower and the third one is not commissioned. According to implementation consultant, for all rehabilitated districts the specific GHG emissions were reduced by 17%-48% (tCO ₂ /Gcal delivered heat)
<i>Outcome 3.1:</i> Improved financial standing of public utility	Equity in 2016 improved comparing to 2015 Ratio became slightly worse in 2016 comparing to 2015. Results under this outcome are considerably influenced by the national policy framework which affects the public utilities in charge of municipal district heating.
<i>Outcome 3.2:</i> Attracted additional financial resources for rehabilitation of district heating and energy efficiency measures in other districts (e.g. WB, as well as other IFIs)	No additional financing has been attracted during first half of 2017. However, as per logframe from 2016: by end of 2015, NEFCO and World Bank had approved loans to Vinnytsia in this sector. Furthermore, Vinnytsia got funding from EBRD to establish e-ticketing (which indirectly contributes to energy efficiency through the development of a functional public transport system)
<i>Outcome 3.3:</i> Revised short-, middle- and long-term strategic planning of public utility in accordance with municipal plans	Business Plan in accordance with Vinnytsia "2020" development plan is prepared by MTE and approved by the City Council

The overall conclusion is that there is a very high degree of achievement of outcomes and impacts for the Vinnytsia project. The financial standing of the utility has not yet improved, due to low tariffs which are approved at the central level.

However, it is worth noting that due to savings made in the procurement within the investment component, the project scope was extended significantly, with three additional components within the investment component. These comprised: an extension to Tarnogradskogo (see MoU amendment 1) with a budget increase; extension of works to Vishenka district (without budget increase, approved by steering committee), and a bike development project (see MoU amendment 2).

For the **Zhytomyr** project, the level of outcome and impact achievement will not be presented in a tabular format. The latest draft of the logframe contains the following synthesised information:

- There is no evidence of reduced energy intensity, as the project is in its inception phase, but such a reduction is expected.
- Awareness of EEA has increased.

No outcomes have been achieved for the investment component.

The outcomes for the EEA component are on track to being achieved (also described in the EEA section):

- Initial assessment of EEA score;
- Activities started in 6 fields
- Several SEAP measures have been taken
- Capacity-building component

The capacity-building indicators have not yet been fully achieved, namely the ISO 50001 certificate for ZTKE. As of November 2017, only 7.36% of additional energy efficiency financing had been secured, while the target value is 28.79%.

- There has been progress in terms of Zhytomyr citizens' knowledge about energy efficiency.
- It is difficult to assess the progress made in the energy efficiency performance of kindergartens, as the winter of 2016 was significantly colder than the previous year and electricity consumption therefore increased.

Additional figures on the results of both projects are presented in [Annex](#).

4.1.2 Overview of project outputs and their achievement

Table 6 Achievement of Vinnytsia project inputs

Outputs	Expected output KPI and target values	Project achievements until July 2018
Component 1 EEA: Official EEA commitment in place	Signature and participation in different initiatives such as EEA, CoM, etc. Development and approval of realistic targets Development and approval of sustainable energy action plan Implementation of short-term actions Public awareness campaigns, media events, etc.	Fully achieved
Component 2 Investments		
Civil works in three districts timely implemented	Construction of civil works in two districts	One fully implemented, the other is under implementation
Technical equipment installed	Installation of technical equipment	One fully installed, the other will be installed in the next several months
Component 3: Capacity-building		
Business plan developed, approved and implemented	Development and submission of business plan	Achieved.
5-10 years plan developed in line with municipal plans and approved	Development and submission of 10-years plan	Achieved

The main input that has not yet been achieved in Vinnytsia relates to one of the boiler houses and the associated equipment. The evaluator has visited the site and the beneficiaries have reported that there is no reason to believe that the works will not be completed according to timeline.

Table 7 Achievement of Zhytomyr project inputs

Component 1 EEA	Expected output KPI and target values	Project achievements until July 2018
Municipality policy tool with the EEA Management Tool is assessed	SWOT profile of the municipality is elaborated	The EEA score for the initial assessment is 30%.
Development of SEAP is continued	Energy policy programme is created and defined	The energy footprint has been completed in Q3/2017.
Realistic targets to get EEA are developed, approved and regularly monitored	The implemented measures are recorded and evaluated	Achieved
Coherence with other international activities is improved	The initial energy review is adapted and updated	

Competence of staff	Topic-specific workshops	Three completed workshops
Identification of one or two specific small measures from SEAP or MEP financed by Swiss contribution	Proposal to SECO for implementation of one or two small measures	Work on supporting the municipality in identifying suitable measures from MEP has been carried out.
Improved EEA knowledge in municipality		Know-how exchange with the city of Vinnytsia
City is prepared for EEA audit		In the process
Investment Component		
Output 1.1 Civil works in all Project DH areas are completed timely and in good quality		Works already started
Output 1.2 New pipes in 4 DH areas installed timely and in good quality (including civil works)		40% of components delivered. Installation started in April 2018.
Output 1.2 Installation of individual heating substations timely and in good quality		Sub-stations delivered and installation started
Output 1.5 ORC CHP unit is installed timely and in good quality		Tender procedure not finished
Capacity-building component		
Output 3.1: Logframe Approach is used by Municipality of Zhytomyr		Additional logframe workshops for additional projects have not been yet conducted
Output 3.2: "Green" Educational Office is opened and provides consulting services for Zhytomyr inhabitants		Achieved
Output 3.3: Existing Methodology for calculation of baseline energy consumption and energy savings is improved		Not yet prepared

The activities from the capacity-building component have not yet started and therefore a number of outputs are yet to be achieved: alignment of municipality internal rules with ISO 50001 requirements; preparation of the Communication Strategy; preparation and approval procedure by Municipality for the identification, preparation and implementation of ‘investment projects’; preparation and submission of applications for renewable feed-in tariffs to the respective state authorities; updating of existing long-term business plans and financial models; preparation and approval of outsourcing strategy by ZTKE; development of ZTKE’s strategy for participation in the emission trading mechanisms, and the definition of ZTKE baseline emissions.

4.2 Flagship outputs and outcomes

All three components of the projects – **infrastructure/technical solutions, EEA, and capacity-building** – are considered extremely important for both cities. The technical solutions have already been elaborated upon in [Chapter 4.8](#). Here we will elaborate on the two additional elements: the European Energy Award (EEA) and capacity-building.

4.2.1 EEA

The EEA approach (an integral factor in both projects) has been very beneficial for both cities. At the start of the Vinnytsia project, City Hall considered it a burden; however, the approach is now fully understood and highly appreciated. It has been reported that EEA has increased the city’s motivation to

undertake energy efficiency measures and that the EEA certification process triggered a 'cultural shift' in the municipality and beyond. It is worth noting that Vinnytsia has been a signatory of the Covenant of Mayors (CoM) since 2011. While the CoM led to the drafting and adoption of the Sustainable Energy Action Plan (SEAP), the EEA approach helped Vinnytsia to implement the practical measures from the plan aiming at a 20% reduction in CO₂ emissions by 2020. Hence, the CoM and EEA are perceived by beneficiaries to be complementary and not overlapping.

To illustrate the process, it is worth reminding that in 2013, Vinnytsia received a baseline of 32 points (out of 100), while the minimum for EEA is 50. Over the following two years, the actions triggered by the EEA led to a result of 54, which is rightly recognised as a big success. The goal for 2015-2017 was to add an additional 2 points. This goal has been surpassed as there has been an increase of 6.2 points by 2018, for an overall result of 60.2. Unfortunately, it is not methodologically possible to discern which share of the progress can be attributed to the SECO-financed project/activities. The score has been measured by consultants, while the external audit is foreseen to be carried out over the next months. The main progress is observed in the area of the transport system and external and internal organisation.

For the city of Vinnytsia the most important success factor within the EEA process was the obligatory creation of a team in charge of the EEA process in the city. The team includes representatives from 18 departments, activists, NGOs, communal enterprises, etc. giving it a representative character. The city has taken an approach of collaboration and stakeholder involvement. This is done through social media and the so-called Green Office for liaising with the public. The EEA certificate raised the profile of the city's efforts, the city was seen as a credible partner and this led to acquiring further funding sources such as the continuation of the Swiss Trams Project, the GIZ Project "Integrated Urban Development in Ukraine", support from the State Fund for Regional Development (reconstruction of Kosmonavtiv Square), and others.

In Vinnytsia, EEA is considered to be very useful and the municipality intends to continue its use after the end of the SECO project and also in case of lack of funding from SECO. However, the fee of 5,370 EUR (to be paid if there is no donor support) is perceived as too high if it is not subsidised.

EEA has also been identified as a good possibility to pay attention to different issues such as soft measures, gender, urban space which were not on municipal radars and to also boost the culture of stakeholder participation. For this purpose, Vinnytsia set aside a participatory budget and introduced on municipal level a system for vote for citizen-driven ideas as well as a petition system for citizens. As of May 2018, there were 71 projects coming through the participatory budget and half of them were in the field of environment. These include a project on awareness raising carried out by a student association, projects on park cleaning and lake cleaning as well as the creation of a social space to increase citizen communication level.

In **Zhytomyr** the initial EEA score was 30.6%, not much lower than Vinnytsia's. The mid-term review would take place in 2018 and the City Hall had hopes for a better result of more than 50%. Similarly to Vinnytsia, Zhytomyr also set up an EEA working group covering six sectors. EEA is complementary to the SEAP and the fact that EEA focuses on the process and provides a concrete management tool is appreciated keeping in mind that the CoM target is associated only with the final CO₂ reduction. It was also emphasised that the EEA approach whereby a team needs to be established is better than the CoM approach where only one person is needed.

Through the EEA, the topic of climate change has been raised and work started within schools and universities. The stakeholder feedback is that one of the main benefits of EEA in Zhytomyr is the possibility to monitor introduced measures through constant reporting. The communication aspect of EEA has also been identified as very useful and there has been improved coordination between different departments and institutions. Continuity in EEA governance has also been singled out as a success factor, as EEA ensures sustainability in the implementation of energy efficiency policy. For Zhytomyr, the ISO 9001 certification is the next step followed by 50001 certification which resembles EEA.

The individual drive of politicians is another factor of success for EEA implementation and the fact that Vinnytsia's former mayor was behind the project contributed to its success. The current vice mayor is also actively supporting the EEA which is considered a good promotional and communication tool.

4.2.2 Capacity-building

Capacity-building consists of a series of trainings delivered by the implementation consultant team. In the Feasibility study phase, needs were discussed and a range of different topics were included such as the use of specific software and work security issues. In both Vinnytsia and Zhytomyr one topic was the purchase of wood chips and their potential. A training programme was developed by the implementation consultant team consisting in practice of 1-2 day workshops differed in time. One example of a training in Zhytomyr includes work safety and rehabilitation of asbestos roofs. In reality, the presentations have been given to a limited number of people.

The general conclusion is that the more the topic provides hands-on experience, the more demand, interest and success there has been. The training on SCADA has been very important and demanded in Vinnytsia while trainings of a more general nature have not been so well attended. For example, workshops on vision and image were not well attended as the municipality of Vinnytsia already had its vision in place. This may also be due to the fact that the consultant team's strength is technical and hands-on and that the team is not specialised in capacity-building and organisational development. SECO staff has noted that within another project funded by SECO (Integrated urban development in Ukraine; implemented by GIZ) in Zhytomyr and Vinnytsia trainings have so far met great interest from municipal staff for training on general and partly theoretic aspects of human resources and management, which are thematically close to the topics of vision and image.

Concerns have been raised by a national-level interviewee with regards to the sustainability of the trainings and what stays when the project is over, given the high turnover of staff. One very positive example of capacity-building is when the Vinnytsia EEA team provided training to Zhytomyr experts on a number of issues during a visit in May 2018. Vinnytsia experts are also providing a training on gender issues, a fact appreciated by the beneficiaries.

The main challenge with trainings is to raise the interest of the participants. The intensive turnover and replacement of employees is also an obstacle to long-term sustainability of the trainings. One stakeholder pointed to the fact that after participating in donor-supported activities, employees receive expert knowledge and often leave for better paid jobs.

The Zhytomyr City Hall experts acknowledged the usefulness and the importance of capacity-building through trainings. They identified the capacity of employees as one of the main success factors for project implementation. Several hundred people have already been trained including the trainings within the SECO-co-financed, GIZ-implemented project.

There have been trainings for the public utility on the following topics: corporate development; procurement; logistics (supply fuel for new CHP); infrastructure management, and legal protection, among others. Additional trainings have taken place for municipal staff including personal skills development (very important) as well as time and project management.

In parallel, the city earmarks funds for trainings for Housing Associations and energy managers in social institutions like kindergartens and hospitals. Follow-up trainings will be given on integrated urban development with a focus on training on a wider group of participants.

Zhytomyr City Hall representatives singled out a training implemented by a Kiev-based company on leadership, motivation and delegating tasks. The same company will provide strategy training for top management of the City Hall.

4.3 Unintended outcomes and impacts

The development of a biomass and wood-chip market has been the main, at least partly, unintended outcome of the projects. This market is very relevant for energy consumption. When the project started,

there seemed to be a high level of scepticism in the regions with regards to the adopted technologies and the establishment of a stable supply. At the same time, the enthusiasm to develop such a market was not overly high, due to the low price of natural gas. In the meantime, the availability and price of natural gas changed. Public utilities and the municipalities learned to value biomass, which was then reassessed to be the right technical solution. There is currently a significant consumption level in Vinnytsia with different suppliers, which stimulated the development of the market.

4.4 Key challenges and enabling factors to meeting intended objectives

The successful implementation of the projects has been supported by a number of enabling factors identified by stakeholders. On the other hand, there were certain obstacles which slowed down project implementation and might possibly endanger certain aspects of project sustainability.

4.4.1 Success factors

Several success factors for the implementation of the project have been identified by interviewees:

- The mayor of Vinnytsia placed energy efficiency high on the municipal agenda looking for a TA partner;
- In Vinnytsia, there is a shared point of view between the municipality and the regional administration;
- For both cities, the increase in the price of natural gas served as an additional incentive for starting the projects;
- The Swiss consultant had a local partner who is very organised and responsible and has the capacity to deliver. In addition, the local partner has personal stakes in the success of the project in terms of future business opportunities in Ukraine. The relationship with the local partner is decisive;
- There are strong capacities for project implementation both in Vinnytsia City Council and the utility Vinnytsia Misk Teplo Enervo.

4.4.2 Challenges

A number of challenges have been identified by the interviewees. These have already been overcome to a big extent but still they should be kept in mind until the completion of the projects and when funding new projects:

- Key actors left Vinnytsia and Zhytomyr public utilities and there were concerns that this would lead to problems. To mitigate this, the public utility experts were given a generous offer in exchange for remaining one more year to support the utility in the transition period and transfer their knowledge in tendering and implementation.
- For both projects, there is no budget in the projects for demonstration in the sense of communication and dissemination and this could be improved.
- In Zhytomyr, there have been issues regarding the thermal insulation of kindergartens leading to delays and increased costs. The reason behind this is that the design documentation was not of sufficient quality and the contractor did not have sufficient capacity to carry out the work. The mistake was that rehabilitation works at the five kindergartens were tendered as one lot, whereas it would have proved more effective to split these into five lots, given the lack of capable contractors within the local market. There is a risk of not having the kindergarten insulations completed for the new heating season.
- In Vinnytsia, only 40% of the capacity of the wood boiler was utilised. An example for this is the fact that the compressor broke mid-March and it was not replaced. If it was a private company it would have been replaced immediately as the losses were of about €1,000 per day. This is a sign of low motivation. One of the reasons for the delay might

be issues with the warranty whereby the public utility asked the supplier for replacement.

- In the case of Zhytomyr, the contractor is paid after each completed stage of work. If work is not completed by the beginning of the heating season in 2018, his contract could be cancelled. It is evidently preferable that he finalises the work, as seeking new procurement would prove overly time-consuming.
- The problem with the local contractor is that if the fines are imposed for delays, the company would go bankrupt which would lead to even bigger delays.

Additional administrative challenges

- The SECO-funded project is tax-free but to get this status there is a need of a registration card with the Ministry of Economic Development and Trade of Ukraine. If renewal is delayed, this procedure might lead to overall delays, as occurred in 2017.
- The warranty period for Vinnytsia is until 2021 and Vinnytsia asked for extension of the registration card till 2021. If it is not granted they might not be able to finish the project by end of 2018. If this really happens the utility will have to ask for a no-cost extension.
- The construction works in Vinnytsia must be finished by 31 August 2018. There is then a testing phase during October with a full load. Once it has been accepted the last invoices will be paid. This may run into 2019.

4.4.3 Comparison between the two projects with regards to encountered challenges

Overall, there is evidence that the Vinnytsia project has been running more smoothly than the Zhytomyr one and the challenges with the kindergarten insulation is not the only reason for this. Interviewees have identified several differences between the projects which might be the reasons for this:

- In Vinnytsia, there are no political struggles and there is higher political continuity, while in Zhytomyr decision-makers are often changed. Additionally, there is a higher rotation of people in Zhytomyr which is counterproductive.
- In Vinnytsia, decisions by the City Council on co-financing are smooth while in Zhytomyr, the mayor is reluctant to go to City Council for additional funding. One of the reasons for that is the fact that Zhytomyr has less financial capacity than Vinnytsia, particularly in the current process of decentralisation which increases the charges at municipal levels. Additionally, Zhytomyr had issues with blocked instalment and the need for a municipal guarantee, which was an unexpected and large expenditure for the municipal budget.

4.5 Appreciation of the Swissness of the project

For the sake of this analysis we define ‘Swissness’ as both the involvement of Swiss consultants, the transfer of know-how but also the perception of local stakeholders of approaches and professional culture specific to SECO and to the Swiss consultants.

The Swiss added value of the project is perceived along several lines:

- The EEA approach (elaborated above) and its multiple benefits is the main feature of the Swissness approach;
- A strong capacity-building component;
- A strong demonstration element;
- The know-how transfer through the Swiss consultant;
- Introducing a result-oriented mindset and a flexible and positive culture;
- SECO insists on placing an emphasis on cost-efficiency, and to redirect savings towards additional measures.

The **capacity-building component** of the projects has been singled out as one of the main added values of working with a Swiss partner. Both projects are having a strong de facto **demonstration dimension** despite the lack of earmarked funds for communication and dissemination. The perception of the stakeholders is that investing in infrastructure in combination with EEA and capacity-building makes SECO a very different donor, as projects lead to tangible results and can serve as a demonstration to other cities

In the past, Swiss added value in terms of using Swiss products and labour was as high as 80%. In Vinnytsia, it is around 20%. For example, the wood boiler is Swiss, produced by Viessman CH, the daughter company of a large German producer. In Zhytomyr, it is 0% and no Swiss company involved. This is a result of the Swiss membership in the WTO. The same with the labour provision which is now open to international tendering.

4.6 Contribution of the projects to SECO visibility and clout

All interviewed non-project stakeholders were aware of the two projects which hold a central place in the Technical Assistance landscape in Ukraine. SECO’s visibility is mainly associated with the Swissness of the projects discussed earlier. The technical solutions have also drawn the attention of the donor community with regards to their innovativeness.

Despite the fact that the Ukrainian donor landscape is relatively crowded, we estimate that SECO’s visibility is very high. It comes mainly from aspects which has been analysed in bigger detail under the Swissness sub-chapter. These include:

- *Combination between infrastructure investment and capacity-building.* SECO has been identified by interviewed stakeholders as one of the few (or the only) donor who provides such support.
- *Provision of high-quality Swiss equipment and know-how.* Since the support to Vinnytsia was in the form of a grant it could afford purchasing high-quality equipment. Both Vinnytsia and Zhytomyr benefited from Swiss know-how and experience.
- *Capacity-building.* Despite the fact that SECO is not the only international donor emphasising the importance of capacity-building, to a big extent it is seen as a very staunch proponent of integrating capacity-building in the projects financed by SECO.
- *EEA approach.* Promoting the EEA approach sets SECO apart from other donors. It is seen as extremely useful by the beneficiaries and is closely associated with SECO and Switzerland.

4.7 Level/description of harmonisation of project with other (i.e. external or non SECO funded) projects, initiatives or donors; and added-value/constraints brought about by this harmonisation

Ukraine has been evaluated as a crowded space for donors. Overall, Swiss Cooperation is in 6th place in Ukraine in terms of volume of international aid funding; SECO funding represents more than 50% of this. In terms of SECO's size as a donor in municipal energy efficiency SECO is among the five biggest bilateral donors together with the US, EU, Germany and Sweden. SECO main differentiation is that it funds municipal infrastructure investment as well as introducing the EEA beyond the scope of CoM.

There is a general policy dialogue among donors (E5P, EBRD, EIB, World Bank, NEFCO, USAID), mainly within the E5P platform (managed by the EBRD) which gathers all donors. SECO considered that E5P would be a good vehicle for the policy dialogue and this was one of the main reasons why SECO put funds in it.

SECO also has the private sector promotion (WEIF) funding an IFC programme which looks at regulatory frameworks for fostering energy efficiency in multi-storey buildings (association of home owners). This relates to owners who need capital to invest in energy efficiency renovations/retrofitting. In this way SECO combines the support to the national and municipal level related to the energy efficiency measures and the support to the private sector and households.

4.8 Financial leverage effect of SECO contribution to project

The analysis within individual projects has led us to the following analysis with regards to the ways financial leverage effects take place:

- **Leveraging municipal/public utility co-financing.** The two projects have been designed in such a way as to ensure municipal buy-in through in-cash and in-kind contribution. The municipal co-financing rate for Vinnytsia was approximately 20%; for Zhytomyr this figure stands at 18.5% so far. No deviations or problems have been reported by beneficiaries as to the realisation of this contribution.
- **Leveraged funding within the implementation of EEA programme.** It has been reported that the fact that municipalities buy into the EEA implementation means that future municipal own, borrowed or donor funding could be expected to be used towards individual EEA measures. However, it is difficult to attribute precisely the role of EEA in the increased interest in funding projects in both cities as both of them had motivated and committed mayors, a fact which was key.
- **Triggered other projects as a follow-up.** The SECO investment also triggered additional projects such as the GIZ Project "Integrated Urban Development in Ukraine", support from the State Fund for Regional Development (reconstruction of Kosmonavtiv Square) and others.

5 Efficiency

5.1 Global appreciation of the cost-efficiency of the project by evaluator and project managers/beneficiaries

The overall evaluation of the cost-efficiency of the project is positive. The consultancy spending presented in the table below seems to be reasonable and in line with international practices.

Table 8 Level of consultancy spending versus total spending

	Total investment SECO (2013- 2018)	Consultancy budget	Share of consultancy budget
Vinnytsia	20.6 million CHF	2.8 million CHF	13.4%
Zhytomyr	15.1 million CHF	1.9 million CHF	12%

Besides the costs for the Implementation consultant, SECO project manager and SCO Ukraine staff (including a project manager) are also involved in the project. Guidance from SECO and permanent coordination have been assessed as very much needed (such as regular calls with SECO PM, consultations/enquiries etc). Precise estimation of SECO in-kind contribution is impossible but this has saved time in implementation (decision-making process then is reduced, when SECO is in permanent contact with Implementation consultant and with the clients, via the implementation consultant).

Management is a significant part of the Consultant budget – it is about one-quarter of the total consultant budget and very often it is more than it was expected before.

With regards to the technical equipment in both cities in Zhytomyr the unit costs are approximately 5.3 million CHF while the one in Vinnytsia is 2.3 million CHF. Certain consultants have assessed both as relatively expensive, a factor which has to be taken into consideration when discussing the replication of the project in other cities.

5.2 Global appreciation of the Quality / relevance of project management/steering/oversight (i.e. backstopping) arrangements and potential for improvement

The project is steered through a Steering Committee, which meets at regular intervals and presents progress with regards to the logframe and associated deviations. The members of the Steering Committee include SECO, the municipality (executive institution), the City Council (legislative body) and a representative of the Ministry of Regional Development, Building and Housing and Communal Services of Ukraine.

The Steering Committee is an important body in the project. On the one hand, it is used to report on results and progress of the project, and on the other it is used to discuss the strategic questions in the project. The SC has been reported to function quite well and it has been noted that the preparation to the SC should be well coordinated by the Implementation Consultant (topics to be discussed, presentations of the beneficiaries).

During the project implementation, the beneficiaries' capacities related to preparation to the SC have been improved.

The consultant team is key to keeping the logframe. It is the good tool for monitoring, however the main problem in the projects is that it is only/mainly used by the Consultant, as beneficiaries are overloaded with main work and the Consultant was not successful in insisting that the clients are responsible for

the logframe. The representation of the Ministry of Regional Development, Building and Housing and Communal Services of Ukraine is rather formal which is not a huge obstacle but delays approvals. They have never been involved in projects deeply, their SC member(s) had been changing often, not being updated sufficiently about project progress, although they had all needed materials sent in advance before the SC.

The opening of the National EEA Office in Ukraine is scheduled starting September 2018. It is planned that Swiss consultants would be replaced by local Ukrainian experts who are more familiar with Ukrainian realities.

5.3 Degree of project monitoring and evaluation

Project monitoring and evaluation is in line with good international practice. A special reporting system is created that is monitored every quarter, whilst each year an annual report is being prepared and every two years there is an internal audit of the EEA.

6 Sustainability

6.1 Likelihood for sustaining project outcomes (plans for follow-up, ensured follow-up funding, etc.) / evidence of long term buy-in or uptake of project results

We evaluate the likelihood for sustainability of the two projects as relatively high. The big threat to sustainability of both projects is the reform in the energy and district heating sectors (see below).

In both Vinnytsia and in Zhytomyr, the City Hall and public utility representatives were very positive with regards to the project sustainability. One of the reasons for that is the stability in the utility, with director and team being the same. The utility is also a 100% municipal company. Additionally, in Zhytomyr there are no losses and no incidents in automatic heating plants, with efficiency at 98%. Currently, Zhytomyr has the lowest tariff in Ukraine – 1,200 UAH/Giga calorie and even this rate allows the utility to be profitable. They have the highest collection rate and should tariffs go up, the economic case will be even stronger.

When cogeneration is operational the utility will be able to cover its own demand of electricity and sell surplus through feed-in tariffs (very high rate). The Zhytomyr utility will be able to sell hot water again when this is technically possible. As a result of stopping hot water some time ago, households have installed individual gas heaters and need to be motivated to switch back to centrally supplied hot water.

The main task for the public utility is to provide heating, not hot water. Hot water will be a bonus because the city will have to subsidise this. It has been shared by the Zhytomyr Public Utility that for 30% of the high building (400/1,500 building), it is technically possible to start supplying hot water again, in the rest there are individual gas heaters. However, the whole building will have to take the decision (Ownership Association/Housing cooperative) which adds an additional complication. Hot water meters will be available for the whole building and for each apartment. If all of them agree, hot water will be turned on.

6.2 Key threats to project sustainability

The main challenge to the sustainability of the projects are issues related to the reform of the energy and district heating sectors. Naturally, not all elements below pose a direct threat. Nevertheless, the optimal benefit of the project will be achieved when all elements of the sectoral reform are in place.

Reform processes and awareness

The district heating landscape in Ukraine is complex. There is a comprehensive overall reform process underway, first announced in 2013. The government attempted to make the state monopoly gas supplier Naftagas profitable. It became possible to seize property from companies which owed them money and

to block their bank accounts. Some 80-95% of these companies' revenues were blocked and repaid to Naftagas. This put all public utilities in Ukraine in a very difficult situation.

At the same time there was a reform in the natural gas price subsidy system. In the past, the price of natural gas was subsidised. Since 2015-2016 the gas price has been increased five times and the subsidies became targeted to low-income populations. As a result, in 2016 there were more than 100 District Heating companies with seized property, whilst the root causes that led to this situation seem to be still in place.

Currently, the efforts of the reform are directed at monetisation of subsidies and the mutual cancellation of debts would be replaced by financial flows. Blocked accounts have plagued public utilities ever since and made investments unaffordable. Foreign financial institutions could not secure the disbursement of their loans and lost incentives to finance projects in energy efficiency. The monetisation reform is key to unblock investments in the country which is extremely important given the high energy intensity of the Ukrainian economy and the obsolete state of the capital assets.

During this time, extensive efforts have been made from the donor community pushing for legal changes: property rights in multi-floor building and Law on commercial metering of heat and water (obligations and roles) and Law on Energy Efficiency in Buildings. There were also attempts to develop sub-legal acts in order to make certification of buildings work. The Law on the Energy Efficiency Fund will become a main instrument. Other laws and their sub-laws that need to be adopted in order to complete the energy sector reform is the Law on Housing Services which was adopted in 2017, but whose putting into effect was postponed to beginning of 2019.

The other reason for the dire situation of public utilities is the low level of tariffs which are below the economically reasonable level so that no reserves could be accumulated. Tariffs are often a political issue and are hard to reform. One of the aspects of the monetisation reform is the creation of special accounts which cannot be blocked hence the public utilities could not go bankrupt. This would unblock the E5P projects implemented by EBRD, EIB and NEFCO. The other big hurdle to investing in the energy and energy efficiency sectors in Ukraine is the long period needed to start an investment project taking between 7 and 10 years.

6.3 Potential for or evidence of replication

Replication potential has been evaluated as theoretically high, but practically from the point of view of financial investments the situation might be different given the concerns with tariffs described earlier in the text.

In order for the project to be replicable it has to be economically viable. Another concern voiced by some interviewees was that the chosen solution is rather expensive, and the total budget of the project is high for the Ukrainian context. However, given the financial situation in most Ukrainian cities it remains a question as to how many cities in the country will be able to afford similar investments through loans and own funds.

Stakeholders shared that the Zhytomyr project technically has a higher potential for replication because of the more advanced co-generation solution. According to Zhytomyr public utility experts, wood boilers are not that efficient economically if the gas price continues to be subsidised.

7 Overall conclusions

Relevance

The projects are highly relevant to the SECO strategic goals and objectives for the Energy Efficient Cities portfolio of projects as well as its strategic priorities in Ukraine. The expected outcomes of both projects are fully in line with the outcomes from the Intervention logic Low-emission and climate-resilient economies and more effective institutions and services. The projects are also in line with intermediate

outcome of Business line 2 under target outcome IV ‘an increase of sustainable sources of energy supply. The projects are highly relevant to the Ukrainian context, needs and challenges. At the national level, they are in line with the country’s efforts to reduce the energy intensity of the economy and to deliver on its international commitments. At the city level, both projects are well-linked with the cities’ sustainable development strategies, while at a beneficiary level they significantly increase the capacity of the city halls and the utilities to carry out current and future reforms in sustainable energy management. The KPIs for the projects correspond to SECO’s KPIs and both projects are also coherent with other similar projects underway in both cities. The approach combining infrastructure development, capacity-building and EEA is very relevant at both the city and beneficiary levels.

Effectiveness

Both projects are on track to achieve their respective outputs, outcomes and impacts. As projects have not come to an end there are some major outputs which need to be delivered in the next six months and there are no indications to believe that this will not be the case. This is also valid for the slightly problematic insulation of kindergartens in Zhytomyr which is also on track to be completed. Both projects already have tangible impacts on local district heating infrastructure, the capacity of city hall employees and the public utility. The introduction of EEA has triggered a multitude of energy-efficiency measures at the local level as well as a cultural shift. The development of the wood-chip market is a positive unintended outcome. The level of effectiveness of the projects has been dependent on a number of success factors and challenges. While the former have stimulated the project implementation, the latter have hampered it and continue to do so. Managing and mitigating the challenges is a factor for the overall success of the projects and their sustainability.

Efficiency

The overall evaluation of the cost-efficiency of the project is positive. Consultancy spending seems to be reasonable and in line with international practices. The time spent on the project by SECO experts in Bern and in Kyiv does not seem to be excessive and has a very positive impact on project steering and on solving problems. The management structure of the projects seems relevant and appropriate to the needs of the projects. SECO staff are perceived to have a solid grip on project implementation supported by the Swiss consultants and the local consultant. Despite the fact that the cost of the equipment has been perceived as high, it brings a high level of technical efficiency to the projects. The monitoring of the project is relevant, and the latest information could easily be provided with sufficient detail.

Sustainability

Both projects are believed to be sustainable however sustainability depends on a number of factors which are beyond the control of the city halls, the utilities and SECO. The most important factors are the reform of the energy tariffs and the unblocking of the public utility accounts. If these are to be implemented, the motivation of the public utilities to run the installations at full capacity will be much higher. Both projects have a high level of replicability, especially the CHP project in Zhytomyr, however this is also dependent on these enabling factors. Given the very positive experience with EEA we assume that the EEA deployment in Ukraine would be highly welcome.

8 Recommendations

Overall approach in Ukraine

- SECO should continue with its traditional approach combining infrastructure investment components, capacity-building and the introduction of EEA, with a significant focus on the latter two. Capacity-building and the introduction of EEA could go beyond the cities where infrastructure investments are made. These could be envisaged even in cities where other international donors carry out infrastructure investments.
- Now that a national Ukrainian EEA office is being established, introducing EEA should become even more attractive to cities. The EEA component within the Zhytomyr project should be used to widely publicise the EEA approach. In a situation where Swiss consultants are not necessarily involved in projects, EEA should also be seen as the main vehicle for Swissness and should be exploited. Despite the fact that by all evidence the EEA and Covenant of Mayors are complementary, cooperation with CoM is necessary to avoid overlapping. Despite the fact that the Swiss knowledge transfer has been highly appreciated working with local experts to bring in knowledge of the local context and to improve the sustainability of the interventions is a must.
- When choosing cities for future projects SECO may venture outside of the cities preferred by all donors, nevertheless the willingness and commitment of the mayor are key for the selection as it is one of the most significant success factors. Deploying a wider capacity-building programme first as well as expanding EEA in other cities will give SECO sufficient indications as to where bigger infrastructure investments could be made. By following this order of interventions SECO will increase the chances for success of further interventions.
- In Ukraine, SECO has a very comprehensive presence through bilateral projects, funds and through the implementation of EEA. In the future, SECO will have to measure the advantages and disadvantages of spreading the resources more thinly and reaching out to a wider sample of cities and beneficiaries versus concentrating on several large, milestone projects. A combination of the two seems to be the best way forward including further introduction of EEA in a big number of cities, a massive capacity-building programme and ultimately a few, innovative infrastructure projects with a high potential for replication. Replicability of projects should be assessed in a systematic way prior to approval.

Capacity-building and knowledge capitalisation

- Capacity-building is key to the success and sustainability of the projects. In terms of timing, capacity-building should come early in the projects and should be well-aligned with the local demand. This would require a fine understanding of the local context and the needs of the municipality and the public utility. Enhanced coordination with the local partners and beneficiaries will contribute to better definition of the needs.
- Both hands-on training and more general trainings are needed. Municipalities need to be supported in becoming even more aware of their own needs. The capacity-building system needs to be more integrated and self-improving in all aspects (retraining, in-service training, equipment, advice to inhabitants).
- There is a need for a well-thought, structured way of spreading knowledge and capitalising on the success of the current projects. The experience from the projects need to be systematised, information and dissemination material need to be produced. The two projects have a big demonstration capacity and a number of precious lessons learned which need to be utilised even further. Resources for demonstration and capitalisation need to be provided.

Demand side measures

- Despite the challenges with the demand-side measures within the Zhytomyr project, it can be considered a good practice to integrate demand-side measures in all future projects. Possibilities could be explored to integrate several building rehabilitations (including through cooperation with other donors) together with the installation of measurement equipment to help improve heat efficiency. One possible type of SECO intervention could be to support owners' associations with financing rehabilitations. This is already the case through a project by another SECO-division (WEIF) working on the private sector promotion. The project implemented by IFC does provide support to the policy and financing framework for such rehabilitation measures in the residential sector, and support the structuring of home owner associations.

Regulatory reform

- Adopting necessary regulations in the energy and energy efficiency sector is an absolute precondition for the success of future projects and for optimising benefits from them. SECO is already involved in the process of policy reforms through the E5P together with other big international donors. Additionally, if relevant and if resources allow, SECO should seek all possible channels to be even more involved in the process of reform as SECO is in a strong position of putting some pressure (together with other donors) to adopt necessary reforms, shorten different approval periods, etc.
- There is a further possibility to improve coordination between donors to improve overlapping and inefficiency. Pressure should be put on the government for better articulating their development needs.

Technical solutions

- There are a number of additional issues that need to be taken into consideration when discussing future technical solutions of a similar nature: wood boilers have proved to be a very appropriate technical solution for Ukraine; the biggest problem with co-generation is access to the grid but it remains the best solution; donors should analyse the local biomass supply before promoting this technology; the Swiss solution is of very high quality, the best available on the market but expensive; Ukrainian boilers are three to four times cheaper; in every boiler house there should be a solution combining a wood-chip boiler and a gas boiler.

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Case study REPIC

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SECO WE Independent Evaluation of Energy-Efficient Cities

Final evaluation report

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Final evaluation report

technopolis |group| , E4tech, Fraunhofer IBP

18 October 2018

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Introduction

1.1 Objective and rationale of the case study

In parallel to bilateral projects, SECO WE is also funding global projects, which aim to provide support to a larger number of beneficiaries promoting and developing energy efficiency and renewable energy innovations in SECO target countries.

Consequently, SECO-funded global projects entail a larger number of beneficiaries, but with smaller financial contribution, compared to SECO bilateral projects. Therefore, the relevance, effectiveness, efficiency and sustainability of global projects must be evaluated, while taking this specific context into consideration.

The REPIC platform, which just started its fifth funding phase, was selected as the best possible case study for SECO-funded global projects. In addition to the general relevance of REPIC vis-à-vis SECO WE's business lines, the platform is co-funded and jointly monitored by several Swiss agencies, which makes its governance innovative.

The objective of this case study is to evaluate how REPIC contributes to achieving SECO WE's business lines (under its target outcome 4 "low-emission and climate-resilient economies"), namely: integrated urban development, sustainable energy supply and reliable public services.

1.2 Scope of the case study

This case study covers the 39 REPIC-funded projects from Phase IV (2014-2017), with a stronger focus on projects with higher relevance for SECO WE's EE-Cities business lines (integrated urban development, sustainable energy supply and reliable basic public service). However, it is important to note that a significant part of the experience and feedback shared by interviewees comes from earlier funding phases of REPIC (Phase I: January 2004 - November 2007; Phase II: December 2007 - December 2010; Phase III: January 2011 – March 2014). In addition, several projects from Phase IV are still ongoing and for many of them, it is too early to evaluate the final outcomes and impacts of the projects. However, given the consistent approach implemented with REPIC projects throughout the different funding phases of the platform, we considered the use of feedbacks from previous phases as adequate for this evaluation.

1.3 Methodology

The evaluation of REPIC primarily builds upon the interview of key stakeholders from the REPIC platform. Each interview aimed to collect the view and experience of interviewees regarding how REPIC projects are submitted, evaluated, approved and monitored. Interview questions tried to map all 39 projects against SECO WE's business lines (Integrated urban development, sustainable energy supply and reliable public services). Interviews also aimed to evaluate the relevance, effectiveness, efficiency and sustainability of REPIC, either as a global project and/or at the level of individual REPIC-funded projects.

The following people were interviewed:

- Cyprien Hauser, Consultant at NET Nowak Energy and Manager of the REPIC Platform
- Stefan Nowak, Director at NET Nowak Energy
- Stephan Gnos, Consultant at NET Nowak Energy
- Françoise Salamé, Programme Manager at SECO and REPIC Steering Group Member
- Dzemila Agic, Director of the Centre for Energy and Ecology in Tuzla, Bosnia & Herzegovina (REPIC- grantee)

- Roger Walther, Director for South America at EBP Chile (REPIC- grantee)

Each interviewee provided a somewhat complementary view of REPIC's achievements, strengths and potential areas of improvement, either as direct beneficiary, coordinator or funder. Given the strong focus of the evaluation on SECO WE business lines and limited resources, other REPIC co-funders (SDC, FOEN, and SFOE) were not considered as primary targets for interviews. Furthermore, the inputs received regarding the governance and joint evaluation of REPIC projects by the four governmental agencies did not highlight any potential issue, which would justify expanding the scope of the consultation to the other co-funders to gather additional views.

Additional inputs were collected through the consultation of reference documents provided by SECO and REPIC, including the recent external evaluation conducted by JaLogisch Consulting in 2017 and REPIC End of Phase Report for Phase III. Complementary web searches, mostly through REPIC and SECO websites, were conducted when necessary.

2 Brief overview of the REPIC platform

2.1 Background and objectives of the REPIC Platform (UR00123.04.01)

The REPIC platform (Renewable Energy, Energy & Resource Efficiency Promotion in International Cooperation) is a joint initiative of SECO (State Secretariat for Economic Affairs), SDC (Agency for Development and Cooperation), FOEN (Federal Office of Energy) and SFOE (Federal Office of Environment), aiming to promote the development and implementation of innovations and technologies for energy efficiency and renewable energy production. Since Phase IV, REPIC expanded its scope to include resource efficiency as eligible topic (e.g. waste management, water management).

REPIC was initiated in 2004 and is co-funded by the four above-mentioned Swiss governmental agencies through four-year phases, SECO and SDC being the largest funders of the platform. This evaluation (SECO WE Independent Evaluation of Energy-Efficient Cities) looks specifically at REPIC's fourth phase (IV), which was originally planned to go from 1 January 2014 to 31 December 2017 and was finally extended until 31 March 2018. This extension is mostly due to organisational reasons and the preparation of the fifth phase (V), which started on 1 April 2018.

REPIC provides a simple funding process for small projects aiming to deploy energy efficiency, renewable energy and resource efficiency solutions mainly in developing and transition countries, as defined the OECD's Development Assistance Committee (DAC). Financial support from REPIC is limited to 150,000 CHF and cannot represent more than 50% of the overall project budget. The rest of the project may be co-funded through other sources, incl. the private and/or public sectors. Eligible projects must be led by a Swiss organisation to ensure that Swiss know-how is being transferred to the grantees and indirect beneficiaries. REPIC-funded projects must demonstrate their replicability and long-term financial sustainability following the termination of REPIC support.

REPIC funds are granted to projects which are at an early pre-commercial phase. Projects can then be picked up by largest funders or investors (e.g. The Energy City Programme in Chile got picked up by the government for a total investment of CHF 3 million). REPIC projects are also use to explore and evaluate potential sustainability issues/benefits.

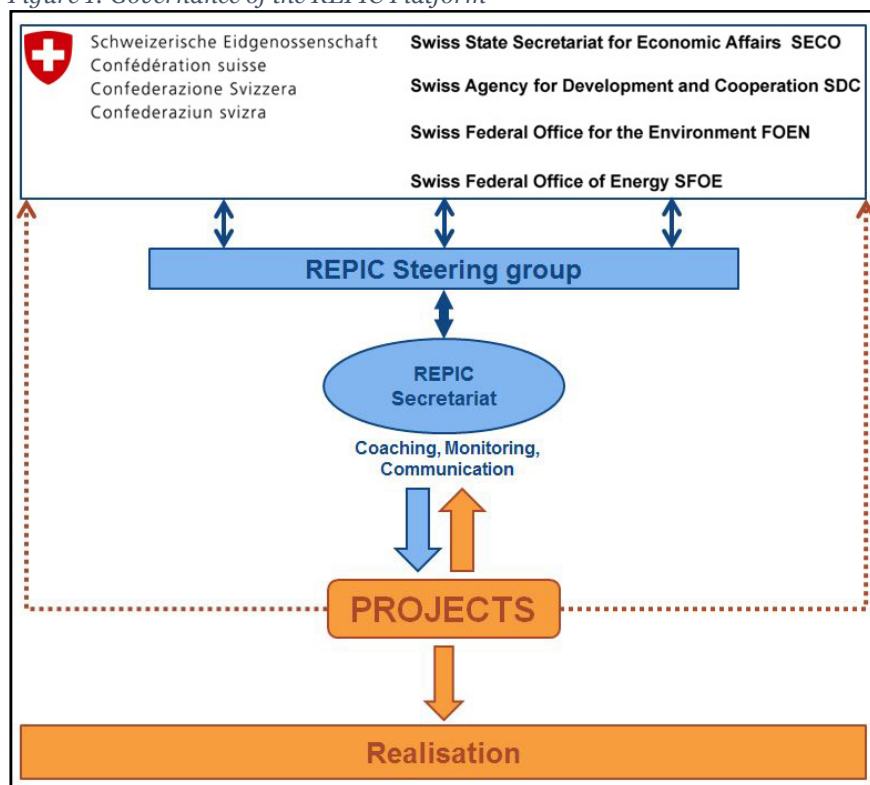
In addition, REPIC aims to create a network of competences and good practices across all its grantees. Whenever possible, appropriate and needed, the REPIC Secretariat or its partners may connect several projects grantees from different countries (South-south clusters), including by organising meetings and conferences. The objective is for grantees to share experience on a given technology or concept (e.g. coffee waste processing, pyrolysis oven, minigrid, PV, resource efficiency) and help building capacity. This ensures replicability, not only within a country but also across countries.

REPIC Governance is simple, which greatly contributes to the acknowledged rapidity and reactivity in the evaluation of project proposals and monitoring: the REPIC Secretariat is hosted by NET Nowak

Energie and Technology AG, which dedicates about 1.5 FTE (Full Time Equivalent) to REPIC. The Secretariat receives project proposals and make sure all the basic criteria for eligibility are fulfilled before sending proposals, along with their recommendations (approve/reject) to the REPIC Steering Group for approval. The Steering Group is composed of one representative of each governmental agency, who has authority to provide a formal decision. Members of the Steering Group generally discuss together and share their respective expertise in environment, energy, economics and socio-economic development aspects before making decisions. Swiss Embassy representatives are consulted when the examined project is located in a SECO or SDC priority country and have an objection right over approval of projects. Concerns shared by the Steering Group are transmitted to the applicants, who must address them in their proposal or through a separate written position statement.

The Steering Group is also involved in the monitoring of projects, but only if specific issues require their attention arise. They do not interfere with the day-to-day project monitoring undertaken by REPIC Secretariat. The overall strategy of REPIC lays with the Directors of the four co-funding agencies, who meet once a year. The general governance of REPIC is summarised in **Fehler! Verweisquelle konnte nicht gefunden werden.**

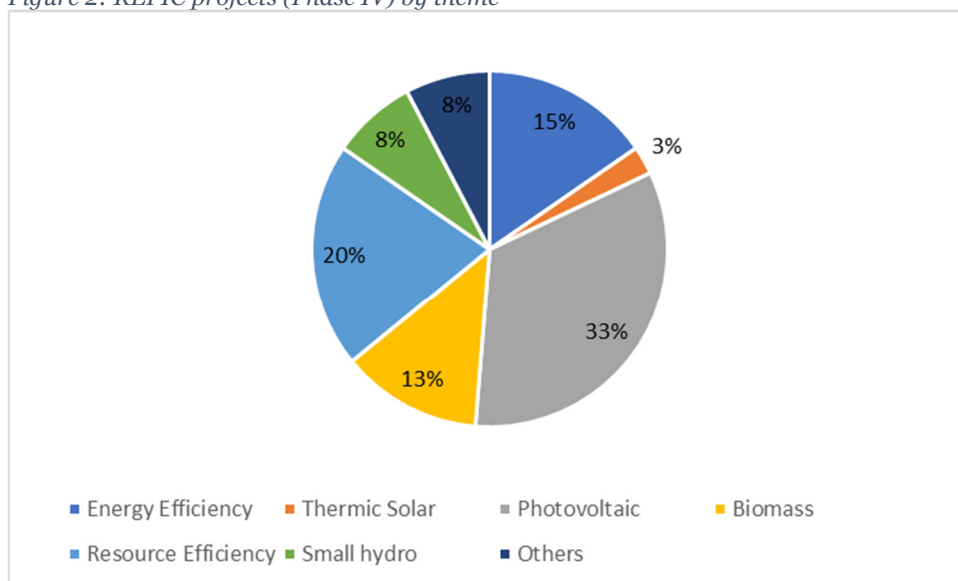
Figure 1: Governance of the REPIC Platform



2.2 Description of type of individual projects under REPIC

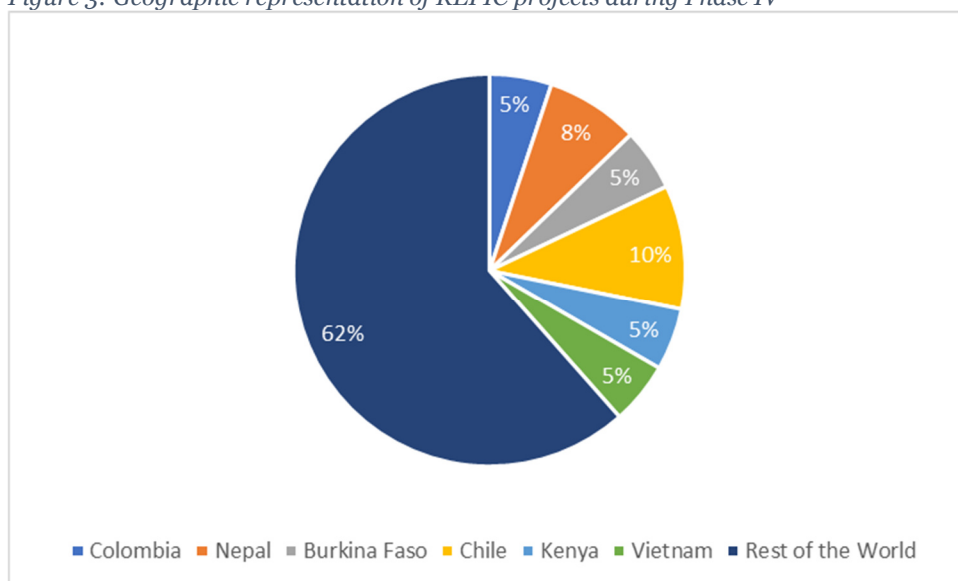
Out of a total of 39 projects, more than one third of REPIC-funded projects in Phase IV involve photovoltaic or solar thermal technologies (Figure 2). Resource efficiency (20%), energy efficiency (15%) and biomass (13%) represent the next largest shares of projects. Other projects include general capacity building or educational programmes in renewable energies.

Figure 2: REPIC projects (Phase IV) by theme



Phase IV projects were based in 28 countries (Figure 3), out of which some had more than one projects: Chile hosts 10% of the projects, followed by Nepal (8%) and Colombia, Burkina Faso, Kenya and Vietnam (5% each).

Figure 3: Geographic representation of REPIC projects during Phase IV



3 Relevance

3.1 Relevance of REPIC to the SECO WE EE-Cities strategic goals and objectives

REPIC was evaluated – both as a programme and through individual projects - against SECO WE's three main objectives for the Energy-Efficient Cities (See the Intervention Logic in the main Evaluation Report), namely:

- *Integrated urban development*, i.e. how improved planning criteria and selective measures promote sustainable urban development in partner countries.

- *Sustainable energy supply*, i.e. how SECO contributes to improving energy policy and investment measures to increase energy efficiency and sustainable energy supply (e.g. by promoting renewable energy).
- *Reliable public services*, i.e. how, through technical and financial support, public utilities are better placed to offer a reliable and affordable public service to local communities.

Most REPIC projects are relevant to at least one of the above strategic objectives and some of them address two or all three objectives (Figure 4), but none of these objectives are covered in all projects: at best, sustainable energy supply is relevant to about 56% of projects. This limitation can be partially explained through the nature of REPIC as a co-funded platform, which involves multiple objectives from all the agencies involved: SDC is looking into the socio-economic development dimension of projects whereas FOEV and FOEN will rather be looking for strong environmental impacts and technicalities of energy production. REPIC projects are selected through criteria which combine the strategic objectives and missions of all four funding agencies and can therefore not give too much focus on one specific objective over others.

3.1.1 Integrated urban development

Integrated urban development is the less widely covered objective in REPIC projects, mostly due to the fact that many of them are being implemented in rural areas. For example, almost all of the 14 projects in photovoltaic and thermal solar implemented during Phase IV concern rural areas, which rules out any relevance with SECO's first strategic objective.

Several Phase IV projects are nonetheless relevant to the integrated urban development objective, as illustrated by the ongoing projects in Tuzla (Bosnia & Herzegovina), under the lead of the Centre for Energy and Ecology, and in Chile under the lead of Ersnst Basler + Partner AG (Projects #12 and #18 in Appendix A). Not only are the municipalities a key partner in these projects, but they are also committed to integrate and implement the outcomes of the REPIC project into their urban development plan, secure finance for the long-term sustainability of the projects and spread the word towards other municipalities for replication.

Phase IV projects, which are considered relevant to the integrated urban development objective are (See Appendix A for project references):

- *Project 1* (SUPSI¹ Ukraine) – Energy efficiency in urban area
- *Project 12* (CEE², Bosnia & Herzegovina) – aims to develop waste collection, sorting and recycling in Tuzla (B&H), in partnership with the municipality. The project is a long-term collaboration with Switzerland and REPIC, incl. previous projects on solar panels, building insulation and continuous training. The Swiss partner (Förderverein CEE, formerly UEZ³) is very active and instrumental in making the project sustainable over time: they have created a platform to enhance collaboration between Swiss and local partners, who did communicate effectively within the country. A good work relation exists between the two countries at governmental and diplomatic levels too. The project is to be extended (replicated) from the district level to the whole municipality, as the next project phase was approved by city parliament (without REPIC funding). Other cities expressed their interest in replicating the project.
- *Project 17* (Eisenring, Nepal) – electric mobility.
- *Projects 18* (thermal insulation of buildings) *and 27* (remote heating) are both held in Chile, in partnership with the Ministry of Energy, Cities and Local Authorities. Other projects were conducted with the same local players in previous phases (7 in total). This collaboration is functioning very well, due to a combination of favourable conditions: several Swiss companies are active in Chile, partnerships exist between the governments and between Berne and cities in Chile,

¹ University of Applied Sciences and Arts of Southern Switzerland

² Centre for Ecology and Energy

³ Umwelt und Energiezentrum

the Swiss embassy in Chile is very active in cooperation and the Swiss - Chilean chamber of commerce collaborates actively. These conditions are beneficial to the impact of these projects beyond their individual results and their replicability.. Beyond political agreements and cooperation between Chile and Switzerland, REPIC provided a concrete opportunity for collaboration and transfer of technology/know how.

- *Project 23* (Myclimate, Kenya) – Waste recycling
- *Project 38* (ZHAW⁴, Colombia) – Wastewater treatment

3.1.2 Sustainable energy supply

More than half of Phase IV projects are extremely relevant to this objective, which is also central to other REPIC co-funding agencies. More than half of REPIC projects are focused on renewable energy production, namely *Projects 3, 5, 6, 7, 8, 11, 14, 15, 16, 19, 21, 22, 24, 27, 28, 30, 31, 32, 33, 35, 37 and 39* (See Appendix A for references). Renewable energy sources mostly consist of photovoltaic/solar thermal, biomass and small hydro. Past projects also included wind and geothermal energy.

The three dimensions of sustainability (environmental, economic and social) are evaluated as part of the selection criteria, including potential reductions in CO₂ emissions when appropriate. However, the evaluation reveals that reductions in CO₂ emissions are seldom measured, the reason provided by interviewed stakeholders being that REPIC-funded projects are too small to meaningfully contribute to mitigate climate change.

Other sustainability issues considered in project evaluation include energy storage (e.g. the recyclability of batteries) atmospheric pollution (e.g. emissions from project must remain below regulatory thresholds).

Specific environmental concerns or objectives may be raised by the REPIC Steering Group upon project proposal or inception phase (esp. by SFOE) and must be addressed in the project design and work plan. These concerns/objectives are included in the contract and milestones and must be reported against. REPIC projects can be useful in assessing certain environmental impacts and better mitigate them in commercial phase.

3.1.3 Reliable public services

As for integrated urban development, the “reliable public services” is not a central objective for all REPIC co-funding agencies. Therefore, only a limited number of Phase IV projects address this objective specifically, for instance:

- *Project 38* (ZHAW, Colombia) aims to transfer Swiss know-how on wastewater treatment (Medellin) and further build capacities in cleaner production centres. A potential multiplier effect exists in the future to upgrade wastewater treatment installations by municipal services and industrial facilities.
- *Project 12* (CEE, B&H). The new waste management plan will improve the operation of the public utilities allowing them to provide more reliable and affordable public services. The new plan will improve all segments of the waste management process from the collection of waste to waste sorting, processing and final disposal solutions.
- *Projects 7, 8, 10 and 30* deal with the integration of public energy networks and the transmission of competences to the local academic sector.
- *Project 19* (Sahay Solar, Ethiopia) is about training staff for electrification of local clinics and other infrastructure, which has a public service dimension, especially if the project gets replicated in the future.

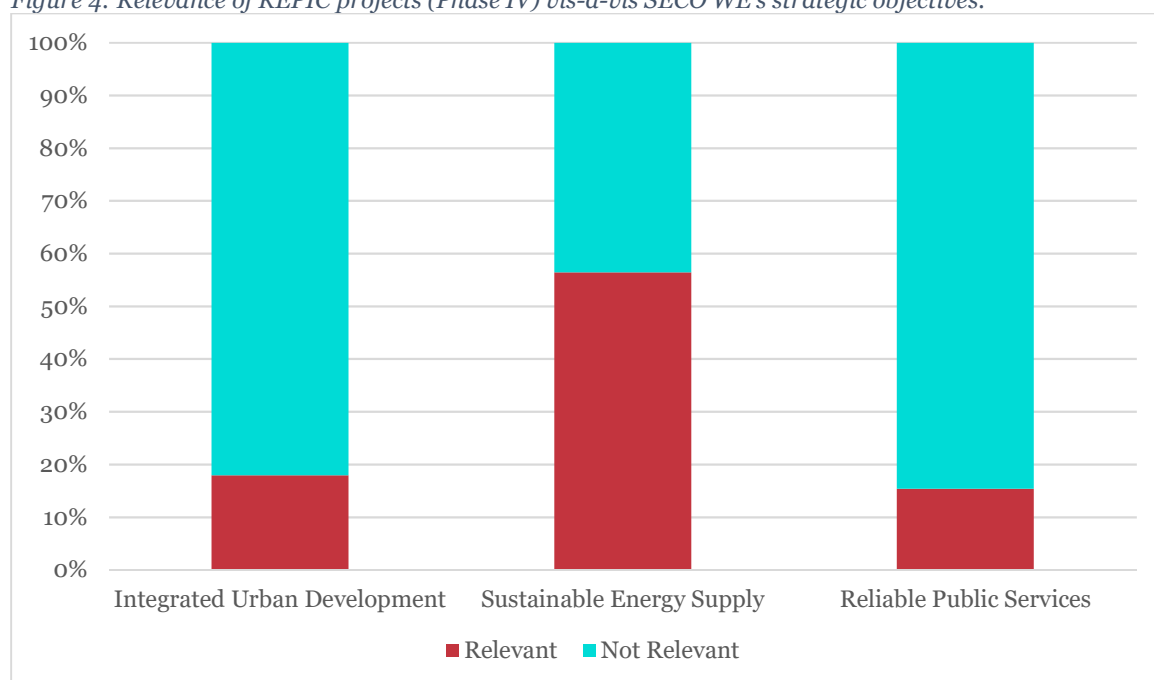
Several projects aim to compensate for the lack of public services (e.g. *Projects 3, 17 and 37* in Nepal – energy supply). In some cases, local authorities take over upon project completion and transform the

⁴ Zurich University of Applied Sciences

project into a public service. This potential handover is an important criterion in the selection and evaluation of a project by REPIC.

“Swiss Fresh Water”, a project in Senegal from REPIC phase III was a hybrid business model including the private and public sector over freshwater supply. In such case, the economic viability comes with little earnings, but the replication brings about the socio-economic dimension at larger scale. Stakeholders report that projects involving provision of basic services by the private sector are monitored more closely by REPIC staff. This is due to an increased risk of unintended negative consequences for local communities in case private actors try to establish a monopoly (e.g. water supply or waste treatment) and generate large profits. While transferring basic services to the private sector would enhance the chances for project outcomes and impacts to be sustained in time, important profits at the expense of consumers would not be considered in line with REPIC objectives.

Figure 4: Relevance of REPIC projects (Phase IV) vis-à-vis SECO WE's strategic objectives.



3.2 Relevance projects to country/regional needs and challenges and strategic objectives

An important dimension of REPIC projects, as raised by most stakeholders interviewed in this evaluation, is the bottom-up process for project objectives and design. Although the project must be implemented by a Swiss partner, projects build upon local needs and challenges. REPIC grantees insist on the importance of the programme to support local and regional innovation in energy efficiency, sustainable energy supply and resource efficiency, which meet local needs and expectations. Through REPIC funding, promising innovations can progress from the concept to the pilot stages and demonstrate commercial relevance.

Whenever Swiss or European innovations or concepts (e.g. the European Energy Award) are used in REPIC projects, coordinator and partners make an effort to adapt these to the local context and needs, which enhances the chances of success and replicability of the project in the region/country.

The integration of REPIC projects in a national strategy (whenever there is one) is an important criterion for the selection of projects, although not an exclusive criterion. Applicants must explain whether the context is favourable for the replication of the project or if it can get integrated in the enforcement of national/local regulations. Exchanges with local partners is very important to help understanding the context.

In spite of the absence of systematic and quantitative evaluation of environmental impacts, such as greenhouse gas emissions reduction, some projects are very likely to contribute to the objectives set in Nationally Determined Contributions (NDCs), e.g. the reduction in household demand for coal-based energy through energy efficiency measures or the recuperation of methane emitted by organic waste. However, the development and implementation of a systematic framework for the quantitative evaluation of environmental benefits such as energy consumption and GHG emission reductions would provide more concrete evidences of SECO's positive contributions to certain SDGs⁵ and should be envisioned by REPIC in future phases, as described in Section 7.

3.3 Relevance of the project partnerships

Eligibility criteria for REPIC funding include the need for a Swiss-based organisation to apply, in partnership with local organisations in the beneficiary country. Given their small size and the fact that REPIC only funds projects up to 50% of their total cost, REPIC projects rely significantly on the efficiency of partnerships, which are established to execute, monitor, promote and replicate projects. A majority of individual REPIC-funded projects achieve the expected outputs. However, the evaluation reveals that only a few projects are being replicated and therefore obtain a multiplying effect (See Section 6.3 on sustainability). This is in large part explained by the robustness and reliability of the project partnerships established by the project coordinator, with support from local SECO representatives and diplomats. In some projects, a considerable amount of time and effort is invested by the REPIC beneficiary to get engagement and ownership from the national government, with valuable help from local Swiss representatives. In Chile, efforts to demonstrate the significant benefits to be obtained from the Energy City Tool (on the model of EEA) led the government to strongly promote the project outcomes and tries to replicate it in other municipalities in the country, and abroad (e.g. Colombia).

Due to the prominent entrepreneurial dimension of REPIC projects, solid partnerships are also required with local companies to promote innovations and technologies. In Kenya, Venture South was successful in creating a viable business model based on money lending for solar installations.

3.4 Relevance of REPIC goals vis-à-vis economic development ambitions

The Swiss Government, mostly via SDC and SECO, is pursuing an ambitious strategy of international development and cooperation. This strategy is defined through specific criteria, which include access to sustainable energy and capacity building for local actors. While both SECO and SDC implement large funding programmes in partner countries, the somewhat smaller REPIC-funded projects also contribute to achieving these objectives. The close involvement of local Swiss representatives (incl. diplomats in certain cases) in facilitating cooperation with local authorities and partners is a critical factor to ensure that the projects funded by REPIC are properly implemented and sustained over time. Through the successful implementation of REPIC projects, some countries (e.g. Chile, Bosnia & Herzegovina, Kenya) appear to benefit at a larger scale from the lessons learned, innovation and capacity building brought about by REPIC projects. These assets are instrumental for the economic development of beneficiary countries.

4 Effectiveness

4.1 Local impacts of REPIC-funded projects

According to the external evaluation conducted by JaLogisch (2017), very few projects end up as “failing to achieve objectives” (about 3-4%). About 60% can be considered as “fully achieving objectives” and the rest as “partly achieving objectives”.

All the stakeholders interviewed during this evaluation concur that REPIC is achieving its expected impacts, with regards to supporting local partners in promoting and developing innovations in energy

⁵ Sustainable Development Goals

efficiency, sustainable energy source and resource efficiency, and bringing them closer to a commercial stage.

Some individual projects have a positive evaluation in terms of achieving objectives, but their replicability might be limited – and vice versa. All project final reports include a “lessons learned” chapter. If the milestones established in the project proposal are not achieved during implementation phase, a readjustment by the project beneficiary is possible, otherwise the project can be stopped or payments reduced.

Specifically, the reported socio-economic benefits of REPIC projects include the progression of certain technologies and enterprises towards commercial stage, which eventually generates wealth, jobs and capacity (esp. through the creation of academic cursus by local universities). REPIC grantees and project beneficiaries tend to evaluate the likelihood for financial sustainability of projects as high.

4.2 Replication of REPIC-funded projects

Even when several projects happen in a country, individual REPIC-funded projects are deemed too small to yield significant impacts on the country policy or legislative framework. However, several REPIC-funded projects were replicated in other locations in the country and their outputs were used to develop/improve regulation or academic cursus. This contributed to multiply the impact of REPIC projects over time, as illustrated in the following examples.

The Energy City Programme deployed in Chile through REPIC funding and is the most emblematic example of positive impacts beyond the initial project scope. The successful implementation of the programme among three pilot municipalities convinced many other municipalities to follow a similar process, which will greatly amplify the positive impacts of the initial project. The Chilean government, via its energy ministry, decided to invest significantly in the programme (3 million CHF) and reinforce its strategic partnerships with Switzerland. A similar project is now being implemented in Colombia directly funded by SECO but based on the successful outcomes from the initial REPIC-funded project in Chile. This illustrates the leverage effect of REPIC projects, which can serve as demonstrators before a more important funding is granted by SECO.

The successful development of waste management and energy efficiency plans in Tuzla convinced the municipality and local authorities to adapt the legislation to further support the implementation of the plan and provide funding. Other municipalities have contacted the local coordinator (CEE) to evaluate the possibility to develop and implement a similar programme, therefore widening the initial project benefits to a wider scale.

In Burkina Faso, a new law was passed on electricity production by private players. The ongoing REPIC project Phase IV will be the first enforced under this new law.

In spite of these three examples, it appears that not all REPIC projects bring about significant impacts on policies and regulations. This can be explained by the very nature of the projects, which may not be as replicable as others (e.g. the establishment of an energy production facility). In Chile and Bosnia & Herzegovina, the excellent relations that exist between Switzerland (through SECO and/or local diplomatic representations) and local authorities (e.g. municipalities, local parliament, city council) also explain the replication of the project and its impacts beyond the initial project scope. Such situation is not found in all countries in which REPIC projects are implemented.

4.3 Overview of REPIC outcomes and outputs

Table 1 provides an overview of REPIC expected outcomes and outputs, as described in the Credit Proposal (Phase IV). On the basis of this evaluation, there were fewer projects funded in Phase IV than originally expected (39 vs 50 in the credit proposal). This is due to the fact the credit proposal used the average grant per project from phase III (about 90'000 CHF) to extrapolate the likely number of supported projects in Phase IV. It turns out, however, that the average project costs in Phase IV was higher than in Phase III (about 130,000 CHF), thus resulting in fewer projects. Personal communications with REPIC staff indicate that the application and selection processes were made more

comprehensive in Phase IV, by adding, for example, DAC criteria in the evaluation. This naturally ruled out smaller projects (e.g. 20,000 CHF), for which the received grant would not justify the added effort at application stage.

As a general conclusion from the evaluation team, REPIC projects achieve the intended objectives within the expected budget and timeline. The evaluators note, however, that only one third of REPIC project owners report that their project was replicated at least once (See Section 6.3), that their project had been replicated somewhere else, although the replicability is an important eligibility criterion at the selection stage.

More generally, not all REPIC beneficiaries are successful in promoting project results with the aim of replicating it. In turn, REPIC can be seen as a model of successful cooperation between different governmental agencies, thanks to a balanced, fair and consensus-based governance process, through which some of the specific objectives of all co-funding agencies overlap (e.g. energy access, economic development, climate change mitigation, etc.). The REPIC Secretariat is widely acknowledged as efficient and supportive, both at the application stage and during the project implementation. The reduced amount of bureaucracy is greatly appreciated by grantees.

Table 1: Evaluation of REPIC outcomes and outputs (as described in the Credit Proposal)

Expected outcomes	Expected outputs	Project achievements until May 2018
<i>Outcome 1:</i> Project promotion / implementation and knowledge transfer: successful implementation and replication of concrete projects.		Most projects are considered as fully or partly achieving their intended results at individual level. About one third of projects (Source: JaLogisch) were replicated once or more in the same country. About one third of respondents did not know whether it was the case.
	<i>Output 1.1:</i> Successful implementation of 50 projects.	This output was partially achieved, as only 39 projects were funded in Phase IV.
<i>Outcome 2:</i> Networks, Information, communication and coordination: successful information and communication as well as national and international partnerships and networking contacts.	<i>Output 2.1:</i> Increased knowledge sharing and networking between the involved agencies.	Multiple initiatives from the REPIC Secretariat to enhance cross-project experience sharing and promotion of achieved results, through specific events and transparency (all project evaluations available on REPIC website). All project partners expected to promote project results and communicate among relevant stakeholders, but not all partners are successful, due to lack of internal capacities for promotion and communication and level of support from local stakeholders (e.g. governments).
	<i>Output 3.1:</i> One-stop-shop for external requests.	REPIC has been successful in ensuring a balanced governance and consensual decision-making process among all involved Swiss governmental agencies. REPIC is effectively the one-stop shop for funding of individual projects looking at energy efficiency, renewable energy or resource efficiency.
<i>Outcome 3:</i> Coordination between the involved federal agencies. REPIC as a one-stop shop for external requests.	<i>Output 3.2:</i> Prompt efficient treatment of project proposals by the Secretariat REPIC.	The Secretariat is acknowledged by beneficiaries, partners and steering group as particularly efficient, prompt and supportive throughout the project life-cycle.

4.4 EEA

At the time of conducting this evaluation, few REPIC projects were officially EEA-certified, since EEA certification is not an eligibility criterion for REPIC funding and the size of REPIC-projects is not necessarily adapted to the whole EEA process. Nevertheless, several objectives and outputs/outcomes achieved by projects would be relevant in an EEA evaluation. In the early days of REPIC, the link with the EEA framework was stronger, as the EEA criteria were used as framework to build the structure of

certain projects on energy efficiency and renewable energy production. Although few of the current projects are EEA-certified, the framework used for the evaluation of project proposals and the continuous monitoring and reporting of ongoing projects is a reflection of the link and complementarity between REPIC and EEA. In 2016, REPIC organised an experience-sharing gathering in Bern with the mayor of Chefchaouen, who obtained the EEA label following completion of a REPIC project.

Since the EEA methodology is not applicable to every local situation, it often needs to be adapted to the context, e.g. pilot phase of MENA project in Morocco. Projects conducted in Chile are extremely relevant to the EEA context, although the concept was adapted locally under the “Energy City Programme”. The Swiss partner has been undeniably successful in demonstrating the relevance and benefits of the programme, starting with a pilot phase involving three municipalities, which triggered a nationwide programme involving 34 municipalities currently on their way to obtain an “Energy City” label.

There are other global programmes and certification related to energy efficiency and renewable energy which were influential to REPIC besides EEA, including Top Ten, Programme des bâtiments and Société 2000W.

4.5 Appreciation of the Swissness of the project

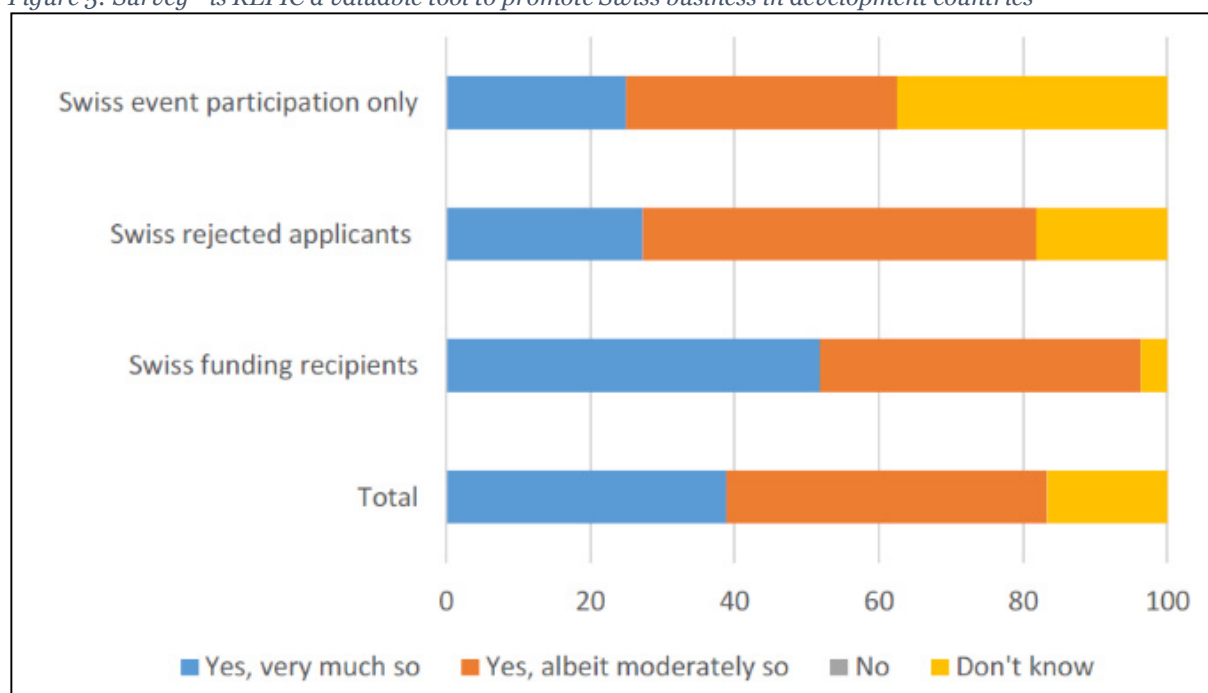
The transfer of Swiss know-how (technology, but also business models, education cursus, policy) is an important dimension of REPIC, given that a Swiss partner is compulsory for any project submission. The partner should preferably have a continuous presence in the beneficiary country and a demonstrated knowledge of the context, which is an important parameter for the replicability of the project beyond its initial scope. The implication of Swiss embassy representatives further contributes to ensuring a high quality (Swissness) in the project and its replication. Diplomats generally have an extensive network of high-level officials and other important private/public stakeholders in the country. According to the stakeholders consulted during this evaluation, their involvement is also perceived by local officials and companies as an additional layer of assurance regarding the robustness and efficiency of partnerships.

According to the beneficiaries interviewed during this evaluation and the external evaluation conducted by JaLogisch in 2017, REPIC is judged very positively, compared to other funding programmes. Stakeholders generally recognise the following particularities of REPIC, compared to other funding programmes:

- The process for project proposal submission and approval is relatively simple and fast;
- The REPIC Secretariat is reactive and serviceable when providing feedback and guidance for proposal owners and project managers. Project monitoring and evaluation by the Secretariat and subsequent communication towards REPIC Steering Group are considered very satisfactory;
- The transfer of high-value knowledge, competence and technology from Swiss players helps building trust and buy-in from local players, including during the replication phases;
- The sharing of competences and lessons learned between beneficiaries through the dissemination of information and networking is seen positively.

In the external evaluation conducted by JaLogisch (Figure 5), almost all REPIC beneficiaries (Swiss funding recipients) agree that REPIC is a valuable tool to promote Swiss business. Rejected applicants have a more negative perception of the value of REPIC as a tool to promote Swiss business, but on average, more than 80% of respondents have a positive view.

Figure 5: Survey - is REPIC a valuable tool to promote Swiss business in development countries



Source: JaLogisch

5 Efficiency

5.1 Global appreciation of the cost-efficiency of the project by evaluator and project managers/beneficiaries

On the basis of the interviews conducted during this evaluation, no particular issue was reported with regards to the spending in REPIC-funded projects. Most projects deliver on defined objectives within the approved budget, while some of them generate extra value when replicated outside the context of REPIC funding, although the notion of “return on investment” does not really apply to the REPIC context. For instance, the validation of an academic cursus or the integration of project outcomes in legislation creates a positive economic environment, although the specific impact of REPIC can sometimes be hard to dissociate from other factors. Punctual monitoring by REPIC Secretariat allows identifying financial issues and/or gaps in achievements early enough to suggest and implement changes in the beneficiaries’ strategy and/or activities. Whenever corrective actions do not lead to the expected improvements, the REPIC Steering Group, in consultation with the Secretariat, may decide to terminate the project, although this situation happens to be rare.

Some projects include a business model, e.g. Venture South in Kenya (PV), which is highly successful. Outputs include jobs, energy access, GHG savings and technology transfer to local actors, including for the maintenance of installations.

Through their successful completion, two Phase IV REPIC projects led to additional investments from local players and were replicated in other locations, therefore multiplying the effect of initial REPIC funding significantly:

In Chile, 34 municipalities entered the Energy City Programme (15 more to come), following the successful completion of a REPIC-funded pilot phase involving three municipalities. In order to enhance financial sustainability, local partners local partners were encouraged to invest in the project as well.

In Tuzla, REPIC financed the procurement of insulation material for buildings while individual household have co-invested in all the works required to place the insulation in the buildings (energy

efficiency). Similarly, a lot was achieved in relation to the development and implementation of the waste management plan, partly because of the co-investment by the city of Tuzla.

As a programme, management costs for REPIC are much higher than other international programs, since the Secretariat on its own represents more than 27% of the total REPIC budget in phase 4 (total budget of about CHF 7 million) and in phase 5 (CHF 7.6Mo). In the view of the evaluating team, these relative high costs may be explained by the following reasons:

- A large number of small projects require more coordination and monitoring than if the same amount of funding was spent on a limited number of larger projects leading to efficiency losses;
- The level of assistance and support provided by the REPIC Secretariat appear to go beyond what can be found in other international development programs, especially at the project design stage;
- Outsourcing the coordination of REPIC induces extra costs (e.g. overheads, communication between SECO and Secretariat, meetings), compared to a direct coordination of REPIC by SECO personnel;
- Swiss consulting rates tend to be higher than average European consulting prices.

During the course of this evaluation, the quality of the coordination by the REPIC Secretariat and its professionalism were highlighted, both at the level of REPIC beneficiaries and SECO personnel. In the view of the evaluation team, some of the positive results achieved in most REPIC projects (achievement of defined objectives and cost efficiency) can be correlated to the close monitoring and support provided by the REPIC Secretariat to the project beneficiaries. An in-depth and specific analysis could be conducted to assess whether efficiency gains could exist in the functioning of the REPIC Secretariat.

5.2 Global appreciation of the quality / relevance of project management/steering/oversight (i.e. backstopping) arrangements and potential for improvement

This is partly explained by the simplicity and flexibility of the processes implemented at the project proposal level up until completion. Before a full proposal is submitted, the REPIC Secretariat provides a preliminary advice, along with recommendations towards the project owner in order to improve the design and work plan, whenever needed. Applicants then submit a full proposal, which is carefully evaluated by the Secretariat. The final decision regarding the acceptance of a project lays with the Steering Group, which meets every 1-2 months and will generally follow the recommendations from the Secretariat.

Instead of micro-managing projects, REPIC Steering Group is mostly consulted in case of problems and relies on the Secretariat to ensure the efficient and continuous monitoring of projects. Projects are evaluated on an annual basis; project beneficiaries must report to the REPIC Secretariat, which ensures that it is complete before passing it on to the Steering Group. The Secretariat or the Group may raise specific questions or require beneficiaries to implement corrective actions, in case the project is perceived to underachieve or stray away from the initial work plan.

Based on stakeholder inputs, the evaluators consider that the current governance of REPIC ensures a sufficient level of oversight and assurance regarding the implementation of projects. A potential area of improvement could be the evaluation of the replicability of projects, which appears more limited in practice than in the project description submitted when applying for funding.

The collaboration between the four co-funding agencies for project selection and monitoring within the Steering Group, and at a higher level among office directors, is reported as being smooth and fruitful, as it builds upon the complementarity of their respective agendas and domains of expertise. Decisions over the selection/rejection, steer and final evaluation of projects are reported as being consensual in most cases.

5.3 Degree of project monitoring and evaluation

All REPIC-funded projects are monitored on an annual basis, which implies reporting by the partner, which is then evaluated for completeness by the Secretariat and transmitted to the Steering Group for

approval. The monitoring and reporting process for REPIC-funded projects appear generally robust, as it builds upon the milestones and deliverables defined at the beginning of the project. REPIC Secretariat and Steering Group take the context into consideration: when uncertainties exist over a technology or in absence of a favourable legal/policy context, the risk of not achieving all objectives is higher. Therefore, while the final evaluation of projects is conducted according to a standardised methodology based on OECD's DAC criteria, there is some flexibility in the interpretation of results. The same indicators cannot be used equally across all projects. The Secretariat and/or the SC may raise specific questions or concerns about a project and propose corrective measures to increase the likelihood of achieving the expected results. In rare cases, the project may be put on hold or terminated if chances of failure are deemed too high and no corrective action can be realistically implemented.

Environmental benefits (including climate change mitigation), which are particularly monitored by the SFOE, are generally included in the project design and evaluation, but actual environmental impacts appear to be evaluated qualitatively, rather than quantitatively. Due to the early stage of REPIC projects, there is no obligation for REPIC beneficiaries to provide quantitative data on GHG savings (some of them conduct such analysis on a voluntary basis), as the environmental impact of such small projects is considered limited. While this perspective carries some merits, the evaluation team is of the opinion that quantitative indicators are useful at individual project level to measure environmental benefits, including on CO₂ emission reductions, for the following reasons:

- It is important for REPIC, and therefore SECO WE, to make sure Swiss public funds are only used on technologies and projects with significant benefits, which is not always the case with renewable energy;
- REPIC projects are demonstrators. If they get replicated as expected or give way to changes in national policies, the multiplier effect may apply to CO₂ emission reductions, so it is important to quantify them upfront.

Ensuring a systematic and consistent use of quantitative performance indicators in the selection, monitoring and final evaluation of projects constitutes the main area of improvement for the REPIC programme, especially greenhouse gas emission reductions, energy savings and other environmental benefits such as water consumption and air quality. The mere fact that renewable energy sources are used in projects cannot be considered sufficient to assert that environmental benefits exist. A significant amount of research and investigation demonstrated that certain technologies may only bring about benefits in given conditions, which depend, among other aspects, on their life-cycle and supply chain. A good example is the utilisation of biomass as an energy source, which requires a careful evaluation of the conditions in which feedstock is being produced and processed.

In order to ensure actual sustainability in projects, future REPIC phases should therefore aim to develop a systematic framework for the quantitative and consistent evaluation of environmental impacts of funded projects. The development or adaptation of a GHG calculation framework would require limited resources, but an important awareness and training effort will be required to make sure REPIC beneficiaries and partners adequately implement such framework.

6 Sustainability

6.1 Likelihood for sustaining the initiative

This evaluation provides robust evidence that REPIC is meeting its objectives regarding the promotion and development of energy efficiency technologies, sustainable energy sources and resource efficiency in partner countries. Project beneficiaries tend to acknowledge the added value of working with a Swiss funder and with Swiss partners, with regards to the competences and experience they bring about and adapt to the local context.

Furthermore, REPIC is a valuable example of internal cooperation between various governmental agencies. The four agencies co-funding REPIC appear to be working efficiently together, taking

advantage of their complementarity in terms of competences and objectives, which generally improves the general work relationships between agencies. The same is true regarding the cooperation between governmental agencies located in Switzerland and Swiss representatives in beneficiary countries, who are systematically consulted and actively involved in the evaluation of project proposals and, if needed, the monitoring of ongoing projects.

According to the evaluation conducted by JaLogisch, the “perceived” potential for sustainability (i.e. will the project continue after REPIC funding ends) of project outcomes is high among project coordinators (67%) and local partners (81%). Nevertheless, the perception of beneficiaries needs to be taken with caution. REPIC supports technologies and innovations in the pre-commercial phase, during which investments are rather limited due to higher risk. This higher risk also explains that financial sustainability is more challenging to achieve with these projects. While some projects are doing well (e.g. Venture South) due to an innovative business model, others may struggle to find an alternative source of funding in case REPIC funding ends before the project becomes fully commercial, or because the project has no commercial dimension (e.g. academic training, research, public policy, etc.).

In certain cases, REPIC may bring in other financial institutions to help sustain a project after completion, if financial sustainability is not immediately achievable. The evaluation team suggests further exploring the possibility for projects with a strong education component (e.g. academic training) to be taken over by universities or public authorities.

In other cases, project beneficiaries use the REPIC-funding period to secure alternative funding upon completion of the project. In Bosnia & Herzegovina, the city of Tuzla and public utility service have secured new investments for the implementation and sustainability of the new waste management plan. With respect to energy efficiency projects, the city council will shortly vote on the support and implementation of the energy efficiency plan for households developed in the REPIC-funded project. Should the energy efficiency plan be enforced, the local government will provide financial support or full implementation of this project. The situation in Tuzla cannot be considered representative, but it demonstrates that financial sustainability is achievable by ensuring participation and buy-in from key local actors in the early stages of the project.

6.2 Key threats to project sustainability

As described in the previous sections, projects tend to bring about positive results with regards to achieving their expected outcomes. The sustainability of projects, beyond SECO support, heavily relies on the capacity of the project coordinator to develop and strengthen a network of partners and supporters. Partners and supporters are key to demonstrate project benefits and further replicate the project in other areas, in particular local and national governments. Engaging with local partners for project promotion and sustainability must be undertaken early on, with the help of local Swiss representatives. In addition, the sustainability of REPIC-funded projects depend on a local socio-economic and political context, which makes the sustainability (and replicability) of a project more or less likely.

The absence of systematic quantification of certain types of environmental and socio-economic impacts can be considered a threat to sustainability: In case the actual environmental benefits of the technologies or business models supported by SECO happen to be limited, the attractiveness of the project as business case and the likelihood of sustained outcomes and replicability would appear limited. It is therefore important for SECO and the REPIC platform to develop and implement a consistent and systematic framework for the quantitative evaluation of certain types of impacts, such as greenhouse gas emissions and water consumption, in all projects.

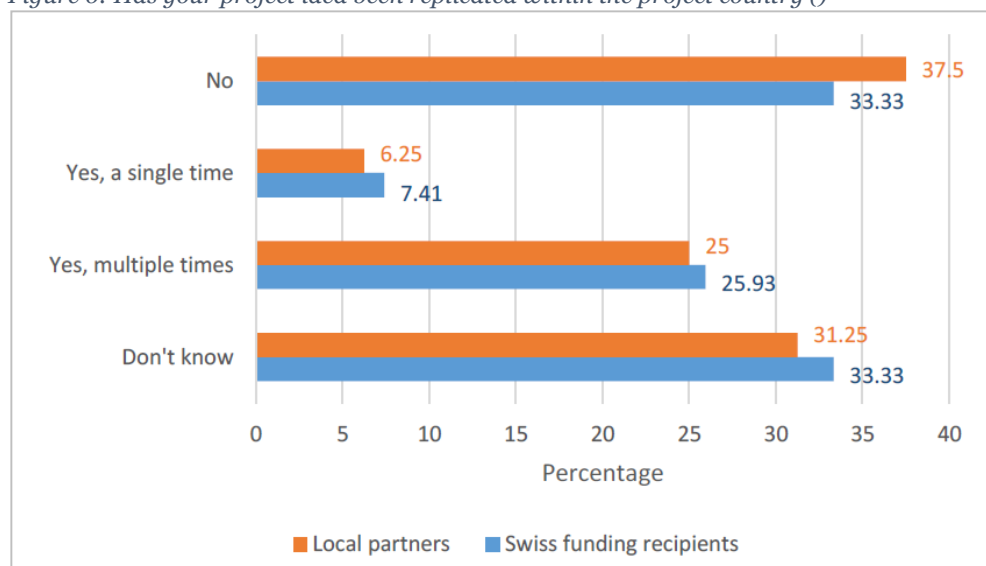
6.3 Potential for replication

As a programme, REPIC could be used as a model to trigger similar collaboration processes across different governmental agencies. The model may as well be used by other countries to set up similar programmes, as part of their larger strategy for cooperation and international development.

Not all projects have such an advanced level of collaboration among the different players as in Chile. The governmental dimension can be missing (e.g. Africa, Nepal) or the local anchorage of Swiss players is not as deep. A continuous presence of the Swiss player locally is an important selection criterion for the preparation of project replication, as REPIC would not fund a one-shot project in a given country. When local governments are less involved, opportunities may exist for other players to step in and help implementing and replicating projects; in such situation, project clusters are created to ensure some continuity and replicability in a country/region/municipality.

The replicability of projects is a critical parameter for the acceptance of proposals by REPIC. However, according to the external evaluation conducted by JaLogisch (Figure 6), about one third only of REPIC beneficiaries report that their project was replicated elsewhere in the country, at least once or multiple times. Room for improvement therefore exists in order to increase the actual number of projects, which are replicated following the REPIC-funding phase.

Figure 6: Has your project idea been replicated within the project country ()



Source: JaLogisch

Based on those REPIC-funded projects, which proved highly replicable, the following conditions shall be further promoted to increase the chances for the project to be replicated:

- A strong involvement and leadership of local governments over the development of energy efficiency and renewable energy, which would create a favourable environment for the efficient implementation of REPIC projects;
- Identifying key technical players within municipalities or industrial ecosystems and coordinating with them so that they can contribute to the project implementation and post-project maintenance, in line with their own vision;
- Consultations with Swiss Embassy Representatives who “open doors” among country’s officials;
- A good understanding of local economic, political and social context, e.g. decentralised energy production units will be easier to deploy if a trend towards economic/policy decentralisation already exists (as in Chile and Colombia);
- The existence of a robust financial vehicle (e.g. participation fee, secured investments from municipalities, public-private partnerships, other international donors, etc.) to sustain operations over time;
- The independent/neutral demonstration of concrete benefits early on, which will enhance the implication of officials (in the perspective of election periods) and can be used to demonstrate feasibility among other municipalities;

- Capacity building among local players, including external experts and consultants. In the case of Chile, guidelines were developed to help consultants improve their skills, efficiency and relevance in support of municipalities engaged in the Energy City programme. As a result, more than 15 consultancies now offer related services throughout the country.

The above conditions are based on the practical experience of REPIC partners and could be used to further improve the guidelines and eligibility conditions for future projects. The collaboration and experience sharing process driven by the REPIC Secretariat (e.g. conference, networking, dissemination, etc.) is also an efficient vehicle to make REPIC grantees aware and knowledgeable of the above conditions for replicability.

7 Conclusions and recommendations of the case study

REPIC is a well-functioning and impact-focused platform

Interviews and research conducted during this evaluation tend to demonstrate the positive results obtained by the REPIC platform in promoting and supporting innovation and pre-commercial technologies for energy efficiency, sustainable energy sources and resource efficiency.

The programme is acknowledged at various levels as delivering on the expected results and is particularly valued by local partners, in particular the Swiss industrial/academic/policy know-how and impact-focused financial support. REPIC projects follow a bottom-up approach, which ensures that local needs remain central to the project scope and design.

The current governance and functioning of REPIC is, among all stakeholders consulted during this evaluation, considered very efficient, especially the reactivity and serviceability of the REPIC Secretariat, which closely monitors and supports beneficiaries through the project life cycle. The red tape is relatively limited, which makes project submission and monitoring faster and smoother, compared to other international donors. These benefits come, however, at a high cost since more than 27% of the REPIC budget is dedicated to its Secretariat.

Although REPIC does not constitute a significant share of the resources invested by Switzerland in internal cooperation and development, it remains an important tool of the Swiss strategy to support partner countries towards sustainable energy access and other relevant Sustainable Development Goals (SDGs).

REPIC relevance for SECO WE's business lines is limited

An important observation is the partial relevance of REPIC projects with SECO WE's business lines (under its target outcome 4 "low-emission and climate-resilient economies"), with less than 20% of Phase IV projects being relevant to either "integrated urban development" or "reliable public services". This limitation is essentially due to the wider scope of REPIC, which reflects the agendas of its various co-funders. In addition, international development in general and energy access in particular are extremely relevant to rural areas, as illustrated by the numerous REPIC-funded projects outside urban areas, which naturally reduces the relevance of these projects against urban-specific objectives. Nevertheless, "sustainable energy supply" is addressed in almost 60% of REPIC projects, and clearly constitutes a common strategic pillar for all four co-funders, as it entails sustainable energy technologies, environmental protection, socio-economic benefits and local development. At this stage, trying to increase the weight of SECO WE's specific objectives does not necessarily appear advisable, as it could impair the constructive relationship and balance of stakes, which currently exists between REPIC co-funding agencies. It should be noted that some projects do contribute to all three SECO WE's objectives, but this is rather exceptional for Phase IV projects.

Impact evaluation: from qualitative to quantitative

Although REPIC-funded projects are small and cannot individually bring about significant impacts on global issues such as climate change, the absence of systematic/quantitative evaluation of impacts currently prevents REPIC from using REPIC projects as demonstrators of sustainable technologies, and confirming and documenting the extent to which certain sustainability objectives are met (especially with regards to climate change mitigation) before possibly scaling its contribution up.

Should a given project or technology be replicated at a larger scale, it is important to ensure that it delivers significant greenhouse gas or water savings (for example), compared to business as usual. A consistent framework for monitoring & evaluation of environmental, social and economic impacts brought about by REPIC-funded projects (incl. a methodology for greenhouse gas accounting), would help ensuring that the most sustainable technologies are being promoted, reinforce the case for the continuation of the programme and improve the final evaluation of projects.

The challenge of financial sustainability and replicability

Long-term sustainability is challenging in certain contexts, as outlined in REPIC's 3rd end-of-phase report (2015), and should remain an important priority for REPIC. In spite of a perceived high chance of project sustainability over time by beneficiaries, the practical reality calls for prudence regarding the possibilities for projects to be sustained and possibly replicated after REPIC funding ends. The financial sustainability of projects is tightly bound to the capacity of beneficiaries to involve key stakeholders and investors as early as possible in the project by demonstrating feasibility and added value. The strong implication of local Swiss representatives appears instrumental to create or reinforce connections to strategic local players, in particular at governmental levels, which can then contribute to the long-term sustainability of the project.

Similarly, the replicability of REPIC-funded projects and amplification of impacts beyond the initial project scope heavily relies on the capacity of the project coordinator to demonstrate concrete benefits, which can be used to promote the project among other potential beneficiaries. A list of the conditions, which enhance the replicability of projects, is included in Section 6.3. Those are based on success stories in Chile, Kenya, or Bosnia & Herzegovina, and should be used to strengthen the framework for monitoring and supporting project beneficiaries towards financial sustainability.

The European Energy Award process helps streamlining the implementation of energy efficiency and renewable energy efforts but is not accessible to smaller projects

The EEA criteria and process significantly overlap with the SECO WE business lines and target outcomes, as well as the DAC criteria used for the evaluation of proposals and continuous monitoring of projects. EEA certification is nevertheless limited to projects with a sufficient size, local capacities and available resources: a great deal of REPIC-funded projects are too small or lack sufficient resources to be eligible for the EEA process, which requires a strong involvement and large resources, generally provided by municipalities or private partners. Furthermore, the generic EEA framework often needs to be adapted and transposed into the local context, which requires a collective effort involving several municipalities and the national governments. For example, the Energy City Programme developed in Chile, used REPIC-funding to demonstrate the feasibility and benefits of the programme, while securing alternative sources of funding in parallel, later leading 34 municipalities to embark in the process.

Appendix A List of REPIC Projects in Phase IV

1	<u>SUPSI - Ukraine</u>	EE	completed	Ukraine
2	<u>Kessel - Kolumbien</u>	ST	Stopped	Colombia
3	<u>Weconnex - Nepal</u>	PV	completed	Nepal
4	<u>Swiss Fresh Water - Bolivien</u>	EE	Ongoing	Bolivia
5	<u>Planair - Mali</u>	BM	Ongoing	Mali
6	<u>Nouvelle Planete - Vietnam</u>	BM	completed	Vietnam
7	<u>DASAG - Indien</u>	PV	completed	India
8	<u>Zenna - Belize</u>	PV	Ongoing	Belize
9	<u>Topten International - Chile</u>	EE	Ongoing	Chile
10	<u>ASS/UDM - Kamerun</u>	Diverse	Ongoing	Cameroun
11	<u>IEA PVPS Task 9</u>	PV	Ongoing	Global
12	<u>Förderv CEE - Bosnien&Herzeg.</u>	RE	Ongoing	Bosnia & Herzegovina,
13	<u>Sofies-Emac - Vietnam</u>	RE	Ongoing	Vietnam
14	<u>Venture South - Kenia</u>	PV	completed	Kenya
15	<u>Carbotech - Burkina Faso</u>	PV	Ongoing	Burkina Faso
16	<u>GFA Entec - Pakistan</u>	KWK	Ongoing	Pakistan
17	<u>Eisenring - Nepal</u>	EE	Ongoing	Nepal
18	<u>EBP - NOVA-Binz - Chile</u>	EE	Ongoing	Chile
19	<u>Sahay Solar - Äthiopien</u>	PV	Ongoing	Ethiopia
20	<u>EFECO - Tansania</u>	RE	Ongoing	Tanzania
21	<u>EBP - Usbekistan</u>	BM	Ongoing	Ouzbekistan
22	<u>Bioburn - Uganda</u>	BM	Ongoing	Uganda
23	<u>myclimate - Kenya</u>	RE	Ongoing	Kenya
24	<u>Zenna CapacityB - Belize</u>	PV	Ongoing	Belize
25	<u>FairRecycling - China</u>	RE	Ongoing	China
26	<u>Caritas - Haiti</u>	EE	Ongoing	Haiti
27	<u>EBP - Chile</u>	BM	Ongoing	Chile
28	<u>CEAS - Madagaskar</u>	KWK	Ongoing	Madagascar

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29	<u>Terre et Faune - Komoren</u>	RE	Ongoing	Comores
30	<u>EPFL-PV Lab - Senegal</u>	PV	Ongoing	Senegal
31	<u>Pure Power Solution - Ghana</u>	PV	Ongoing	Ghana
32	<u>CDE - Chile</u>	Diverse	Ongoing	Chile
33	<u>HES-SO - Burkina Faso</u>	PV	Ongoing	Burkina Faso
34	<u>SOPAS - Benin</u>	RE	Ongoing	Benin
35	<u>Shanti - Bangladesh</u>	PV	Ongoing	Bangladesh
36	<u>Myclimate - Iran</u>	Diverse	Ongoing	Iran
37	<u>RIDS - Nepal</u>	KWK	Ongoing	Nepal
38	<u>ZHAW - Kolumbien</u>	RE	Ongoing	Colombia
39	<u>Mpower - Sambia</u>	PV	Ongoing	Zambia

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Forschung, Entwicklung,
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This report comprises
20 pages of text
1 table

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1 Background

1.1 European Energy Award

The European Energy Award (EEA) is a standardized management and quality assurance instrument for municipal energy and climate protection policy developed in 2003 from the Energy City label established in Switzerland. The implementation of the EEA at the municipal level follows a continuous optimization process based on the »plan, do, check, act« principle. With its catalogue of measures and implementation tools, the EEA is specially tailored to the needs of local authorities that implement national and global climate protection targets on site [1].

The introduction of the EEA in a municipality starts with the political decision to join the EEA program. The first step is to form an interdisciplinary energy team consisting of local politicians, local authorities, citizens and local stakeholders. The energy team is responsible for the implementation of the EEA, controls the processes in the municipality, collects data and is responsible for public relations and internal communication. The team is assisted by an accredited EEA consultant who supports the inventory analysis, the implementation of measures and the preparation of documents for the external audit.

The municipalities are provided with a catalogue of measures, consisting of up to 79 measures in six areas of action, which can be actively influenced by the municipality. The catalogue of measures follows a holistic approach and addresses the topics of development and spatial planning, municipal buildings and facilities, supply and disposal, mobility, internal organization, as well as communication and cooperation [2]. Depending on its importance, each measure is assigned a score that can be achieved by a municipality if all the requirements underlying the measure are met [3].

Within the framework of the inventory analysis, a strengths and weaknesses profile is drawn up for the municipality, which shows the need for action to be taken in the individual areas. Based on these findings, an energy policy work program for the coming years will be drawn up. The work program is binding and describes which measures are to be implemented by whom, by when and with what budget.

The municipalities are provided with various instruments to identify and implement projects. These include, for example, a tool for recording planned and implemented projects, questionnaires for status analysis, calculation tools for evaluating measures, balancing tools for drawing up CO₂ balances, as well as information material, templates, forms and a process manual.

The performance and success of the municipality are regularly reviewed by external auditors. An important part of the audit is the certification of the participating community for its performance in local climate protection. If at least 50 % of the possible points are achieved, the municipality receives an

award. A municipality with outstanding commitment and exemplary function that achieve at least 75% of the points receive a gold award.

The wide dissemination of the EEA in Central Europe has created a large EEA network. Here, an important exchange of experience and best practice applications takes place among local energy teams, accredited consultants and auditors as well as political decision-makers at various levels. There is also cross-border networking via the European Forum [4].

The State Secretariat for Economic Affairs of Switzerland (SECO) is committed to reconciling the growing interest in municipal climate protection policy and in the development of integrated energy and climate protection concepts in other countries with the EEA. Financial resources will be made available to expand the established EEA approach and anchor it in the international context.

The EEA is part of SECO's overall strategy to support local authorities in their decisions on urban development and investment priorities. This includes improved data collection, introduction of new processes in urban planning and development, support for stakeholder and the population participation, and provision of appropriate planning tools.

1.2 Scope of the study

In recent years, SECO has financed various EEA projects in developing and transition countries, which were examined in this evaluation. The present study focuses on the ongoing projects in Ukraine and Serbia, which have introduced the EEA within the framework of SECO-funded Energy City Projects.

In addition, the EEA project in Romania will also be examined more closely, as it shows considerable potential for lessons learned. In order to be able to make generally valid statements, experiences from already completed projects in Chile [5] and Morocco [6] were also collected and the recently launched EEA projects in Tunisia and Colombia as well as a feasibility study on the introduction of the EEA in South Africa were included in the evaluation. Due to the early stages of these projects, no results are available so far. The evaluation focuses much more on the local and national framework conditions and the chosen project designs.

Project financing mechanism

The projects in Ukraine and Serbia are implemented under the framework of the Dispatch on Switzerland's International Cooperation. The financing concept consists of three components, including the implementation of the EEA, the promotion of pre-defined measures and capacity building. The implementation of the EEA will take place in selected pilot cities. With the support of EEA experts from Switzerland, a standardized inventory will be carried out in the pilot cities and measures to be implemented identified. The instruments for the inventory analysis will be provided by the international organization of the EEA.

Support and promotion are planned over a longer period of time and also include the implementation of concrete measures and the certification of the pilot cities. Building on the findings of the pilot projects, a second project phase will see a major rollout and the sustainable anchoring of the EEA at national level [7].

A different approach is adopted in Romania. The funding is part of Switzerland's contribution to the enlarged EU ("Swiss contribution"), a none recurring funding element. It is unique and limited in time (10 years), whereof five years are reserved for the commitment of funds to projects. Compared to Switzerland's International Cooperation, the responsibility of implementing the Swiss contribution is delegated to the authorities of the partner countries. In Romania, the EEA implementation is carried out by a Romanian NGO, awarded contract in an international tender organized and performed by the Romanian authorities. This NGO is in charge of introducing the EEA system in Romania on national level and cooperates with a partner from Switzerland. In contrast to the Energy City Projects, SECO influences the project implementation to a limited extent only. The program design is based on three pillars that are pursued in parallel. These include supporting specific infrastructure projects in four pilot cities, institutionalizing the EEA at national level by a Romanian NGO and a Sustainable Energy Action Fund (SEAF) to implement additional measures related to the introduction of renewable energies and the rational use of energy in additional cities and municipalities.

Two non-European EEA projects were funded under the REPIC platform including the MENA project in Morocco, which was the first non-European country to introduce the EEA, and the local energy strategy in Chile. The project design of the two pilots corresponds to the approach adopted in Serbia and Ukraine with the three components: EEA implementation, capacity building, and financing of pre-defined measures.

1.3 Methodic procedure

The starting point for the evaluation of the EEA projects is a review of the project datasheets and project proposals provided by SECO. In addition, general information on the EEA was collected and specific publications on individual EEA projects were reviewed as part of comprehensive desk analyses. The relevant sources for the evaluation are listed in the references.

In addition to the desk research, several interviews with external implementation partners and program managers who were involved in the EEA implementation process at local level or in the institutionalization process of the EEA at national level were conducted. In the three countries Ukraine, Serbia and Romania, which were investigated in the most detail, interviews were also conducted with various stakeholders and beneficiaries from the respective states and municipalities.

Interviews were conducted either by telephone or face-to-face. Questionnaires were used which were adapted to the interviewees and aimed in particular at gathering their experiences and scanning their assessment. The following guiding principles were addressed in the questionnaires:

- How can the effectiveness of the chosen implementation approach be assessed?
- Which challenges are to be overcome in order to realize a successful implementation of the EEA?
- What are the success factors that simplify the implementation of the EEA?
- How should the relevance of the EEA be assessed in comparison to other tools and initiatives (e.g. Covenant of Majors)

The people who took part in the surveys are listed in Table 1.

Table 1:
List of participants in the survey

Ammann, Ralph	Program manager, SECO, Economic cooperation and development	Romania
Beu, Dorin	Local implementing agent, Romanian Green Building Council	Romania
Dettli, Reto	Swiss implementing agent, econcept AG	Romania, Ukraine
Huwiler, Caroline	Swiss EEA expert, ENCO AG and IDE-E	Internationalization Morocco, Tunisia, Romania, Serbia
Spröndli, Charlotte	Swiss EEA expert, IOEEA	Internationalization
Kapor, Zoran	Local implementing agent, GFA South Eastern Europe	Serbia
Kornmann, Maren	Swiss implementing agent, ENCO AG	Romania, Serbia
Glusevic, Miodrag	Standing conference of towns and municipalities	Serbia
Cvetjetkovic, Tanja	Project manager, Ministry of Mining and Energy (MoME)	Serbia

Druzhnina, Mariia	Vinnytsia City Council	Ukraine
Pavlyuk, Svyatoslav	Local expert, Association of Energy Efficient Cities	Ukraine
Lüchinger, Alexander	Swiss implementing agent, Lüchinger consultant	Ukraine
Menebhi, Daniel	Program manager, SECO, Economic Affairs	Ukraine
Zjatkova, Tetjana	Zhytomyr City Council	Ukraine
Walther, Roger	Swiss implementing agent, EBP Chile AG	Chile, Colombia

2 Findings

2.1 Effectiveness of approach

The effectiveness of the EEA is very positive. In addition to the introduction of clear structures and the development of strategic planning, the recurrent quality control through internal and external audits is particularly worth mentioning. With these positive elements, the EEA can be very helpful in persuading future donors to finance projects.

In the projects examined, external support for the establishment of new structures in the municipalities can be regarded as a well suited element. In projects where this support was insufficient, the successes achieved were considerably lower (see Romania).

In the following section, the effectiveness of the EEA approach in the individual projects is described in greater detail.

Ukraine

The introduction of the EEA in Ukraine has been very promising so far. The implementation of the EEA in two pilot cities (Zyhtomyr and Vinnytsia) is running as an obligatory part of the energy efficiency projects financed by SECO. These projects aim at improving municipal infrastructure and energy efficiency in the pilot cities.

Vinnytsia takes on a pioneering role in climate protection and is the benchmark for Zyhtomyr's actions. The municipal staff in Vinnytsia is talking of a cultural shift, which was gained by the EEA, because of a sustainable anchoring of

climate protection in municipal processes. A lively exchange between the two Ukrainian pilot cities at different levels was established.

Five new international projects were initiated in Vinnytsia as a result of the EEA certification, reports the municipal staff. The city is also distinguished by endorsing an intensive exchange with international experts who visit Vinnytsia as an object of study.

As part of SECO's support, energy efficiency and urban transport and infrastructure projects have been implemented that have an impact on other municipalities, too. Due to the positive experience gained in the pilot cities, many other Ukrainian municipalities have shown interest in implementing the EEA, national stakeholders report. It is planned that in a following project, three other municipalities will be supported to introduce the EEA.

Institutionalization of the EEA at national level is already in progress. The tendering process is completed and the Ukrainian EEA office started operation in September 2018. The experience gained in the pilot cities is to be incorporated into the institutionalization process.

Serbia

The Municipal Energy Efficiency Project (MEEMP) in Serbia, which aims to introduce the EEA in four selected municipalities, has just completed its inception phase. The inventory analysis in the pilot cities has been completed, work programs have been drawn up and work has begun on successively implementing the identified measures.

The main reason to participate in the project was initially access to funding for energy efficiency measures, admits the project implementation team. However, they expect a continuous increase in understanding of the EEA's opportunities over the course of the project. In particular, the capacity building element is expected to have a positive impact on local attitudes towards the EEA.

The institutionalization of the EEA at the national level has just begun under the leadership of the Serbian Ministry of Mining and Energy (MoME). The MoME is also responsible for supervising and monitoring the introduction of the legally required energy management system (EMS) in Serbian municipalities. The implementation of Serbian law is a top priority for the Ministry and therefore presents both opportunities and risks for the dissemination of the EEA. The more effectively the project team can present the EEA as a tool to enable or improve the implementation of the EMS, the more likely it is to succeed and the more likely it is to stimulate the interest of other municipalities in the EEA. An additional supporter of the EEA could be the Standing Conference of Towns and Municipalities, which is generally positive about the EEA concept as it fits well with its own agenda.

Romania

In 2009, 12 municipalities participated in the call for tender for the pilot implementation of the EEA in Romania. Following an extensive selection process, four cities (Arad, Brasov, Suceava and Cluj-Napoca) were selected as early adopters of the EEA. During the delayed inception phase, nine infrastructure projects were identified in these pilot cities, eight of which are still in implementation [8].

Efforts to further implement the EEA after the inventory analysis in the pilot cities are problematic. The main problem was that for a long time it was not clear how the identified measures could be implemented with the help of the Sustainable Energy Action Fund (SEAF), as the SEAF was only operational very late. As a result, the SEAF, which was co-financed by SECO with 85 %, has not yet been properly perceived by the municipalities. As no other funding was available, many of the measures identified were not implemented.

Another problem is the institutionalization of the EEA at national level, as there is insufficient support from the government, the pilot cities and the Romanian NGO in charge. In particular, the limited financial reserves of NGOs proved to be a significant problem, exacerbated by the complicated reporting process and bureaucratic procedures at the Romanian central level. Moreover, the establishment of a network within and between the administrations of the participating municipalities has not been successful, so that no EEA movement has yet been able to develop at the municipal level.

Chile

The introduction of the EEA in Chile can be described as a success story. In 2014, three pilot cities were supported with funds from the REPIC Platform in the implementation of the EEA. Since then, more than 50 of the identified projects and measures have been implemented in the three pilot cities Coyhaique, Temuco und Vitacura. However, there are no monitoring results that could confirm the success of the implemented measures and projects.

The three pilot cities are very active and lead the EEA movement in Chile. Meanwhile, 21 cities in Chile have developed a local energy strategy, and by 2018 10 % of all municipalities in Chile will join the EEA.

Since the framework conditions in Chile are not comparable with those in Central Europe, the catalogue of measures has been strongly adapted to local conditions and needs. The adjustments were put forward by the Chilean government, which is also leading the institutionalization process at the national level.

Morocco

The EEA was introduced in Morocco in 2012 in the three pilot municipalities Agadir, Oujda and Chefchaouen. The interest in participating in the pilot project was very high. More than 20 municipalities took part in the selection process. Two of the three pilot cities, Agadir and Chefchaouen, were awarded the EEA at 22nd Conference of the Parties of the United Nations Framework Convention on Climate Change in Marrakech.

The external implementation consultant sees a great deal of interest in the introduction of the EEA expressed by other municipalities. However, there are problems with institutionalization at national level due to unclear competences between the Ministry of Energy and Société d'Investissements Énergétiques (SIE) on one hand and the Moroccan agency for energy efficiency (Agence Marocaine pour l'Efficacité Énergétique, AMEE) on the other. Cooperation between the AMEE and the Ministry of the Interior, on the other hand, works well. AMEE is very interested in continuing the EEA process, but does not have the resources to manage it (on its own).

Irrespective of this, the pilot cities continue to drive the EEA forward and act as pioneers in climate protection. For example, in Agadir and Chefchaouen, street lighting systems have been retrofitted and sustainable transport concepts have been developed in all pilot cities. Following the success of the pilot projects, solar systems were also installed in Marrakech and a municipal energy accounting system introduced.

2.2 Challenges

The challenges facing local actors and external implementation partners vary widely. The most frequently mentioned challenges in the projects examined are listed below and described using selected examples. The complexity of the EEA process was not identified as a particular challenge. One reason for this could be the comprehensive support of the pilot cities during implementation by external implementing consultants.

Prioritization

In emerging and developing countries, climate protection has a completely different status than in Western industrialized countries. Other political and social issues such as poverty reduction, economic development, job creation, security or education are superficially more important. The acceptance of investments necessary for the sustainable implementation of the EEA processes is therefore not sufficiently given. A much higher interest can be recognized for investments in concrete infrastructures projects.

In order to further strengthen the importance of the EEA, the positive side effects must be emphasized even more clearly. Thus, the implementation of identified EEA projects can contribute to economic prosperity: Suitable traffic

and urban development planning can create competitive advantages compared to other municipalities, the construction industry and local craftsmen benefit from an improved volume of orders, which in turn has a positive effect on demand for labor. The EEA therefore has the potential as a stimulus package to strengthen the local economy. By implementing energy efficiency measures, the outflow of funds can be reduced, and the funds saved can be channeled into local development.

Financial resources

The implementation of the EEA is not free of charge. For the municipalities, annual costs are incurred due to license fees, costs for the external EEA consultants and the auditors. Additional funds are also needed for the restructuring of existing municipal processes and the creation of an interdisciplinary energy team. However, by far the largest financial need is for the implementation of identified measures, which usually cannot be financed from the municipal budget.

The amount of the implementation costs is very decisive for whether the EEA can prevail in developing and emerging economies. They should not be too high, otherwise municipalities will not be able to raise the funds. Especially in countries such as Chile or Morocco, where no national funding program is available, the necessary financial resources are lacking. In Romania, the financing mechanism and prefunding requirement by an NGO led to the effect that the implementation of identified measures did not go as planned. In order to ensure the implementation of identified measures, the municipalities must be offered financing possibilities, as is the case, for example, in the pilot cities in Serbia and Ukraine.

In the long-term perspective, the implementation of the EEA could simplify access to funding. Through the preparation of current state analysis, catalogue of measures and implementation program as well as the establishing of a continuous quality assurance process within the framework of the EEA, leads to a transparent basis and creates reliable structures, which are positively assessed by potential funding bodies in their assessment of the funding commitment.

Competencies

The availability of sufficient competencies in the implementing administrations is essential for ensuring a successful and sustainable implementation of the EEA. The appropriate level for the implementation of the EEA (municipal, local or regional) is normally explored in advance through a feasibility study. However, in some older projects, local administrations did not have sufficient competence to take planning decisions at local level. In these cases, the EEA instruments could not achieve their full effectiveness.

Another problem, particularly in countries with strong centralization of political power in the capital, such as Romania, is the lack of experience with strategic,

long-term planning in municipalities. This means that decision-makers find it difficult to deal with the EEA long term approach and often do not have the patience to wait for the medium to long term effects.

A lack of tax and budget sovereignty in the municipalities can also pose a problem for the introduction of the EEA. In centralized states, the investment budget must be requested from the state responsible for budget allocation. Experiences show that the inclusion of non-budgeted costs is extremely difficult, as flexibility is much less than that of Central European cities, which have easier access to overall budgets. It is therefore necessary to plan over a longer time horizon and budget accurately before the project starts.

Staff

An important prerequisite for the implementation of the EEA is the availability of qualified local personnel. At the beginning of a project there is often a lack of knowledge and understanding of climate protection policy. Therefore, the development of the knowledge of existing personnel must be an elementary component. In this context, the language barriers between external consultants and decision-makers are very problematic, as they often occur in Ukrainian projects. Also frequent personnel changes in the local administrations regularly lead to a loss of knowledge. However, this problem lies outside SECO's sphere of influence.

Often there is a lack of manpower in the administrations, so that additional work because of the implementation of the EEA is rejected. In general, changes in the usual processes often lead to discomfort and rejection by the staff concerned.

It is also important to find a suitable local partner with a good network of decision-makers and stakeholders for the institutionalization of the EEA at national level. The choice of a local partner is a challenging task, depending on the interests in the respective country. This applies in particular to projects in which contracts are awarded by the partner country itself and cannot be influenced by SECO.

Political framework

The policy framework has a significant impact on the success of the EEA. The unstable situation following political upheavals (as in Tunisia) or in conflict areas (as in Eastern Ukraine) makes the implementation of the EEA very difficult.

Another problem is the short terms of office of mayors, which lead to frequent changes in local decision-makers and thus to a constant reorientation of the political agenda. For a long-term project such as the EEA, these policy changes are a challenge as they require continuous persuasion.

Complex, bureaucratic reporting structures have proved to be a major challenge, which can contribute to significant problems in work processes and financing.

If the national government has already initiated climate protection measures at the local level, this can lead to excessive demands on local authorities. The EEA's structured management process can be very useful to support the municipalities, if it is appropriately synchronized with national requirements.

2.3 Success factors

The success factors that support the implementation of the EEA are very heterogeneous. In some cases they can be influenced directly by SECO, for example by the project design, while other success factors are determined more by chance and can only be clarified within the framework of feasibility studies in the run-up to a project. The most important identified success factors are listed below, sorted by influence ability by SECO.

Project preparation

Good project preparation, in which the essential aspects have already been considered, simplifies the implementation process and reduces the number of complications and difficulties that arise. Very good instruments for this purpose are upstream feasibility studies. These feasibility studies examine which level is most suitable for the implementation of the EEA, what competencies the municipalities possess, what the national funding landscape looks like or who the decisive actors on the ground are. Based on the results, a project design can be selected that best addresses the national framework conditions.

Adequate project design

The institutionalization of the EEA is very important for a sustainable anchoring of the EEA process. It is essential that a national organization can be established to accompany and monitor the implementation process of the EEA at local level. The national organization is responsible for the education and training of local EEA advisers and for building up an adequate pool of advisers. Other important tasks of the national organization are the regular adaption of the catalogue of measures and the certification of the participating municipalities.

Sufficient funding

A decisive success factor is ensuring simple, non-bureaucratic access to funding for the implementation of the measures identified. In countries where a national funding scheme already exists and can be used by the municipalities, the transition between inventory analysis and implementation of concrete projects is considerably simplified.

Legal framework

Existing legal framework conditions can support or hinder the introduction and the sustainable implementation of the EEA. Although the legal framework cannot be directly influenced by SECO, appropriate adjustments can be made to the EEA approach. By synchronizing the EEA approach with national objectives and strategies, the EEA could be introduced throughout the country in this context. However, this requires a functioning, well-connected national EEA organization.

Knowledge

A high level of knowledge about municipal climate protection in general and the EEA process in particular is very helpful. Well-informed municipal decision-makers can develop a clear vision of how the EEA can help their own community and how the EEA certification and access to international networks can support the municipal goals. Besides relying on previously acquired, profound knowledge at the beginning of the project, the willingness and interest to learn about new approaches are essential. SECO can influence this success factor in a way through elements of capacity building, supporting awareness raising campaigns and through persuasion at the political level.

Involvement

The involvement of decision-makers is of great importance. A high commitment of the mayor and a close involvement of stakeholders in the implementation process could make the EEA a great success. A special opportunity arises when new policy-makers take office and want to leave a footprint in the history of the city through the implementation of the EEA. If a decision-maker at national level combines the political ambitions with climate protection in general and with the EEA in particular, institutionalization can take place much more easily.

2.4 Relevance of EEA

Climate protection initiatives

Beside the EEA, there are some other initiatives aimed at advancing municipal climate protection. In Europe, the Covenant of Mayors (CoM) is particularly important. This city-led climate change and energy initiative was launched by the European Commission in 2008 and is operated by the Council of European Municipalities and Regions (CEMR), Climate Alliance, Energy Cities, EUROCITIES the European Federation of Agencies and regions for Energy and ICLEI European Secretariat. Over the years the CoM has been successively extended to the EU's Southern and Eastern neighbors. In the meantime, there are also regional offices in North and South America, sub-Saharan Africa, Asia and Australia [9].

In 2017, the CoM merged with the Compact of Mayors to the Global Covenant of Mayors for Climate & Energy (GCoM). The Compact of Mayors was a global coalition of mayors and city officials launched in September of 2014 by UN Secretary-General Ban Ki-moon under the leadership of the global city networks — C40 Cities Climate Leadership Group (C40), ICLEI – Local Governments for Sustainability (ICLEI) and the United Cities and Local Governments (UCLG).

According to their website, the GCoM is the broadest global alliance committed to climate protection, building on the commitment of over 9,000 cities and local governments from six continents and 127 countries representing more than 770 million residents (Status October 2018) [10].

The C40 Cities Climate Leadership Group is a network of 90 of the world's greatest cities. Focus of this initiative is on tackling climate change and driving urban action to reduce GHG emissions and climate risks [11]. The Local Governments for Sustainability Initiative (ICLEI) comprises 1500 cities in 124 countries [12]. ICLEI supports sustainable urban development worldwide. Both initiatives are partners of the Founders Council of the GCoM.

The Energy Sector Management Assistance program (ESMAP), which is a multi-donor trust fund administrated by the World Bank, supports low and middle-income countries reducing poverty and boost growth through environmentally sustainable energy solutions. The program, which is supported by SECO, is active in more than 130 countries and participates in more than 400 activities [13].

There are many other initiatives at local, national or international level that are committed to climate protection, sustainability and resource efficiency. As these initiatives are usually of regional importance or have a much smaller reach, they will not be considered further to assess the relevance of the EEA.

Climate protection tools

A multitude of tools for energy and climate management have emerged from the different initiatives. The scope of the tools is sometimes very different. For example, there are pure balancing tools that are used to record and monitor energy consumption. Others are used as management tools for the implementation of processes. The somewhat more complex instruments also have the option of analyzing different development paths and modelling energy supply systems.

The dissemination of the instruments is also very different. While the tools promoted by the global initiatives, such as CURB - Climate Action for Urban Sustainability tool and TRACE – Tool for Rapid assessment of City Energy, have a huge reach, other instruments are only used locally or only in the scientific community. These include in particular the energy modelling tools such as TIMES, LEAP, NEMS or MESAP, but also the balancing tools ECOSpeedRegion

or the German “Klimaschutzplaner”, which are widely used in German-speaking countries.

Compared to all these tools, the EEA already has a higher distribution, but the tools of the global initiatives are represented in regions that have not yet been reached by the EEA. For this reason, the CURB tool and the TRACE tool will be described in more detail below.

CURB is an excel-based modeling and simulation tool, which supports to understand effects of specific climate interventions. The tool is designed for cities to map out different action plans and evaluate costs, feasibility, and impact [14]. The tool is promoted by the C40 cities leadership group, GCoM and World Bank. No information is available on the exact reach of the tool.

TRACE is an excel-based decision-support tool designed for a quick identification of under-performing sectors, for evaluation of improving and cost-saving potential and for prioritization of intervention actions. The tool was developed in 2008 by ESMAP and is promoted by the World Bank. TRACE is used by 82 cities in 26 countries (status October 2018) [15].

Findings

The EEA is unique in its holistic approach and focus on the implementation of energy and climate management processes in local communities. Other instruments and approaches are limited to sub-areas or deal only superficially with the implementation of management processes. In particular, the quality assurance process in the EEA and regular auditing and certification are unique selling points.

The national EEA programs generally offer a variety of instruments tailored to the needs of the country and linked to national legislation and existing initiatives. This approach is very useful to achieve high policy acceptance and to exploit possible synergies with other initiatives.

The reach of the EEA is already very high in Europe, but cannot compete globally with the GCoM, which has by far the highest reach of any climate change initiative. It would therefore be highly advisable to seek closer cooperation with the GCoM for the further dissemination of the EEA.

The two approaches pursue the same objectives (strong, voluntary commitment to a sustainable energy policy at local level, building an internal energy team, and defining, implementing and monitoring an ambitious action plan) and complement each other very well. The GCoM brings with it some obligatory elements, such as two-year reporting, CO₂ balancing and the commitment to reduction targets. The EEA, on the other hand, offers a rather low-threshold introduction to the topic of municipal climate protection by supporting the implementation process with external consultants. With the four-year external

audits and the annual internal performance assessment, the EEA also contributes a supplementary quality assurance instrument [16].

The EEA is already a recognized instrument for the implementation of the Sustainable Energy Action Plans (SEAP) in accordance with the GCoM [17]. The coordination and harmonization of the two approaches will be further deepened within the framework of the EU research program Horizon 2020.

Since the EEA does not specify any strict requirements as to which methods and tools are to be used, it is basically possible to combine various quantitative instruments such as the Climate Action for Urban Sustainability (CURB) tool or the tool for rapid assessment of city energy (TRACE) with the EEA. Working together with these tools could extend the reach of the EEA and facilitate docking with various initiatives such as C40, ESMAP and GCoM.

3 Recommendations

SECO's strategy of exporting the EEA as a management and quality assurance instrument for municipal climate protection to other countries is already working very well in many areas. Municipalities that have understood the meaning of the EEA benefit considerably from the structures and management processes implemented. However, the evaluation has also shown that there is still room for improvement in implementation, especially in the institutionalization process. The following recommendations for SECO can be derived from the above described experiences.

Combination of EEA with capacity building and financing component should be the rule case

The project design, which combines EEA and capacity building with the financing of concrete measures, is coherent and should be continued. In this way, municipalities can be reached that do not yet recognize the opportunities of EEA and capacity building, but primarily want to make use of the investment funds for the implementation of measures. A stronger link between funding commitments and the implementation progress of EEA and capacity building could be an appropriate way to strengthen understanding.

Sufficient financial resources must be available for implementing measures

The implementation of measures is an important element of the EEA. SECO should support the creation of national funding funds in the pilot countries. During the pilot phase, funding measures must be included in the project funding.

Funded projects should have a lighthouse character and achieve short-term successes

Investment measures supported by the pilot projects must be well planned and implemented. Schools and kindergartens are particularly suitable as lighthouse projects due to their multiplication potential and their capacity to raise the awareness of tomorrow's decision-makers. The effects of the measures should

be visible in the short term in order to increase motivation among the actors involved and raise the interest in the EEA among politics and population.

A national organization should be established to achieve sustainability

The establishment of a national organization significantly contributes to the sustainable success of the EEA and should be pursued by SECO after a successful pilot phase at local level. An important issue here is the financing of the national organization, but also the understanding of decision-makers at national level, who must support the implementation process. Funding activities should focus even more strongly on institutionalization.

Involvement of local players in the pilot phase must be strengthened

For a sustainable anchoring of the EEA, it is important to have strong, well-connected partners on the ground. SECO should attach even greater importance to the selection of local partners in the future. A pilot phase without involving local players is unfavorable for the sustainability of the implementation. Rather, great importance must be attached to local consultants being well trained and integrated into the EEA process during the pilot phase. Capacity building is therefore a key element.

Education and training of local consultants must be strengthened

A pool of local consultants must be established so that external advice can function well. However, long-term financing of local EEA consultants is not possible without institutionalization at national level, as the pilot projects do not provide sufficient contract volume.

The flexibility of the EEA must be maintained

EEA measures and instruments must be adapted to local conditions. This process should start during the pilot phase and then be continued by the national organization. The findings from the pilot cities are to be evaluated and adjustments are to be made to the measures in consultation with international experts. A good linkage of EEA approach to the national legislation and targets should always be pursued.

Synergy effects of EEA and GCoM must be communicated more clearly

A closer cooperation with other initiatives and tools would increase the dissemination of the EEA. Especially a closer connection to the GCoM, which has a large range, is highly recommended. SECO could become more active as an advocate for the EEA in order to support the current efforts to link the EEA and the GCoM more closely in the context of Horizon 2020.

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