Terminal Evaluation Report

"Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan"

(NAMA Project)

GEF Project ID:	5291
Focal Area:	Climate Change Mitigation
UNDP Project PIMS:	5138
Country:	Azerbaijan
Region:	Europe and Central Asia
Executing Agency:	State Oil Company of the Azerbaijan Republic
Implementing Agency:	UNDP Azerbaijan
Other Partners:	Ministry of Ecology and Natural Resources, National Climate Change Center, Ministry of Energy
GEF Operational Programme:	GEF 5/ Objective #3 - Climate Change Mitigation CCM-3
Project Start Date (planned):	January 1, 2015
Project Start Date (actual):	March 5, 2015
Project End Date (original):	March 5, 2020
Project End Date (adjusted):	December 5, 2020
Evaluation Timeframe:	March 2015 – October 2020
Evaluators:	Elinor Baraktari & Jahangir Efendiyev

February 2021

Executive Summary

This report presents the results of an independent terminal evaluation (TE) of the UNDP Azerbaijan project *"Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan"* which was funded with $3,570,000 USD by the Global Environmental Facility (GEF) and was implemented during the period March 2016 – December 2020. The table below provides a summary of the project's main parameters.

Project title:	**Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan**			
GEF Project ID:	5291		***at endorsement (US$)***	***at completion (US$)***
UNDP Project ID:	PIMS: 5138	**GEF financing:**	3,570,000	3,570,000
Country:	Azerbaijan	**IA/EA own (SOCAR):**	30,900,000	43,402,058 (as of August 2020)
Region:	Europe and Central Asia	**Government:**	800,000	800,000
Focal Area:	Multi-focal Areas - Capacity Development	**Other (NGOs):**	200,000	200,000
FA Objectives, (OP/SP):	**Objective 1** – Implementing innovative low-carbon technologies **Objective 2** - Promoting market transformation for energy efficiency in the building sector **Objective 4** – Promoting low-carbon transportation technologies **Objective 6** – Support Enabling Activities under the Convention	**Total co-financing:**	31,900,000	31,900,000
Executing Agency:	UNDP	**Total Project Cost:**	35,470,000	47,972,058
Other Partners involved:	State Oil Company of the Azerbaijan Republic, Ministry of Energy, Ministry of Ecology and Natural Resources, National Climate Change Center	**Pro Doc Signature (date project began):**		05 March 2015
		(Operational) Closing Date:	Proposed: September 2020	Actual: 30 December 2020

The report summarizes the findings of the work conducted by an independent evaluator during the August – October 2020 period. It provides an objective assessment of the project's design, performance, constraints, results, impact, relevance, efficiency and sustainability. It also identifies a number of lessons and recommendations which may be used by the UNDP Country Office to improve its programming, partnership arrangements, resource mobilization strategies, working methods and management arrangements. The evaluation included a systematic desk review of

project-related documentation, data collection based on interviews/questionnaires with key stakeholders and analysis of information using triangulation.

Project Design

The project's approach - described in the previous section - is quite comprehensive and touches on key dimensions of emissions reductions and energy efficiency related to SOCAR's end-use sectors. Although at first look the nature and scope of these activities might seem moderate, the sector's complexity is significant and the number of stakeholders involved is large. Overall, the Project Document provides a thorough analysis of the country context and the needs addressed by the project and identifies a clear overall goal for the project to pursue. Major risks and assumptions facing the project are identified in detail and adequate monitoring and evaluation tools are identified to track them (more on this in the following sections of this report). The project design also allows for the necessary flexibility to make modifications in the course of implementation, in line with changes in the context (this is discussed in more detail in the section about adaptive management). However, certain design aspects of the project could have been framed more adequately.

- The Project Document was not specific on whether several of the key project activities were targeted at the national level or just SOCAR. In particular, this was the case with regards to the NAMA programmes and the use of the NAMA term[1] – whether NAMAs were going to relate to the country as a whole or just SOCAR as a company.
- Although the project did provide some policy inputs during the implementation phase, its focus on policy and legal frameworks was very limited. In retrospect, the Project Document could have benefited from a better framing of policy issues – especially, how changes at the level of policies, legislation and regulations could result in sustainable improvements in GHG emissions. Similarly, the Project Document could also have focused more on the role of people's perceptions and the ways on which change may occur within the general public.
- The project was designed to focus exclusively on SOCAR, a large state-owned enterprise with significant financial resources compared to the resources that this relatively small project brought to the table. given the project's focus on infrastructure pilots (and its limited focus on the policy and institutional framework), the need for significant co-financing seems to have been crucial. SOCAR was seen as the organization best positioned in the country to provide a large amount of co-financing. Further, SOCAR was rightly seen as the largest consumer of energy and GHG emitter in the country, making it an attractive partner for achieving tangible

[1] The term was used to refer to both activities associated with Outcome 2 (mitigation plans) and activities under Outcome 3 (pilot initiatives). UNFCCC provides the following definition of NAMAs: "*NAMAs refer to any action that reduces emissions in developing countries and is prepared under the umbrella of a national governmental initiative. They can be policies directed at transformational change within an economic sector, or actions across sectors for a broader national focus*. At the National Level as a formal submission by Parties declaring intent to mitigate greenhouse gas emissions in a manner commensurate with their capacity and in line with their national development goals. At the Individual Action Level, as detailed actions or groups of actions designed to help a country meet their mitigation objectives within the context of national development goals."

emissions reductions through practical interventions. The NAMA approach offered SOCAR a valuable opportunity to develop and implement a large scale GHG mitigation programme. Furthermore, given SOCAR's clout in the country's institutional set-up, it was seen by the project formulators as an appropriate entry point into the country's energy infrastructure, with greater potential for the dissemination and replication of the lessons and technologies promoted by the project.

- The project was largely designed to have a sequential implementation order with regard to the four project outcomes. This however did not occur in practice, as the project team decided to first gain practical experience with the pilot initiatives before proceeding with activities under the other outcomes.
- Another design weakness is the insufficient role foreseen for the private sector in project activities. The private sector can play an important role in ensuring that economic activities do not go against environmental and social concerns. The private sector could have been involved more actively as an actor that contributes with insights and resources to the solution of sustainable development problems.

The project's Resource and Results Framework (RRF) has been well-structured and most indicators, baselines and targets are generally adequate and well-identified. Some exceptions that could have been addressed more adequately are:

- The term "NAMAs in the low-carbon end-use sector" has been used inconsistently in the project document, and in the RRF in the particular.
- The concept of indirect emissions was not fully expounded and discussed in the Project Document, but was largely left open to interpretation. Also, more clarity would have been necessary for the concept of "total lifetime".
- The indicator for Outcome 2 was framed as "sectors for prioritized and feasible NAMAs are identified and selected". However, the Project Document indicated that the purpose of Outcome 2 was to not only identify possible sectors for NAMA programmes, but also to develop detailed NAMA programmes within each of the three sub-sectors.
- The RRF does not discuss the exploration, analysis and implementation of wind and solar options that were discussed as potential opportunities in the Project Document.

Overall, the analysis of risks and the identification of mitigation measures has been adequate. At the implementation stage, the project team established an effective monitoring system to deal with risks – monitoring the overall situation in the country and the environment surrounding the project. Also, the project design laid out an adequate replication strategy. However, a weakness that has been identified above is the lack of interventions at the policy and legislative level to lock some of the project's achievements on a more sustainable basis.

A stakeholder analysis was conducted at the stage of the project's preparation to assess roles and responsibilities within the context of planned activities. As mentioned previously, the Project Document identified SOCAR, MoE, MENR and NCCC as key stakeholders in the project's

implementation. It outlined their key responsibilities in supporting or facilitating the implementation of activities. Further, the organizational design structure for this project has been adequate and has enabled the project to deliver on most of its obligations and commitments.

Project Implementation

The project's Inception Workshop was held on 3 March 2016, 8 months after the actual start of the project and one year after the project was formally launched. The project underwent a Mid-term Review in November 2017. As UNDP's implementing partner in the project, SOCAR was overall responsible for the execution of the project. It exercised this role through the Steering Committee, as well as through day-to-day interactions with the Project Manager and the Project Assistant. The Steering Committee met annually (or twice a year, as need). UNDP has provided continued support to the project throughout its implementation, including in the identification of objectives and activities, preparation of the concept, preparation of the detailed proposal, approval of the Project Document, start-up of project activities, oversight, supervision, and execution of actions, and evaluation of the project.

The project's implementation has experienced several cases of adaptive management undertaken by project stakeholders, which largely been positive and beneficial to project outcomes, as will be outlined further in this report. The project underwent ongoing monitoring of the overall situation in the country, the surrounding environment and, in particular, the project's immediate implementation sphere. The project team analyzed potential risks and discussed them with the implementing partners and UNDP. The Steering Committee carried out its oversight role and provided key guidance and took major decisions as needed. Critical risks, for example, national currency exchange rate fluctuations or Covid-19, were monitored through the Atlas system and ways to manage and mitigate them were identified and followed-up. All the adaptive measures undertaken by the project, including the major ones listed in the previous sections of this report, were identified and carried out on the basis of the monitoring mechanisms put in place by the project stakeholders. One aspect of the M&E system which was weak and did not generate sufficient information for the project, including this evaluation, was the gender dimension.

The project was underpinned by a budget of US$ 3,770,000, of which US$ 3,570,000 was committed by GEF and US$ 200,000 by UNDP. Including co-financing from SOCAR, the total amount of resources foreseen for the project was US$ 35,470,000. From an expenditure perspective, Outcome 3 has been the major component of the project. Also, as can be seen from the table, execution rates have been quite volatile for the project, illustrating the adaptive changes that were made to the project approach, especially in terms of sequencing of activities and components.

While the Covid-2019 pandemic certainly had an effect on this project as in most aspects of social life in the country, the project was fortunate in that most of the infrastructure works (related to the pilot initiates) has been completed by the time the pandemic struck (early 2020). This was an

unintentional consequence, thanks to the decision of the project stakeholders to proceed with the pilots before the other outcomes. With the onset of the pandemic, the project team moved some of the "soft" activities such as trainings, conferences and meetings to online platforms. This prevented serious delays in these activities.

Project Results

Overall, the NAMA project has completed all the major activities envisaged at the outset of the project. There are no major gaps in this project that resulted from a lack of implementation, lack of financing or unresponsiveness of partners. Those gaps that have already been pointed out in this report were related to the design of the project and not the implementation process. The targets related to the project outcomes have largely been achieved. This includes the development of three NAMAs implemented by the end of the project, reduction of GHG emissions and co-financing leveraged for the project. the actual reduction of GHG emissions as a result of the pilot projects has been estimated by the project to have amounted to 580,301 tCO2eq/25 years (see Annex X of this report for the calculation of this). This total amount can be broken down in 567,404 tCO2eq/25 years from APG Emissions, 2,110 tCO2eq/25 years from Transport Emissions and 10,787 tCO2eq/25 years from Building Emissions. This amount represents 96% of what was planned in the Project Document. Overall energy savings during the project are estimated at 515,185 TOE and GHG reductions in the range of 61,500 tCO2. As has already been noted, a decision was made by project stakeholders to change the order in which outcome activities were undertaken, starting with the pilots under Outcome 3 first and proceeding with the implementation of the other outcomes. Ultimately, by the end of the project all outcomes were completed satisfactorily. The Project Document and the overall project design were flexible enough to allow for this kind of adaptive management. The original co-financing amount from SOCAR outlined in the Project Document was US$ 30,000,000. Due mainly to the scale of the associated gas capture component of the project additional co-financing was required. Thus, SOCAR invested an additional US$ 12,502,058 under Outcome 3 in order for the project to meet its objectives.

The project has generated benefits for a range of stakeholders. Primarily, representatives of SOCAR and other relevant institutions have befitted directly from all the capacity building activities, including the training events. Baku citizens have benefited from reduced emissions from vehicles, whereas villagers in Siyazan are now reliably supplied with gas and enjoying a cleaner form of energy. Project information disaggregated by gender has not been available, so it is impossible to draw conclusions on the balance of benefits between genders.

The likelihood of financial sustainability for some of the activities pursued by this project beyond the project's lifetime is good. One of the main reasons for selecting SOCAR as the project's implementing partner was its financial position and its ability to provide co-financing. As has been noted, SOCAR has provided 42,502,058 USD in co-financing, in excess of the original commitment, which is a good indication of its interest in this area. Given that SOCAR is the largest

oil & gas producer in the country, it is likely that they will be able to financially support additional scaling up of NAMAs beyond the duration of this project.

However, the question here is not only what happens within SOCAR as a state-owned company, but what happens to energy efficiency and climate change mitigation in the country as a whole. The project's focus on SOCAR was good for sensitizing SOCAR's leadership in these matters and improving the likelihood of financial commitments by SOCAR in the future. While it might have helped raise the awareness of other sections of the government and society, these actions were not targeted specifically on other sectors. Therefore, financial commitments outside of SOCAR for energy efficiency investments are not clear. Also, the lack of direct involvement from the banking sector seems to have been a missed opportunity of the design of this project, as their involvement would have guaranteed greater resources for investments in this area.

Given SOCAR's role as the leading energy company in Azerbaijan, the experience and expertise acquired through the NAMA project is expected to be shared with other large companies and state agencies through relevant workshops and other means of experience sharing. The project's awareness-raising aspect has been an important component of activities. From the outset, it was acknowledged that the project would increase awareness with regard to energy efficiency and GHG reduction initiatives. Towards this end, the Project Team has taken a series of important steps. During the implementation phase, several workshops and training sessions were organized by the Project Team and SOCAR which included representatives from various ministries, as well as the construction and transport sector. With regards to the pilots, there is some evidence of replication in certain areas with examples provided in this report. For all these achievements, the level of scaling and replication is not at the desired level yet. It is important here to note that the NAMA programme was seen as a valuable opportunity to develop and implement a large-scale GHG mitigation programme for SOCAR in line with the company's long-term sustainable development strategy, which could be replicated at the national level and thus influence the country's overall GHG emission regime. A major transformation at the national level – beyond SOCAR – is not visible yet. Some of this is to be expected, also given the current circumstances globally, and more importantly in the country.

The NAMA project reviewed in this report has overall been a successful project with relevant results for the country and generally well-appreciated by the stakeholders. The pilots are particularly valued by the national counterparts due to their significant demonstrative value. The project was able to introduce and test the feasibility of technologies which had been limited or absent in the country. A good body of knowledge was created by the international and local experts engaged by the project. The fact that SOCAR put a significant amount of its own resources into these initiatives is indicative of its interest in the results of the pilots.

The following table summarizes the scoring of this project based on the terminal evaluation.

Overall Project Performance Rating

Monitoring and Evaluation	
Overall quality of M&E	S
M&E design at project start up	S
M&E Plan Implementation	S
IA & EA Execution	
Overall Quality of Project Implementation/Execution	S
Implementing Agency Execution	S
Executing Agency Execution	S
Outcomes	
Overall Quality of Project Outcomes	S
Relevance	R
Effectiveness	S
Efficiency	S
Sustainability	
Overall likelihood of Sustainability:	ML
Financial resources	ML
Socio-economic	L
Institutional framework and governance	ML
Environmental	L
Overall Project Results	**S**

The following are some major lessons that have drawn from the experience of this project:

Lesson 1: Financial investments into GHG initiatives do not have to be costly in order to have a significant impact

Among the various GHG initiatives that the project has implemented, the associated gas capture component offers by far the greatest potential for reducing emissions. The global warming potential of methane gas is 21 times higher than CO_2 over a 100-year period, and prior to the NAMA project there were many drilling sites that were releasing it directly into the atmosphere. In this context, the NAMA project has been capturing methane gas at a rate of 4.6 million m^3 per year, and vast majority of the project's financing has been targeted towards this component of the project. However, this being said, financial investments into GHG initiatives do not have to be costly in order to achieve significant results. The eco-driving component of the project demonstrated this principle well as both the MTR and PIR reports noted that the training sessions resulted in fuel savings in the range of 8% to 14% with very small investment costs.

Lesson 2: Importance of Flexible Approaches and Co-financing Arrangements

The NAMA project is a multi-year initiative involving multiple components (construction, transport and gas capture) and a large budget ($47,972,058 USD). Given the large scope of this

project, it was perhaps inevitable that some activities would not pan out fully in accordance with the design of the Project Document. In this context, the Project Team noted that the associated gas initiative was the most challenging component of the project and timelines had to be pushed back. The delays and additional expenses were largely attributable to procurement procedures for equipment. As these procurement challenges occurred, SOCAR was able to resolve the issue by mobilizing $5,000,000 USD of its own financing. Moreover, there were other complications which arose periodically throughout the duration of the project which required additional co-financing as well. In total, throughout the duration of the project SOCAR invested US$ 12,502,058 in additional co-financing beyond the original budget projection of $30,000,000 US$ as a means of resolving issues as they arose and keeping the project on track.

Lesson 3: The importance of adaptive management

There were numerous examples of adaptive management applied throughout the duration of the project, such as the decision to focus on gas capturing and driving simulator, and move away from solar and wind, given the feasibility of possible interventions. Such flexibility helped keep the project on track. Some of these examples were noted previously in this report. The importance of an adaptive approach to these kinds of projects cannot be overestimated. First of all, some of the initial assessment conducted before the start of the project might not have been adequate. As was the case in this project, the project design was not optimal and created a number of gaps that had to be filled during implementation by the Project Team and the Steering Committee. Further, the external environment can be volatile – major risks materialized around this project, as has been noted in this report. Also, country and political priorities change and they shape the expectations and requirements of the project. In these conditions, it is important to have an adaptive approach and respond in ways that are most optimal for achieving the ultimate goals of the project. From this perspective, this project is a good example of a programme that was flexible and adaptable enough to achieve successfully the ultimate goal that was set at the beginning of the intervention.

The evaluation also identified the following key recommendations for project stakeholders. These recommendations are forward-looking in nature and could be applicable to the design of similar initiatives in the future.

Recommendation	Responsible Party	Timeframe
Recommendation 1: Institutionalizing Training Programme Given the amount of training information and experience generated through this project, it is recommended that SOCAR, MoE and MNER, with continued support from the UNDP further institutionalize the training programme whose foundations were created through this project. The parties could explore how this programme could be established more firmly in the framework of existing government structures (under SOCAR or MNER) on a more	SOCAR, MoE, MNER, UNDP	Within a year

permanent basis. The parties could also explore potential improvements and expansion of this training programme. So that newer topics are built into the existing framework. During the coming months, UNDP could consider exploring further support in this area through its new programming and could consider this area as a possible area of cooperation in the development of its new country programme.		
Recommendation 2: Further replicating the gas capture programme The "*Associated Gas Capture*" programme in the Siyazan-neft oil field is one of the major highlights of this project. This initiative has indeed introduced a significant innovation in the country. This experience has led to SOCAR considering the expansion of the programme on a larger scale in other oil fields and taking certain steps in this area. This evaluation recommends that this experience be promoted more proactively by raising the awareness of policymakers and experts in different areas and institutions about its results and benefits. The three national entities involved should exert more concerted effort based on a clear promotion plan led by SOCAR and the two ministries over the coming few months. Based on the actual results achieved, the three national parties should involve all major national stakeholders in a dialogue and enhance the development of a national strategy to replicate the project activities and outcomes towards the country's national policy objectives and framework, the required mechanisms and capacities for GHG mitigation. UNDP could also play a role in this area by supporting the activities through its significant experience in awareness-raising activities.	SOCAR, MoE, MNER	Within a year
Recommendation 3: Promoting energy efficiency in the transport sector Similarly to the point made in the recommendations above, this project has introduced a significant innovation in the transport sector through the eco-simulator and electric vehicles. Based on interviews for this evaluation, it seems that there is significant interest for this type of innovation in the country. This evaluation recommends that the three national counterparts in question, with support from UNDP, undertake a more concerted and extensive campaign for the dissemination of this experience in other institutions related to the transport sector, and in particular within the private sector. Again, UNDP has a lot of experience with information and awareness-raising campaigns, so it can provide substantive support in this area. The awareness-raining campaign and the dissemination of the lessons	SOCAR, MoE, MNER, UNDP	Within a year

learned through this project could be done on the basis of a comprehensive and systematic plan.		
Recommendation 4: Embedding sustainable solutions into the policy and legislative level As has been discussed in this report, it is important for UNDP and the Government to ensure the sustainability of interventions like the ones pursued in this project by combining their demonstrative value with permanent changes in the policy and institutional frameworks. Some of the findings of this project with regards to approaches, standards, techniques, etc., could become more sustainably and reliably applicable elsewhere if grounded into the national legislation or policy framework. This will require a careful identification from the design stage of the project of those opportunities for policy interventions informed by, and harmonized with, the piloting of different business models and technologies. To this end, UNDP should strengthen project design requirements to ensure that future interventions are grounded in national policy frameworks.	UNDP	Continuous
Recommendation 5: Sustainable financing, especially role of banking sector Energy efficiency interventions are capital-intensive in nature. They require financing, which can be sourced either from the public budget or the private sector. The private sector is a powerful agent of chance for energy efficiency which should be always tapped. To incentivize the engagement of the private sector, it is always important to make use of the market instruments. In this case, the project would have had much more sustainable results if its activities had allowed for greater engagement with the private sector. The banking sector is crucial here because the financing that it provides could be transformative for the area of energy efficiency. All the demonstrative effects of the NAMA project could have been more profound if there had been greater engagement of the banking sector in its activities which would enable its representatives to get a better appreciation and understanding of the successful approaches, models and technologies that the project was able to promote. Going forward, UNDP and its relevant government partners (especially MNER and MoE) should make greater efforts at crafting a role for the private sector in similar projects. The UNDP CO should ensure that energy efficiency project that have an investment component should rely on the market mechanism for the sustainable financing of activities. The role of banks in financing energy efficiency improvements should be assessed by UNDP in cooperation with MoE and MNER more carefully and partnerships could be explored more effectively.	UNDP	Continuous

Recommendation 6: Greater focus on the effects of project interventions of gender and other dimensions UNDP should consider more carefully the integration of the gender perspective in the future design and implementation of similar initiatives. It should make sure that gender is mainstreamed in the design of project activities based on an analysis of the potential impact of those activities on men and women. This analysis should also look in the balance of power between man and women in how activities and decision-making are structured in the project. More importantly, expected project results should be framed in a way that ensures tangible benefits for women and their position in the society. The CO should also ensure that the monitoring and implementation systems capture and transmit information about the gender balance of activities and results in a systematic manner. Project reporting systems should be strengthened to present a clear picture of the gender balance in this sector through the use of gender disaggregated data.	UNDP	Continuous

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ACRONYMS AND ABBREVIATIONS

APR	Annual Project Review
AREA	State Agency on Alternative and Renewable Energy Sources
AWP	Annual Work Plan
CDR	Combined Delivery Report
CIS	Commonwealth of Independent States
CO	UNDP Country Office
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse Gas
IR	Inception Report
Log Frame	Logical Framework matrix
MAC	GHG Marginal Abatement Curve
ME	Ministry of Energy of the Republic of Azerbaijan
MENR	Ministry of Ecology and Natural Resources of the Republic of Azerbaijan
M&E	Monitoring and Evaluation
MTR	Midterm Review (equivalent to Mid-Term Evaluation)
MRV	Monitoring, Reporting and Verification
NAMA	Nationally Appropriate GHG Mitigation Actions
NCCC	National Climate Change Center
NGO	Non-Government Organization
NIM	Nationally Implementation Modality
OGPD	Oil and Gas Production Department of SOCAR
PDF	Project Development Facility
PIF	Project Identification Form
PIMS	Project Information Management System (UNDP GEF)
PIR	Project Implementation Review
Pro Doc	Project Document
RE	Renewable Energy
SOCAR	State Oil Company of the Republic of Azerbaijan
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNDP/GEF	UNDP-supported GEF-financed (project)
UNFCCC	United Nations Framework Convention on Climate Change

1. INTRODUCTION

This report presents the main findings of the terminal evaluation of the "*Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan*" project (hereinafter referred to as the NAMA[2] Project). The evaluation was commissioned by United Nations Development Programme (UNDP) Azerbaijan[3] and was carried out during the period July 2020 - October 2020 by a team of independent experts. This chapter provides an overview of the objectives of the evaluation and the methodology employed for the collection of information and analysis of data. It should be noted that the evaluators in part relied on an earlier mid-term evaluation of the project which had taken place in December 2017.

1.1. Purpose of the Evaluation

The evaluation's goal was to assess the project's overall progress towards expected results, identify how activities were designed and implemented and derive lessons and recommendations for future interventions of a similar nature. More specifically, the evaluation was conceived and conducted with the following specific objectives in mind:

- To assess overall project performance against project objectives and outcomes as set out in the Project Document, the Logical Framework, and other related documents;
- To assess the extent to which results have been achieved, partnerships established, capacities built, and cross-cutting issues such as gender equality addressed;
- To establish whether the project implementation strategy has been optimal and recommend areas for improvement and learning in future interventions;
- To identify gaps and weaknesses in the project design and provide recommendations as to how it may be improved in the future;
- To assess project strategies and tactics that were deployed for achieving objectives within established timeframes;
- To critically analyze the project's implementation and management arrangements;
- To provide an appraisal of the project's relevance and efficiency of implementation;
- To review and assess the strength and sustainability of partnerships with government bodies, civil society, private sector and international organizations;
- To draw lessons that may help improve the selection, design and implementation of similar projects in the future;
- To provide the UNDP Country Office (CO) with feedback on issues that are recurrent and need attention, and on improvements regarding previously identified issues;

[2] The acronym NAMA stands for *Nationally Appropriate Mitigation Actions*.
[3] In accordance with UNDP and GEF Monitoring and Evaluation policies and procedures, all full- and medium-sized GEF-financed projects are required to undergo a Terminal Evaluation upon completion of implementation to provide a comprehensive and systematic account of the performance by evaluating its design, process of implementation and achievements vis-à-vis GEF project objectives and any agreed changes during project implementation.

- To assist UNDP in identifying future interventions in the area of sustainable development, environmental protection, etc., aligned with national priorities and UNDP's mandate and expertise.

1.2. Evaluation's Scope and Methodology

The evaluation's scope encompassed all activities and resource disbursements that took place within the project's lifetime. The Terms of Reference (ToR) that guided the evaluation process are attached in Annex I of this report. Key issues on which the evaluation focused were:

- Project design and its effectiveness in achieving stated objectives.
- Assessment of key financial aspects, including planned and realized budgets, co-financing, etc.
- The project's effectiveness in building the capacity of local institutions and strengthening policy frameworks to encourage sustainable development.
- Strengths and weaknesses of project implementation, monitoring and adaptive management and sustainability of project outcomes, including the project's exit strategy.
- Recommendations, lessons learned, best practices that may be used in similar UNDP and Global Environment Facility (GEF) projects.

The evaluation used OECD DAC criteria and definitions followed the norms and standards established by the United Nations Evaluation Group. It was guided by GEF's "*Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects*"[4], but also meets the requirements outlined in UNDP's evaluation toolkit, and in particular:

- "*Handbook on Monitoring and Evaluation for Development Results*"[5]
- "*Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects*"[6]

The methodology was based on mixed methods and involved the use of commonly applied evaluation tools such as documentary review, interviews, information triangulation, analysis and synthesis. A participatory approach was taken for the collection of data, formulation of recommendations and identification of lessons learned.

Evaluation activities were organized according to the following stages: i) planning; ii) data collection; and, iii) data analysis and reporting. Figure 1 below shows the three stages and the main activities under each of them.

[4] https://www.gefieo.org/sites/default/files/ieo/evaluations/files/gef-guidelines-te-fsp-2017.pdf
[5] http://web.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf
[6] http://web.undp.org/evaluation/documents/guidance/GEF/UNDP-GEF-TE-Guide.pdf

Figure 1: Evaluation Stages

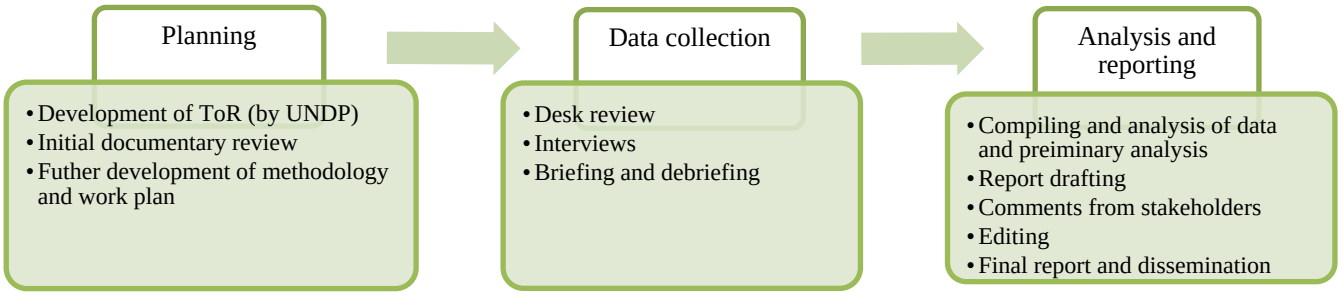


Table 1 further details the main activities that were undertaken by the CO and the evaluators under each stage.

Evaluation Planning

The planning and preparation phase included the development of the ToR by UNDP and the design of the evaluation framework by the evaluators. The evaluators developed a detailed programmatic scope of evaluation activities, as well as sample interview guides for interviews with stakeholders.

Table 1: Evaluation Steps

I. Planning • Development of the ToR (by UNDP) • Start-up teleconference and finalization of work plan • Collection and revision of project documents • Elaborated and submitted evaluation work plan
II. Data Collection • Questionnaires with key stakeholders • Further collected project related documents
III. Data analysis and reporting • In-depth analysis and interpretation of data collected • Follow-up interviews • Developed draft evaluation report • Circulated draft report with UNDP and stakeholders • Integrated comments and submitted final report

Data Collection

The data collection process involved a comprehensive desk review of project documents and semi-structured interviews with stakeholders and partners (see Table 2 for a list of data sources).

- ***Desk Review*** - The evaluation team started by analyzing relevant documents, project documents and progress reports, as well as national development policies and strategies (see Annex IX for list of reviewed documents). Documents from similar and complementary initiatives, as well as reports on the specific context of the project formed part of the analysis.

- ***Semi-structured Interviews*** – The interviews were conducted remotely through questionnaires or by phone, given the impact of COVID-19 and associated travel restrictions. They included project staff, UNDP representatives and government officials. For the government entities

involved in the implementation of the project detailed questionnaires were used to collect their feedback. Open-ended questions were used to enable interviewees to express their views freely and raise the issues they considered most important. The full list of people interviewed can be found in Annex IV.

Table 2: Data Sources

Evaluation tools	Sources of information	
Documentation review (desk study)	General documentation	• UNDP Programme and Operations Policies and Procedures • UNDP Handbook for Monitoring and Evaluating for Results • GEF Monitoring and Evaluation Policy and Guidelines
	Project documentation	• GEF approved Project Document • Annual work plans • Project Progress Reports (Mid-term evaluation, GEF PIRs) • Project Steering Committee Minutes • Reports produced by the project.
	Governments documents/papers	• Including relevant policies, laws, strategies, etc.
	Third party reports	• Including those of the World Bank, EU, EBRD, and others, independent local research centres, etc.
Interviews with project staff and key project stakeholders	These included:	• Interviews with key project personnel including the Project Manager. • Interviews with relevant stakeholders including government agencies and civil society organizations.

Data Analysis

Information obtained through the documentary review and interview process was triangulated against available documented sources and then synthesized using analytical judgement. The method of triangulation is depicted in Figure 2 below.

Figure 2: Method of Triangulation

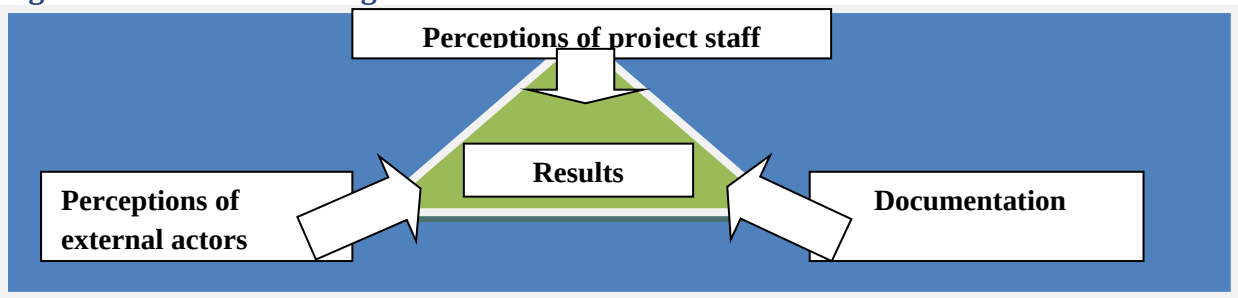
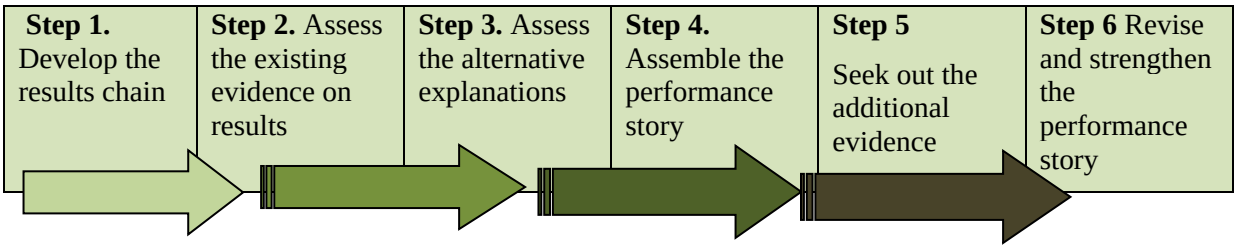


Figure 3 shows the steps that were taken for the analysis which was conducted on the basis of the standard criteria of relevance, effectiveness, efficiency, and sustainability (see Annex II for a more detailed list of questions that were used for the analysis of information).

- ***Relevance,*** covering the assessment of the extent to which outcomes were suited to local and national development priorities and organizational policies, including changes over time;
- ***Effectiveness,*** covering the assessment of the achievement of the immediate objectives (outputs) and the contribution to attaining the outcomes and the overall objective of the project; and an examination of any significant unexpected effects of the project (either of beneficial or detrimental);
- ***Efficiency,*** covering the assessment of the quality of project implementation and adaptive management; adequacy of planning and financial management; the quality of monitoring and evaluation; the contribution of implementing and executing agencies in ensuring efficient implementation;
- ***Sustainability,*** covering the likely ability of the intervention to continue to deliver benefits for an extended period of time after completion.

Figure 3: Steps in Analysis Process



The analysis also covered aspects of project formulation, including the extent of stakeholder participation during project formulation; replication approach; design for sustainability; linkages between project and other interventions within the sector; adequacy of management arrangements, etc.

The evaluation sought to assess the effect of the project on gender power relations, especially the component of the pilot initiatives that had a direct effect on people, especially in rural areas. However, as has been noted further in this report, data disaggregated by gender was quite limited in this project and a recommendation has been provided to address this in the future.

Table 3 shows the scale that was used to rate the various dimensions of this evaluation. This is the standard scale used in GEF-funded projects.

Table 3: Rating Scale

Rating for the assessment of Relevance, Effectiveness and Efficiency	
HS	Highly Satisfactory: The project has no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
S	Satisfactory: The project has minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MS	Moderately Satisfactory: The project has significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
MU	Moderately Unsatisfactory: The project has major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
U	Unsatisfactory: major problems

HU	Highly Unsatisfactory: The project has severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency
Ratings for sustainability assessment	
LS	Likely sustainable: negligible risks to sustainability
MLS	Moderately Likely sustainable: moderate risks
MUS	Moderately Unlikely sustainable: significant risks
US	Unlikely sustainable: substantial risks
Additional	
N/A	Not Applicable
U/A	Unable to Assess

1.3. Evaluation Limitations

All possible efforts were made to minimize the limitations of this evaluation. The project team provided exemplary support to the evaluation process by enabling full access to project-related information and arranging all necessary meetings with project stakeholders. The main limitations were a result of the COVID-19 pandemic which began in the winter of 2019. The international consultant was not able to travel to the country and the evaluation was conducted remotely with the help of a local consultant. No face-to-face meetings were organized for this evaluation and also no project sites – including pilot sites – were visited. However, all the usual protocols and procedures were followed in organizing remote interviews.

1.4. Structure of the Evaluation Report

The evaluation report begins with an overview of the evaluation objectives and methodology (current chapter). The second chapter provides a description of the project and the country context (following chapter). The third chapter presents the main findings of the report and consists of three parts: the first part assesses key aspects of project design and formulation; the second part focuses on implementation issues; and, the third part presents an assessment of the results achieved by the project along the standard dimensions of relevance, effectiveness, efficiency and sustainability. The fourth chapter summarizes the main conclusions and identifies key “lessons learned” drawn from the experience of this project and the last (fifth) chapter provides a set of recommendations for the consideration of project stakeholders. Additional information supporting the arguments made throughout the document is provided in the annexes attached to this report.

2. DEVELOPMENT CONTEXT AND PROJECT DESCRIPTION

2.1. Development Context

Azerbaijan is a major producer of oil and gas products, with most crude oil exported to foreign countries. Azerbaijan possesses 57 oil fields, 18 of which are located in the Caspian Sea shore. The largest GHG emitters in the oil and gas sector are Azneft Production Unity, Heydar Aliyev Oil Refinery and AzerNeftYag Oil and Gas Refinery.

Azerbaijan's energy intensity levels fell rapidly during the country's economic transition beginning in 1994. Energy use per unit of GDP was 0.98 kgoe per $1,000 USD (based on 2005 purchasing power parity) in 1995 and decreased to 0.15 in 2011. This places Azerbaijan at the same level with OECD's average of 0.15. Although energy intensity has decreased significantly, energy use per capita has remained almost the same since 1995. As of 2011, the following energy sources contributed to final energy consumption and greenhouse gas emissions in the country: natural gas (45%), oil products (38%), electricity (15%), heat (1%) and other sources (1%). Increasing energy efficiency is a key component of Azerbaijan's sustainable energy strategy and is recognized by experts as the most cost-efficient way to reduce the environmental footprint of energy activities, ahead of the development of renewable energy sources.

The State Oil Company of the Azerbaijan Republic (SOCAR) is the state-owned oil and gas company responsible for all aspects of the country's offshore and onshore exploration of oil and gas fields, pipeline system, oil and gas imports and exports, processing, refining and sale of oil and gas products. Although SOCAR is involved in all segments of the oil sector, it produces only about 20 percent of Azerbaijan's total oil output, with the remainder produced by international companies such as BP. SOCAR is involved in exploring oil and gas fields, producing, processing, and transporting oil, gas, and gas condensate, marketing petroleum and petrochemical products in domestic and international markets, and supplying natural gas to industry and public/households. SOCAR also operates its own large vehicle fleet and acts as a developer and builder of public, commercial and residential buildings. As such, SOCAR contributes to GHG emissions in multiple energy end-use sectors.

Due to its important position within the overall market chain of exploration-production-transport and final end-supply, SOCAR's activities constitute a significant share of the country's overall GHG emissions regime – on average accounting for 10-15% of total emissions. SOCAR emits annually a total of about 3 million tons of CO2eq. By taking appropriate actions, the estimated potential for GHG emission reductions is about 1.2 million tons of CO2eq or at least 30% of its CO2 emissions (Second National Communication to the UNFCCC, MENR, 2010). Currently, there are about 80 mln m³ of gas aired annually from off-shore and 29 mln m³ from on-shore oil fields. Of the on-shore amount, about 27 mln m³ of gas is aired from Siyazanneft Oil and Gas Production Unit, one of six SOCAR's on-shore facilities, located 100 km North of Baku.

Recognizing the environmental and economic benefits of mitigating climate change, SOCAR developed in 2010 its corporate "*Climate Change Mitigation Strategy*", which lays out measures for reducing GHG emissions and ultimately increasing its competitiveness in the market.

2.2. Problems Targeted by the Project

The NAMA project started in March 2015 and was implemented until December 2020. The project was designed to support SOCAR in the implementation of the *Climate Change Mitigation Strategy* and the achievement of its ambitious targets.

Azerbaijan has developed strong objectives and targets with regard to energy efficiency, renewable energy and GHG emission reductions. *The State Programme on the Use of Alternative and Renewable Energy Sources* identified the following targets to be achieved by 2030 (compared to the 2010 baseline): (i) 30% share of renewable energy in gross domestic power consumption; (ii) energy savings equivalent to 3,060 mln m3 of natural gas; and, (iii) 30% GHG emissions reductions by 2030. In the framework of the State Programme, SOCAR developed its own *Climate Change Mitigation Strategy* with which it committed to position itself as an environmental leader in the country and reduce GHG emissions by 40% - or the equivalent of 20 mln tons of CO2 - by 2020.

The Project Document identified four main challenges in the area of energy efficiency and climate change:

- ***Policy/regulatory barriers*** – The Project Document noted that the absence of a policy framework was the most significant barrier preventing progress in the area of climate change mitigation. Although the government and SOCAR have adopted ambitious targets, there is no widespread legislation in place to target GHG emissions and energy efficiency. However, the Project Document stated that "the project would not be able to close the legal/policy gap per se, but would implement pilot activities" as a means of improving the overall energy efficiency challenges. Thus, the project did not address the policy framework directly (as will be seen further in this report), opting instead to focus on the voluntary implementation of actions specific to SOCAR. In this sense, the strategy was to develop awareness by demonstrating practical solutions.
- ***Technological barriers*** - Lack of appropriate policies, non-compliance with standards, an absence of energy efficiency labeling and low energy prices were identified in the Project Document as the main reasons why energy efficient and renewable technologies were not more widely implemented. The factors also result in low public awareness, particularly in the building and transportation sectors.
- ***Economic and financial barriers*** - Low energy prices and low feed-in tariffs for renewable power generation were identified in the Project Document as key economic/financial barriers. The Project Document proposed to address financial barriers that lead to long paybacks and

low motivation for commercial investment by mobilizing private-sector investments, as well as exploring financial mechanisms, such as a revolving fund.

The following are the baseline indicators that were established for the project:

- Lack of governmental planning and target setting for energy and carbon intensive sub-sectors prevailing
- No detailed economic reviews and scenarios that compare the effectiveness of GHG mitigation technologies and
- GHG mitigation activities are subject to increased governmental focus. Without proper strategies and framework in place there is no proper focus established
- No strategic programme in place that prioritises EE and RE requirements of buildings constructed within SOCAR
- There are no measures to address fuel economy or efficient/alternative technologies for vehicles in place
- About 21 mln m^3 of methane/year are evaporating from Siyazanneft oil & gas field; nearby villages are having problems with low-quality heating
- Poor institutional capacity and support to develop proper GHG inventories based on lack of appropriate legal & policy framework to enhance low energy low carbon strategies
- Lack of institutional capacity to monitor GHG mitigation activities
- Without accurate databases the GHG targets setting mechanisms are weak and without strong backing
- Governmental institutions involved in data collection, statistical analysis and planning do have own methods in place, without proper exchange and review mechanisms available
- Only basic awareness raising and information activities provided on energy end-use and carbon mitigation activities

2.3. Project Goal and Objectives

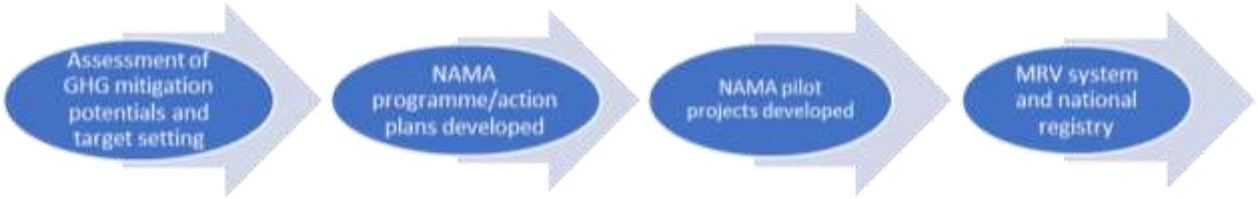
The NAMA project was aimed at reducing GHG emissions and improving energy efficiency among major end-use sectors, as well as simultaneously introducing innovative technologies. The project was designed as part of SOCAR's *Climate Change Mitigation Strategy* and was intended to promote GHG mitigation measures through programmatic NAMAs where pilot investments are directed towards low energy and low carbon technologies. In this sense, the project had two main objectives – (i) to reduce GHG emissions and energy intensity in major end-use sectors (including buildings, transportation, and capturing of associated gases and their use in nearby residential areas[7]); and, (ii) to introduce innovative energy efficiency and renewable energy technologies in major end-use sectors.

[7] This was expected to benefit homes in the area as they rely on LPG, kerosene and forest-wood (causing deforestation).

The project consisted of four outcomes represented in the figure below. The overall goal was to reduce GHG emissions and improve energy performance in three of SOCAR's end-use sectors – transportation, construction and gas emissions.

1. ***Outcome 1: Assessment of GHG emission mitigation potentials and target setting*** – the purpose of outcome 1 was to address barriers to GHG mitigation activities and identify potential areas where GHG mitigation activities could occur.
2. ***Outcome 2: NAMAs in oil & gas end-use sectors developed*** – the purpose of outcome 2 was to develop detailed mitigation plans/programmes, which include feasibility assessments, financial options, and an analysis of the current policy landscape.
3. ***Outcome 3: NAMAs in the oil & gas sector implemented*** – based on the results of outcome 2 showing the most potential in terms of long-term GHG reductions and energy efficiency, the purpose of outcome 3 was to develop pilot programmes in the oil & gas end use sectors.
4. ***Outcome 4: MRV system and national registry for NAMAs*** – the purpose of outcome 4 was to design a well-defined *Measurement, Reporting and Verification* system to ensure transparency, as well as effective implementation of actions.

Figure 4: Key Project Components



The box below provides a more detailed description of the specific objectives intended to be accomplished under each outcome area.

Box 1: Project Objectives

The box below summarizes the project's four objectives:

1) ***Outcome 1: Assessment of GHG emission mitigation potentials and target setting.*** Supporting the development of a long-term strategy for energy resource management by introducing measures to reduce energy consumption by increasing energy efficiency in several end-use sectors. Although there were initiatives underway prior to the inception of the project, the overall system of energy efficiency and renewable energy was still in its early stages in terms of implementation and national targets being set. In this context, the purpose of outcome 1 was to address barriers to GHG mitigation activities, and identify potential areas where GHG mitigation activities can occur.
2) ***Outcome 2: Development of mitigation actions (NAMAs) and instruments in oil & gas end-use sectors.*** This component was designed to support the development of detailed mitigation plans (NAMAs), as well as the identification of financial instruments and feasibility assessments. This process involved mapping the country's current climate policy landscape (including a gap analysis), consider ways to address barriers to mitigation, and press for supports for a streamlined and coherent climate policy.
3) ***Outcome 3: Implementation of NAMAs in the oil & gas end-use sectors.*** Based on the NAMAs developed in the second component which offer the most GHG mitigation potential and long-term reduction in energy intensity, the third component was to focus on the development of pilot

programmes for oil & gas end-use sectors. The pilot programmes were to include investments from SOCAR, and GEF support was to be available in terms of promotion of international best practises, as well as the introduction of new energy efficiency and renewable energy technologies in the Azerbaijani market.

4) ***Outcome 4: MRV system and national registry for mitigation actions in the energy generation and end-use sectors.*** The development of a well-defined Measurement, Reporting, and Verification (MRV) procedure was intended to ensure transparency, as well as effective implementation of GHG policies.

The project was approved by GEF in March 2015, whereas project activities were kicked off with the Inception Workshop in March 2016. The project's main Implementing Partner has been SOCAR. Additionally, the project has involved a number of ministries such as the Ministry of Energy and the Ministry of Ecology and Natural Resources (including its National Climate Change Center). The main project site has been the Siyazanneft oil & gas field, as well as various building sites and transportation routes. The duration of the project was from March 2015 to the point of this evaluation (5 years).

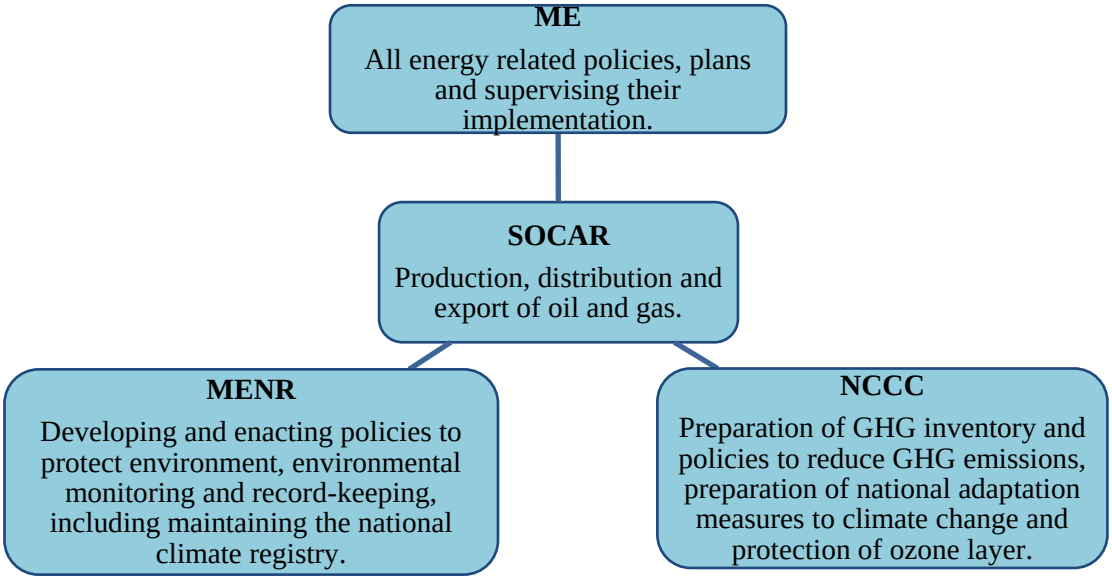
2.4. Main Stakeholders

GHG reduction and energy efficiency initiatives involve a broad array of stakeholders, and therefore project activities are quite complex (this will be discussed in more detail further in this report). Given this complexity, the NAMA project has had to work with a variety of actors. The following are the most crucial ones that have played a key role in the project activities:

- ***SOCAR*** is involved in exploring oil & gas fields, producing, processing, and transporting oil & gas/gas condensate, marketing petroleum and petrochemical products in domestic and international markets, and supplying natural gas to industry and the public in Azerbaijan. The main entity involved in the project has been SOCAR's Ecological Department. The Department has been responsible for improving the environmental performance of SOCAR, including the implementation of its *Climate Change and Mitigation Strategy*.
- ***Ministry of Energy*** (MoE) functions as the central executive body responsible for the formulation of national policy, supervision, regulation and control of the *Fuel and Energy Complex*, issuance of special permissions (licenses) in cases provided for by the legislation, preparation of the annual fuel and energy balance, preparation and implementation of state programmes on the development of the energy sector and development of renewable resources and energy efficiency.
- ***Ministry of Ecology and Natural Resources*** (MENR) is the key government body in charge of climate change, emissions accounting and regulation on natural resources use. It serves as the Designated National Authority for the Clean Development Mechanism (CDM) and NAMAs.
- ***National Climate Change Center*** (NCCC) is a public organization under MENR tasked with developing the National GHG Inventory, the National Communications and other analyses on

GHG abatement opportunities and costs. The NCCC team has led the preparation of the National Communications.[8]

Figure 5: Responsibilities of Key Stakeholders



2.5. Expected Results

The project's goal has been to support SOCAR in the implementation of its *Climate Change Mitigation Strategy* by promoting and upscaling GHG mitigation measures through a programmatic NAMA approach in low-carbon end-use sectors, with pilot investments directed into low-energy and low-carbon technologies that had been missing on a large scale in the country. Overall, the project was expected to reduce GHG emissions and improve energy efficiency in the transportation, construction and oil & gas sectors through the development of detailed NAMAs, pilot programmes and an MRV system.

Three NAMAs were expected to have been implemented by the end of the project, with the following emissions reductions:

- Total lifetime direct GHG emission reductions of about 0.56 mln. t CO2eq
- Total lifetime indirect GHG emission reductions of 6.24 mln. t CO2eq
- Total lifetime energy saved approx. 200,000 toe

[8] In April 2020, the President recreated the State Commission on Climate Change, chaired by the Deputy Prime-Minister, who also chairs the State Commission on SDGs. Members of this commission include MENR, MoE, Ministry of Economic Development, Agriculture, etc.

3. FINDINGS

While the amount of information generated by this evaluation was large, the findings presented in this chapter cover only the most essential aspects of the project and are to some extent focused on those issues and lessons that provide a better understanding of the achievements of the project and which would benefit the project stakeholders the most in similar future endeavors. The findings of this evaluation are organized in the following sections: i) Project Design; ii) Project Implementation; and, iii) Project Results.

3.1. Project Design

This section examines the project's logic and design features by focusing on the adequacy of the project's logic, results framework, management arrangements, identification of risks and assumptions, use of lessons learned from other projects, linkages with relevant UNDP or donor projects, UNDP's comparative advantage in the area, planned stakeholder engagement, replication approach, etc. The main questions driving the analysis are shown in Box 2 below.

Box 2: Key Issues Related to Project Design

The key questions driving the analysis in this section are:

- Whether the project has a sound logic with outcomes flowing from activities and the latter driven by the project's objectives.
- Whether assumptions and risks were adequately identified at the outset of the project.
- Whether lessons learned from earlier projects and other interventions were incorporated into the project design.
- Whether the project's linkages to other relevant projects in the UNDP portfolio or by other donors were properly identified and capitalized on.
- Whether UNDP's comparative advantages were adequately exploited.
- Whether stakeholder consultation was an essential part of the project incorporated from the project design phase.
- Whether the replication approach was sound and an exit strategy was clearly identified.
- Whether management arrangements were identified correctly, with roles and responsibilities adequately determined prior to project approval.

3.1.1. Analysis of the Project Logic and Planning Matrix

The project's design was initiated in 2012-2013, with UNDP initiating a series of meetings and discussions with SOCAR and MENR. Those discussions led to the identification of key challenges and opportunities in the area of energy efficiency, as well as SOCAR as the main implementing partner, given its status as Azerbaijan's largest energy company. During the project concept preparation stage, UNDP consulted and worked with the relevant departments and specialists within both SOCAR and MENR. Later, at the PPG stage, UNDP worked closely with SOCAR's

Office of the Vice-President on Ecology and its Department of Environmental Protection. Consultations were also held with SOCAR's financial, transportation and capital construction departments, as well as Siyazan Neft.

The project's approach - described in the previous section - is quite comprehensive and touches on key dimensions of emissions reductions and energy efficiency related to SOCAR's end-use sectors. Although at first look the nature and scope of these activities might seem moderate, the sector's complexity is significant and the number of stakeholders involved is large. Overall, the Project Document provides a thorough analysis of the country context and the needs addressed by the project and identifies a clear overall goal for the project to pursue. Major risks and assumptions facing the project are identified in detail and adequate monitoring and evaluation tools are identified to track them (more on this in the following sections of this report). The project design also allows for the necessary flexibility to make modifications in the course of implementation, in line with changes in the context (this is discussed in more detail in the section about adaptive management). However, certain design aspects of the project could have been framed more adequately. With hindsight, they seem to have presented the project team and stakeholders with challenges. The following is a short discussion of the main drawbacks identified in the course of this evaluation (it is important to *emphasize* here that the following discussion does not pertain to how the project was implemented, but only to how it was designed).

- ***Project's Scope and Level of Intervention***

One of the weaknesses of the project design is the lack of clarity about its scope and level of intervention. The Project Document was not specific on whether several of the key project activities were targeted at the national level or just SOCAR. In particular, this was the case with regards to the NAMA programmes and the use of the NAMA term[9] – whether NAMAs were going to relate to the country as a whole or just SOCAR as a company. This was a serious matter that was identified early on and was flagged in the project's Mid-Term Review. Following the review, project stakeholders resolved this challenge. A decision was made by the Steering Committee to focus project activities and the NAMA programme on SOCAR.[10] While this decision might have limited the scope of the project, it unblocked the situation and enabled the project team to move more swiftly with project activities, given that they fell primarily under the jurisdiction of SOCAR.

- ***Identified Barriers***

The Project Document identified policy, legislation, regulation and public perceptions as important barriers preventing GHG reduction and energy efficiency nation-wide. Even the pilot initiatives under Outcome 3 were intended to provide the basis for large scale replication that would influence institutions and policy frameworks and in effect reduce GHG emissions in the long-term. However,

[9] The term was used to refer to both activities associated with Outcome 2 (mitigation plans) and activities under Outcome 3 (pilot initiatives).
[10] The project's focus shifted to three prioritized sectors within SOCAR - buildings, transportation and gas capture.

neither the policy dimension nor public perceptions were addressed explicitly in the design of the Project Document (and consequently were not addressed explicitly during the implementation phase). Although the project did provide some policy inputs during the implementation phase,[11] its focus on policy and legal frameworks was very limited. In retrospect, the Project Document could have benefited from a better framing of policy issues – especially, how changes at the level of policies, legislation and regulations could result in sustainable improvements in GHG emissions. Similarly, the Project Document could also have focused more on the role of people's perceptions and the ways on which change may occur within the general public.[12] Further, the design of the project was an opportunity to integrate environmental concerns into policy frameworks through the Sustainable Development Goals (SDG)[13] process, and subsequently the SDGs. However, the Project Document does not focus on the SDGs and for the most part they are addressed only marginally.

- ***Focus on SOCAR***

One of the issues raised by some interviewees of this evaluation was why the project was designed to focus on SOCAR, arguing that SOCAR is a large state-owned enterprise with significant financial resources compared to the resources that this relatively small project brought to the table. The point of this argument is that the project's limited resources could have had a larger impact if targeted at an institution or organization with limited financial resources for which the NAMA project would have provided more value-added. While this argument is valid, several reasons seem to have influenced the selection of SOCAR as the project's implementing partner. First, given the project's focus on infrastructure pilots (and its limited focus on the policy and institutional framework), the need for significant co-financing seems to have been crucial. SOCAR was seen as the organization best positioned in the country to provide a large amount of co-financing. Further, SOCAR was rightly seen as the largest consumer of energy and GHG emitter in the country, making it an attractive partner for achieving tangible emissions reductions through practical interventions. The NAMA approach offered SOCAR a valuable opportunity to develop

[11] For example, at the request of the Ministry of Energy, project experts contributed to the preparation of the Energy Efficiency Law. Another example is the "NAMA Report on Building Energy Policies" which was prepared in December 2019 and offered useful lessons from other similar countries (e.g. Turkey, Kazakhstan and Russia) for the labeling of end-use energy equipment and appliances. The report recommended the creation of an Energy Efficiency Coordination Board, related authorized institutions, and support for the establishment of energy service companies (ESCOs). The report further recommended a law of building energy codes and energy efficiency standards for new buildings and the mandatory labeling of buildings.

[12] At the institutional level, change is introduced by promoting legal, strategic and policy frameworks that facilitate environmental awareness and the notion of sustainable development. At the level of perceptions, change happens through three major channels. First, public officials undergo training on environmental issues which changes their understanding and worldview. Similarly, other stakeholders' perceptions are shaped by training on environmental issues. For the general population, change in perceptions and beliefs is stimulated through awareness-raising campaigns. Ultimately, the degree of change that takes place at the level of institutions and people's beliefs shape people's behavior and decisions (in their various roles as voters, policy-makers, citizens, etc.).

[13] As a matter of fact, the development of the Project Document started before 2015, which marked the beginning of the SDG agenda. But even the MDGs that preceded the SDG agenda do not receive great attention in the project design.

and implement a large scale GHG mitigation programme. Furthermore, given SOCAR's clout in the country's institutional set-up, it was seen by the project formulators as an appropriate entry point into the country's energy infrastructure, with greater potential for the dissemination and replication of the lessons and technologies promoted by the project.

- ***Sequence of Project Activities***

The project was largely designed to have a sequential implementation order with regard to the four project outcomes. This however did not occur in practice, as the project team decided to first gain practical experience with the pilot initiatives before proceeding with activities under the other outcomes. The actual order of implementation, as it unfolded during the implementation phase, is shown in the box below. The development of the *Marginal Abatement Cost* (MAC) analysis in particular resulted in delays and eventually an external consultant was hired to take on this task. Given that the project did not implement the outcomes in a sequential order, it wasn't fully certain from the beginning whether NAMAs with the greatest potential for GHG reductions and energy efficiency were selected when the pilots began.

Box 3: Sequence of Project Activities at the Implementation Stage

The following is the sequence of the implementation of the project outcomes, as it happened in practice during the implementation phase.

- Step 1 (Outcome-3): Undertaking of pilot projects and using their results to formulate the NAMA programme.
- Step 2 (Outcome-4): Creating a framework for the establishment of a climate registry for recording the GHG reductions from pilot activities and later the NAMA programme.
- Step 3 (Outcome-1): Developing the MAC curves and using them, along with pilot studies, to decide on the reduction measures with the highest benefit-to-cost ratios.
- Step 4 (Outcome-2): Developing a multi-year investment programme for SOCAR in the future years.

- ***Engagement of the Private Sector***

Another design weakness is the insufficient role foreseen for the private sector in project activities. The private sector can play an important role in ensuring that economic activities do not go against environmental and social concerns. The private sector could have been involved more actively as an actor that contributes with insights and resources to the solution of sustainable development problems. While some level of engagement of the private sector did take place during the lifespan of the project, its role overall remained quite limited. The banking sector in particular could have had a more prominent role in the project. One crucial aspect of the sustainability of the interventions promoted by the project is the financing of energy efficiency and renewable energy investments. While SOCAR is in a unique financial position due to its status as the largest and richest state-owned company in the country, most other companies, especially in the private sector, are not in that position. These companies would undertake serious efficiency investments only if

financing for those investments was available from the banking sector. The project could have provided a significant and long-lasting contribution if it would have added to the work on the pilots a component on the financing of those interventions.

* * *

Overall, based on the examples provided here, it can be argued that certain design shortcomings in the Project Document had a constraining effect on project activities and results (as will be seen further in this report). As discussed in more detail in the section on adaptive management, the team tried to mitigate the consequences of some of these challenges, but nevertheless the roots of the problem were such that they could not be neutralized entirely.

3.1.2. Analysis of Resource and Results Framework

Overall, the project's Resource and Results Framework (RRF) would have benefited from e better structured and better-defined indicators, baselines and targets. An analysis of the quality of the project's Resource and Results Framework on the basis of the SMART criteria is presented in Annex VI of this report. The main dimension of the SMART framework where some of the indicators are weak is the "Specificity" one. This is due to the fact that these indicators are not well-defined, but are couched in general terms that do not allow for a clear understanding. The following are some examples of indicators that could have been addressed more adequately.

- As has been already noted, the term "*NAMAs in the low-carbon end-use sector*" has been used inconsistently in the project document, and in the RRF in the particular. In the objectives' section, the term refers to each of three sub-sectors (transportation, construction and gas capture), whereas under Outcome 1 in the RRF - related to the "marginal abatement costs curves for oil & gas end-use sectors" - the term refers to the transportation and construction sectors, given that the MAC analysis was only applied to those two sectors.

- Under the project's objectives, the target associated with the indicator "*direct and indirect GHG emission reduction and energy savings facilitated by the project*" makes reference to "*total lifetime direct (and indirect) GHG emission reductions*". The concept of indirect emissions was not fully expounded and discussed in the Project Document, but was largely left open to interpretation. Also, more clarity would have been necessary for the concept of "*total lifetime*". Most indirect impacts will be possible to observe in a longer-term perspective (i.e. for buildings 25 years after the project's end, for vehicles used/drivers trained 10 years after the project end), but this would have required a sharper upfront definition. The project's MTR provided some additional clarity on this issue by linking indirect post-project GHG emission reductions to the implementation of the long-term NAMA programme/action plan (in case the approved NAMA action plan would have allocated sources of financing). However, financing

was not made available by SOCAR for the full implementation of the NAMA programme/action plan, so in this situation the project team took out indirect emissions and focused only on direct emissions reductions generated by the project's pilots.

- The indicator for Outcome 2 was framed as "*sectors for prioritized and feasible NAMAs are identified and selected*". However, the Project Document indicated that the purpose of Outcome 2 was to not only identify possible sectors for NAMA programmes, but also to develop detailed NAMA programmes within each of the three sub-sectors (which included feasibility assessments, financial options, and an analysis of the current policy landscape, etc.). In this context, it would have been clearer if the indicator specified that the purpose was to 1) identify; 2) develop; and 3) implement NAMA programmes.

- Further, the RRF does not discuss the exploration, analysis and implementation of wind and solar options that were discussed as potential opportunities in the Project Document. Additional clarification would have been useful if relevant targets, indicators, risk and assumptions were included in this regard.

3.1.3. Assumptions and Risks

The risks identified in the Project Document are presented in the table below.

Table 4: Risks Identified in the Project Document

Risks	Level	Mitigation Measures
• The lack of proper energy efficiency and renewable energy legislation and policy measures (strategies, actions plans, monitoring activities) remains within the country framework	Moderate	• The project has not the means nor does it address the right project stakeholders that would lead to direct improvements on the legal and policy level. Nevertheless, the development and implementation of NAMAs for selected end-use sectors will align them to existing development plans and policies required to be implemented by the Government of Azerbaijan with significant effect (benefit) to end-users. Appropriate resources (human and financial) will be allocated by the project stakeholders.
• SOCAR does not commit adequate resources and funding support to ensure that project investments during, and beyond the term of the project are properly maintained	Moderate	• The project outputs have been identified, and project activities developed, in close collaboration with SOCAR in order to incrementally build on the existing foundation of financial resources and institutional capacities, rather than impose an unwanted and unsustainable suite of activities on the government. Careful attention is being paid to ensuring the long-term sustainability of project investments. Project shall also make specific proposals to implement suitable financial mechanisms to de-risk increased level of investments into energy end-use sectors.

Risks	Level	Mitigation Measures
• Low market readiness and low level of incentives to implement GHG mitigation programmes in place	Moderate	• Low level of experience in up-taking strategic framework programmes that would trigger scaling-up of EE implementation mechanisms will be addressed by the Project. NAMAs will be implemented to introduce new technologies to the market and increase the awareness about energy efficiency in main energy end-use sectors.
• Expert capacity and institutional know-how on appropriate GHG inventory methodologies lacking	Low	• The project will address the existing gaps on the level of institutional know-how and methodologies used for preparation of GHG inventories, making use of improved statistical and other data sources to be compiled and institutionalised through sufficient training and capacity-building activities. In fact the project duration will allow monitoring the progress made in regard to institutional capacity building by developing GHG inventories, sub-sectoral reference baselines based on IPCC guidelines and international best practice.
• The NAMA Programme does not materialise in the proposed way and therefore GHG mitigation potential is not realised	Low	• The project design foresees the implementation of a programmatic NAMA approach, i.e. a set of different projects addressing different energy end-use sectors across Azerbaijan. The project ideas have been commonly developed with SOCAR and are founded within SOCAR's corporate CC Mitigation strategy. Nevertheless, in order to confirm that project will be implemented within the 3 proposed NAMAs, a feasibility phase has been added to confirm that (a) project ideas are still valid, (b) can be implemented as foreseen and (c) can achieve significant GHG mitigation and replication after the implementation of the GEF activity. In all investment projects, relevant local/national environmental regulations, including environmental & social impact assessments (ESIA) – if relevant and required – will be implemented.

Overall, the analysis of risks and the identification of mitigation measures has been adequate. At the implementation stage, the project team established an effective monitoring system to deal with risks – monitoring the overall situation in the country and the environment surrounding the project. In particular, exchange rate fluctuations were monitored through the UNDP's Atlas system.

Two major risks that materialized during the project's lifetime and which were not identified in the Project Document are discussed as follows.

- A major risk not identified in the Project Document was the risk of the Covid-19 pandemic. This was impossible to foresee, given the rarity of such events. But the impact of the pandemic globally has been enormously, and as will discussed further it has also had a significant impact on certain aspects of the project. This will be discussed in more detail further in this report.
- Another major risk that materialized during the project's lifetime was the escalation of the conflict between Azerbaijan and Armenia. There were two significant surges in the level of conflict – in July and October 2020 – and certainly such increased tension had an impact on project activities. The escalation of the conflict has shifted government priorities towards the areas at the center of the conflict. As such, government attention and resources are expected to be shifted towards these areas, which might have implications for the availability of financing available for the replication of the activities and results of this project.

3.1.4. Lessons from other Relevant Projects Incorporated into the Project Design

The Project Document outlined the following initiatives that were to provide lessons for the NAMA project:

- The *Energy Reform Support Programme* was funded by the EU and assisted Azerbaijan to review its national energy strategy in order to develop an overall, coherent, integrated and transparent strategy that covered the supply, transportation, transit and use of all energy resources.
- A *Technology Needs Assessment* was funded by GEF and implemented by the UNDP and coordinated by MENR in close collaboration with all relevant ministries, agencies, institutions, non-governmental organizations, the private sector and independent experts. The final report from 2013 provided a comprehensive analysis of options for renewable energy deployment and the application of energy efficiency measures in the building sector which were relevant for the NAMA project.
- The development of Azerbaijan's *Third National Communication to UNFCCC* focused on national sector-level inventories; whereas, the NAMA project prepared detailed sub-sector GHG inventories, (e.g. electricity generation, heat generation, buildings, urban transport), baselines, and alternative/low-carbon scenarios with accelerated implementation of energy efficiency and renewable energy measures in key sub-sectors.
- *Azerbaijan's First Biennial Update Report to the UNFCCC* assisted the country in mainstreaming climate change considerations into national and sectoral development policies by providing continuity to the institutional and technical capacity strengthening process, partly initiated and sustained by the National Communications. Specific cross-links to this project were related to the GHG inventories for the period 1990 - 2005.

The Project Document indicated that coordination with the above initiatives would be ensured by the Project Board (Steering Committee), and that representatives from these projects would be invited to participate in the board's discussions. However, the Project Document did not go into very much detail about how this was to occur. With the hindsight of this evaluation, these collaborations for the most part did not take place because by the time the project was up and running most of these initiatives were completed. In this context, it should be recognized that for UNDP it is difficult to envisage which projects will be realized well in advance because the organization is largely dependent on funding from external sources. Not all concepts developed by UNDP end up receiving funding and getting realized.

3.1.5. Linkages to other Relevant Projects in UNDP Portfolio

Although UNDP Azerbaijan has previously had involvement in the environmental sector, and specifically climate change mitigation and energy efficiency, the NAMA project was its first direct cooperation with SOCAR in the area of climate change mitigation. The design of the project was facilitated by data from the Second National Communication, a process which had been previsouly supported by UNDP. Also, UNDP's experience with other relevant projects in other countries was used in the process. Further, UNDP's Regional Technical Advisor, as well as international and local consultants, contributed to the design of the project.

The Project Document noted that the project's implementation would be coordinated with the UNDP initiative ***Promoting Development of Sustainable Energy*** which supported policies and regulations for energy efficiency and renewable energy, technical and institutional capacities for policy enforcement, and implementation of sustainable energy projects. However, the Project Document did not go into detail with regard to how coordination between the two projects would take place. Further, the above-mentioned project was completed in 2015, which did not allow for any opportunities for practical implementation linkages between the two.

Overall, the Project Document could have provided a more structured analytical framework for cooperation between the NAMA project and other relevant ongoing UNDP activities.

3.1.6. UNDP's Comparative Advantage

The Project Document identified some of the UNDP's comparative advantages in the area of sustainable development, the most important being its long institutional experience of implementing environmental projects ranging from climate change, energy efficiency and management of protected areas. This vast experience enables the UNDP to build on previous achievements and apply lessons learned to new challenges. Combined with a good profile/image, good financial system control, procurement systems, etc., the close links and trusted partnership with governmental and non-governmental partners allow the UNDP to ensure continuity in circumstances of frequent institutional change. Box 4 summarizes the additional advantages of the

UNDP in the implementation of projects that mainstream environmental concerns into public policy.

Box 4: Key Elements of UNDP's Comparative Advantage

- UNDP boasts close partnerships with the government, civil society, private sector, universities, etc. National stakeholders value UNDP for its neutrality and impartiality. The trust and respect commanded by UNDP and the access it has to government officials, as well as civil society, place UNDP in a good position to play a strong advocacy role on the one hand, and, on the other, to undertake pioneering initiatives.

- UNDP has extensive experience supporting capacity development initiatives of national governments and other stakeholders through advocacy, policy advisory, and technical assistance services. Implementation of this project benefited from the experience and technical support UNDP provided as a specialist in capacity development.

- Its global experience and lessons learned in the same sectors in many countries around the world and in the region in particular, provide UNDP with a distinct advantage. When needed, UNDP is able to mobilize support from a range of UNDP and UN structures. Its access to a vast global network of experts allows it to tap into comparative experiences and technical support from other regions.

- UNDP's regional office, in particular, provides technical support to numerous projects across a number of areas.

- UNDP has extensive experience and capabilities related to regional cooperation. A significant part of UNDP's work is regional (multi-country) in nature. It has great capabilities for promoting south-south and triangular cooperation and can mobilize technical expertise to develop a suitable regional knowledge platform.

- UNDP's strong record on environmental projects allows it to capitalize on valuable GEF expertise in these sectors. UNDP has one of the largest portfolios of GEF-funded projects in the world. The experience and capacity that this implies is a significant comparative advantage in developing and implementing such types of projects.

- Another one of UNDP's strengths is its broad-based development approach focused on strengthening national capacities for sustainable development through the integration and mainstreaming of various development aspects. SDGs are used by UNDP as an integrating platform for all development efforts in various countries and as an instrumental for engaging with a wide spectrum of stakeholders, which has proven to be a critical factor of success in many instances.

3.1.7. Planned Stakeholder Participation

A stakeholder analysis was conducted at the stage of the project's preparation to assess roles and responsibilities within the context of planned activities. As mentioned previously, the Project Document identified SOCAR, MoE, MENR and NCCC as key stakeholders in the project's implementation. It outlined their key responsibilities in supporting or facilitating the implementation of activities, as summarized in the box below.

Box 5: Planned Stakeholder Participation

- ***SOCAR*** was designated to be the main executing partner of the project. The NAMA programme was seen as a valuable opportunity to develop and implement a large-scale GHG mitigation programme in line with the company's long-term sustainable development strategy, which could be replicated at the national level and thus influence the country's overall GHG emission regime.

- ***MENR*** was designated to take the lead in implementation of components 1 and 4 and ensure coordination with the UNDP-GEF project on preparation of the 3rd National Communication and Biennial Update Report.

- ***NCCC*** was envisaged to be involved in outcomes 1, 2 and 4, and in particular ensure complementarities and coordination between the activities of the NAMA project and the preparation of national communications and the maintenance of the GHG inventory.

- ***MoE*** was envisaged to be a key counterpart in the development of policy instruments for NAMA implementation in light of its overall mandate in the energy sector.

3.1.8. Replication Approach

The Project Document discussed *Innovation, Sustainability and Replicability* and noted the importance of developing practical and applied knowledge that could be further replicated elsewhere. The Project Document indicated that an overarching goal of the project was to use SOCAR's prominent position in the country to influence GHG and energy efficiency regimes. The Project Document noted that upon the completion of the project all major national stakeholders would be brought together into a dialogue to enhance the national development strategy as it relates to GHG reductions and energy efficiency. Additional key items in the Project Document which addressed replicability included:

- The pilot initiatives under Outcome 3 were intended to provide the basis for large scale replication that would influence institutions and policy frameworks and, in effect, reduce GHG emissions in the long-term. One of the specific activities under Outcome 3 was to monitor the energy performance of buildings that have been impacted by the project and calculate energy savings and GHG reductions for purposes of reporting, raising awareness and replication.

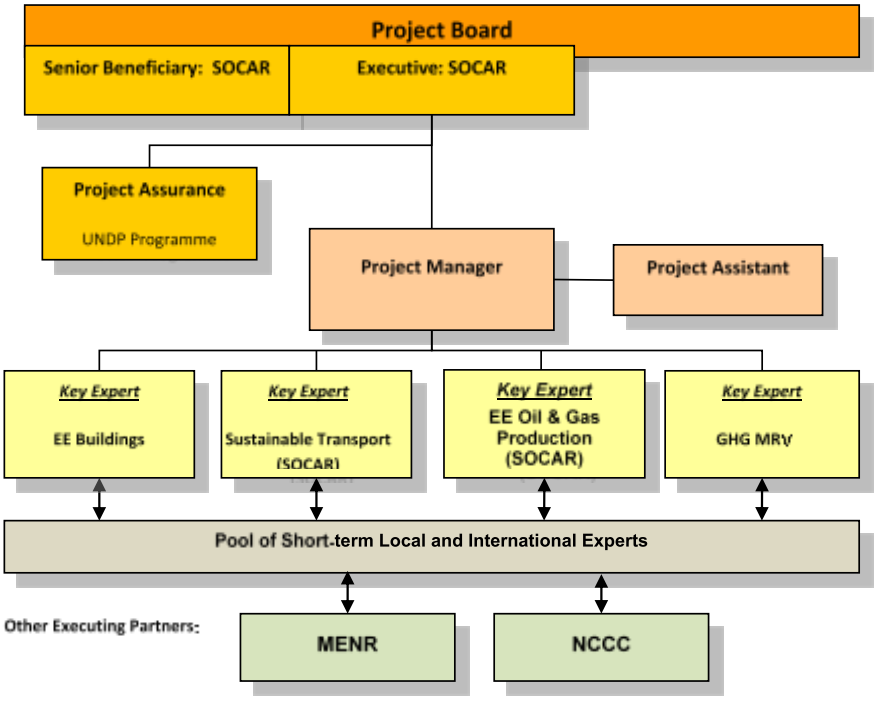
- Output 3.3 noted that associated gases were a major source of GHG emissions in the country, and the NAMA project would help reduce 21 million m3 per year of methane from escaping into the atmosphere. SOCAR was aware of the environmental impacts of associated gases and the results of Outcome 3 were intended to provide learning opportunities that could be replicated elsewhere, specifically with regard to updating technology at SOCAR's oil & gas production sites and providing the captured gases to end-users that lacked contemporary sources of energy.
- Outcome 4 was focused on monitoring, reporting and verification. As part of this process MENR was tasked with creating a national registry for mitigation actions, and this would be linked to the database that was established under Outcome 3. Lessons learned with regard to the MRV development procedure would be analyzed, published and disseminated for purposes of replication.

Overall, the project design laid out an adequate replication strategy. However, a weakness that has been identified above is the lack of interventions at the policy and legislative level to lock some of the project's achievements on a more sustainable basis.

3.1.9. Management Arrangements

The project's organizational structure outlined in the Project Document is shown below.

Figure 6: Project's Management Arrangements



Based on the Project Document, the project's administration was organized in the following way:

- ***Project Board***: The Project Board (usually referred to as the *Steering Committee*) was constituted to serve as the project's executive decision-making body. The Steering Committee was conceived to be composed of the Head of SOCAR's Ecology Department, the Ministry of Ecology and Natural Resources (MENR), the National Climate Change Center (NCCC) the UNDP Deputy Resident Representative (DRR) and a representative of UNDP's Sustainable Development Unit. The Steering Committee ensured that the project remained on course to deliver the desired outcomes of the required quality. The Steering Committee met formally once per year (or more frequently in some years).

- ***Project Manager and Project Assistant***: As stipulated in the Project Document, the day-to-day administration of the project was to be carried out by a Project Manager (PM), with the support of a Project Administrative Assistant (PAA), which is actually what happened during the implementation phase. The recruitment of project staff was based on standard UNDP recruitment procedures. The PM had the authority to administer the project on a day-to-day basis, within the guidelines and constraints laid out by the Steering Committee. The PM's main responsibility was to ensure that the project produced the results identified in the Project Document to the required standard of quality and within the specified constraints of time and cost.
    - One PM's primary tasks was to work closely with partner institutions to link the project with complementary programmes and initiatives. The PM was accountable to the National Project Director (NPD) for the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds. The PAA position was designed to provide administrative support to the PM as required. Support by key technical experts nominated by SOCAR was foreseen to co-ordinate implementation, monitoring, reporting and verification activities throughout the project's duration. Recruitment of specialist support services and the procurement of equipment for the project was to be done by the PM in accordance with UNDP rules and procedures.
    - An Annual Work Plan (AWP) was envisaged to be produced by the Project Team and approved by the Steering Committee at the beginning of each year. The plans were to provide the basis for allocating resources to planned activities. After the approval of the Steering Committee, the AWP required the clearance of the UNDP Regional Technical Advisor for Climate Change at UNDP's regional Istanbul hub. Once cleared by the RCU, final approval is given by UNDP/GEF Unit in New York. The PM was also expected to produce quarterly operational reports and Annual Progress Reports (APR) for the review of the Steering Committee, as well as other reports as requested by the Steering Committee.[14]

[14] These reports summarize progress made by the project versus expected results, explain any significant variances, detail necessary adjustments and are the main reporting mechanism for monitoring activities.

- ***UNDP Country Office***: The UNDP Country Office was responsible for the monitoring of project implementation, reviewing progress with project outputs and ensuring the proper use of funds. While working in close cooperation with SOCAR, the UNDP Country Office was expected to provide support services to the project - including procurement, contracting of service providers, human resources management and financial services - in accordance with UNDP Rules and Procedures and Results-Based Management (RBM) guidelines.

- ***State Oil Company of Azerbaijan Republic***: SOCAR was designated as the implementing entity in line with the Standard Basic Assistance Agreement (January 2001) and UNDP's Country Programme for Azerbaijan (2011-2015). SOCAR's main entity involved in the project was the Ecological Department. The Department is responsible for improving the environmental performance of SOCAR's divisions, including the implementation of SOCAR's *Climate Change and Mitigation Strategy*. SOCAR had the overall responsibility of achieving the project goal and objectives and was directly responsible for creating the enabling conditions for implementation of all activities. SOCAR designated a senior official to act as the National Project Director who would provide strategic oversight and guidance to the project's implementation.

Overall, the organizational design structure for this project, as summarized in the above paragraphs, has been adequate. As will be seen in the subsequent sections of this report, this structure has enabled the project to deliver on most of its obligations and commitments. The main project structures functioned well during the implementation phase. For examples, key representatives required for providing guidance and advice to the project were well-represented in the Steering Committee, including those with leadership roles from SOCAR and the UNDP. Further, the designated role of the PM was key – liaising the guidance and advice from the Steering Committee with "on the ground" events that were being led by the team of key experts, as well as short-term and local international experts. MENR and NCCC were represented both on the Steering Committee, as well as in the role of providing supports to short-term and local international experts. However, given the important national governance role that the MoE is responsible for – including national policy, supervision, regulation and control of the efficient use of energy – ministry representatives could have had a larger role on the Steering Committee, as well as through the provision of supports to short term and local international experts.

3.2. Project Implementation

The project went through a number of important stages during its five-year lifetime. The following is the chronology of key events that marked the project's conceptualization and implementation phases.

- PIF was approved on 20 June 2013.
- CEO endorsement/approval was provided on 10 September 2014.
- SOCAR signed the Project Document on 26 February 2015.
- UNDP approval occurred 5 March 2015.
- Actual project implementation started in July 2015 with the hiring of the Project Manager and Project Assistant.
- Inception Workshop was planned for December 2015, but had to be canceled and postponed due to a tragic accident in the oil and gas industry. Inception Workshop was held on 3 March 2016 which was 8 months after the actual start of the project and one year after the project was formally launched.
- Mid-term Review was completed in November 2017.
- Steering Committee meetings were organized at least once a year, and sometimes twice a year, to analyze the past period and plan future steps. The dates of Steering Committee Meetings were:
    - 28 March 2015
    - 28 December 2015
    - 14 June 2016
    - 25 July 2016
    - 19 April 2017
    - 13 September 2017
    - 17 July 2018
    - 24 October 2018
    - 26 August 2019
- Annual Work Plan Review Dates/Budgetary Review Dates include:
    - 16 July 2015
    - 28 January 2016
    - 15 November 2016
    - 13 March 2017
    - 25 April 2018
    - 19 December 2018
    - 12 February 2019
    - 17 February 2020
- Terminal Evaluation took place in August – October 2020.
- Project Closure is set for December 2020 (given the extension that the project received).

3.2.1. Adaptive Management

The project has experienced several cases of adaptive management undertaken by project stakeholders. These adaptive actions have largely been positive and beneficial to project outcomes, as will be outlined further in this report. The following are some outstanding examples of adaptive actions taken by project stakeholders and carried out by the project team.

- Following the Inception Workshop, the project team introduced in the project's RRF new mid-term targets, which were also included in the Inception Report. Another result of the workshop was the decision to focus only on direct GHG emissions, as opposed to also indirect emissions, as had been originally envisaged in the Project Document. Also, the scope of the GHG reduction analysis (Outcome 1) was extended beyond the marginal abatement cost curves.
- The project team was flexible in engaging international expertise in areas where there was limited know-how in the country and where there was scope for significant value-added. A Lead International Technical Advisor was hired on a part-time basis to support the implementation of the project. The purpose was to bring additional GHG reduction and energy efficiency knowledge to the team. This included technical savings potentials, comprehensive cost analysis and priority setting for actions/activities. An International Climate Change Mitigation Expert was engaged in March 2018 for a period of one year to develop the MAC Curves for the reduction measures in the buildings and transport sectors. A workshop/seminar was held to raise awareness about the cost-benefit analysis of emission reductions. A second expert was engaged in July 2019 for a period of one year to revise and further improve the MACCs and the net present value of various investments.
- The analysis of the GHG reduction opportunities under Outcome 1 and the development of detailed action plans under Outcome 2 were postponed until the pilot initiatives under Outcome 3 were implemented (see the box below for a description of the pilot initiatives implemented by the project). The purpose was to gather data which did not exist until then,[15] develop practical experience through the pilots and then use this information to inform the implementation of the other components. Although the MTR was supportive of this approach, it also encouraged the project team to resume work on activities under the other outcome areas as soon as possible.
- On the recommendation of an international expert, the project identified the capturing of APG from Siyazzeneft oil-fields as one of the most cost-effective GHG emission reduction opportunities. Based on this analysis, project stakeholders prioritized this opportunity and decided to pursue it as a pilot initiative under the project. Gas capturing was a new technology for SOCAR and was chosen as an alternative to transporting it to a central

[15] Due to the lack of analytical and empirical data in the country, it was not possible to start with the development of GHG MAC Curve and the identification of EE measures. However, it was possible to undertake energy audits of SOCAR administrative buildings and conduct a fuel savings analysis of SOCAR's transportation fleet to identify GHG emission reduction potential and decide on pilot project modalities.

treatment facility. An international consultant was hired in February 2017 to review the project's associated gas component and conduct a feasibility assessment. 63 active wells were targeted in the Zagli-Zeyva area by the project for the pilot initiative. This pilot turned out to be a successful initiative, especially for SOCAR which greatly values its demonstrative effects. However, this pilot was also one of the major challenges that the project team faced, but tackled successfully. The main challenge consisted of the fact that the project location was in a complex geographical area with unfavorable climatic conditions. The site was at a considerable distance from residential villages and in an area with a complex relief (mountainous area). The construction and installation works, construction of new gas pipelines and the supply of gas to the population presented significant challenges. Nevertheless, the project managed to complete all infrastructure works successfully and the gas capture component of the project was inaugurated with a ceremony on 23 September 2019. The collected gas now is distributed to 600 families in 12 villages, reaching about 2,500 people.

- The Project Document contained provisions for undertaking pilot projects using wind/solar facilities. However, the project team concluded that wind/solar technologies were still quite expensive compared to other more cost-effective energy efficiency measures. Therefore, wind and solar technologies were not central to the project. Nevertheless, the project promoted the inclusion of these technologies in the building pilot which included wind power and photovoltaic technologies.
- Another key adaptive measure was the purchase of a driving simulator, based on a decision of the Steering Committee, as a means of providing eco-driving training year-round. This happened following the success of the eco-driving training sessions, which demonstrated fuel savings in the range of 8% to 10%. These activities took place within the context of a series of other innovative initiatives in the transport sector, including the purchase of four energy-efficient hybrid vehicles by the project and three by SOCAR.
- The project budget was revised 11 times. The reason for the revisions was the discrepancy in the amounts allotted in the budget to various budget lines, meaning that amounts allotted for specific lines were either too much or too little for the activities to be realized under those lines. Therefore, the project team had to make several revisions in line with UNDP rules and regulations.[16]

Box 5: Pilot Initiatives Implemented by the Project

At the initial stage, project stakeholders identified key SOCAR facilities where GHG emissions reductions could produce maximal results. Two facilities were identified – buildings and vehicle fleet – in the "end-use" category and with good reduction potential. The third set of facilities identified was in the energy production area, namely the oil-fields. In these fields, the Associated Petroleum Gas (APG) emitted from the oil-wells is a far more potent source of GHGs.

[16] For example, it was crucial not to increase or decrease the amount for GEF funds under Project Management Unit, UNDP funds in the whole budget, not to increase or decrease the budget lines for more than 5%. Other reason for revisions was that the implementation of activities sometimes required more or less funds than required and the project team had to adjust the budget accordingly.

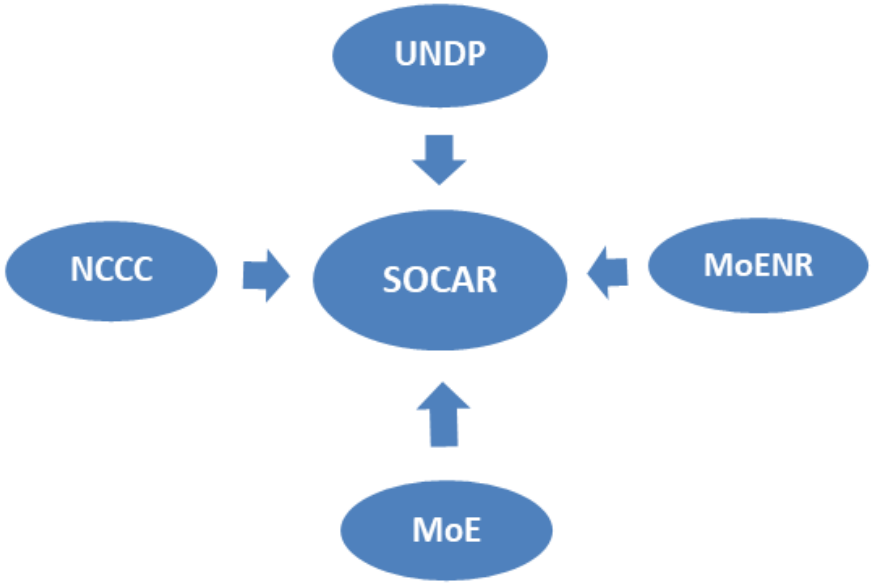
These were considered to be the three broad general areas that would lead to maximum reductions. Specific actions under each of these sectors were as follows:

- Oil-Fields: Captured associated gas evaporating from 63 wells in the Siyazzaneft oil-field and, where feasible, directed it to the nearby residential areas. The associated gas was captured and transported in the form of piped gas to 600 families in 12 villages, reaching about 2,500 people.
- Buildings: Installed retrofitting measures that improved the efficiency of energy-use in new and existing residential, service and public buildings.
- Vehicle Fleet: Improved the fuel-efficiency in passenger cars, trucks, buses and special purpose vehicles through the use of alternate fuels, eco-driving training and fleet management practices.

3.2.2. Partnership Arrangements

As has been noted, the project's main implementing entity was SOCAR with support from UNDP, MoE, MENR, and NCCC. The primary beneficiaries of the project have been the tenants and occupants of the renovated residential buildings and SOCAR as the owner/operator of buildings and transportation systems which benefited from lower operating costs, improved energy efficiency and reduced emissions. Further impact occurred in villages close to the Siyazanneft oil & gas fields who benefitted from an improved energy supply and reduced environmental impacts from deforestation. It is expected that over the long-term Azerbaijani citizens will benefit from the knowledge gained through the GHG reductions and energy efficiency practices developed during the project. The figure below shows the project's key stakeholders.

Figure 7: Partnership Arrangements



3.2.3. Feedback from M&E Activities Used for Adaptive Management

The project underwent ongoing monitoring of the overall situation in the country, the surrounding environment and, in particular, the project's immediate implementation sphere. The project team analyzed potential risks and discussed them with the implementing partners and UNDP. The Steering Committee carried out its oversight role and provided key guidance and took major decisions as needed. Critical risks, for example, national currency exchange rate fluctuations or Covid-19, were monitored through the Atlas system and ways to manage and mitigate them were identified and followed-up.

All the adaptive measures undertaken by the project, including the major ones listed in the previous sections of this report, were identified and carried out on the basis of the monitoring mechanisms put in place by the project stakeholders. The MTR, in particular, was useful in helping project stakeholders establish a clear baseline with regards to the project's achievements, strengthens, weakness and challenges up to that point. Following the MTR, the Project Team made a series of efforts to address its recommendations, including the following:

- An international consultant was hired to conduct marginal abatement cost (MAC) analysis for Outcome 1. There were some delays as the first consultant was not able to complete the analysis for reasons that were beyond the control of the project. However, the project was quick in mobilizing a second consultant.
- Additional activities were taken to build and improve relations with stakeholders – including MoE, MENR, Baku Transport Agency, State Agency for Alternative and Renewable Sources of Energy and others. Presentations, meetings and information-sharing sessions were held with these organizations.
- A workshop was organized to share knowledge and encourage stakeholders in the private sector and civil society to incorporate the learnings into their business practices. The workshop offered a platform to raise awareness and share knowledge on effective policies to enhance energy efficiency. Participants were invited to share their thoughts on opportunities for further replication of the NAMA project, its key achievements and impacts on other sectors. More than 70 people representing different sectors of economy, state agencies, private sector, civil society and media attended the workshop.
- Activities were held to disseminate knowledge among students and staff at several technical universities including workshops where students were able to ask questions from leading local and international experts. As a result of these workshops, the knowledge gained from the NAMA project is now being taught in post-secondary institutions. The Project Team and CO also used different social media strategies to share information about the project and its results.

3.2.4. Project Finance and Co-Finance

This section of the report provides a brief overview of the project's financing and expenditures, based on information provided by the Project Team.

As stipulated in the Project Document, the project was underpinned by a budget of US$ 3,770,000, of which US$ 3,570,000 was committed by GEF and US$ 200,000 by UNDP. Including co-financing from SOCAR, the total amount of resources foreseen for the project was US$ 35,470,000. This is broken down as follows:

- Cash resources
  - GEF - US$ 3,570,000
  - UNDP - US$ 200,000
- SOCAR Investments - US$ 30,000,000
- In-kind contributions
  - MENR - US$ 800,000
  - SOCAR - US$ 900,000

GEF's contribution was planned at US$ 3,570,000, as shown in the table below. The largest expenditure was planned to for the fourth year (26%), with only 8% scheduled for the first year. The vast majority of the budget was planned for Outcome 3 (investments in the pilot initiatives).

Table 5: GEF Contribution (US$)

Year	1	2	3	4	5	Total	%
Outcome 1	88,500	121,600	37,600	27,600	26,650	301,950	**8%**
Outcome 2	52,400	157,900	122,900	41,400	37,200	411,800	**12%**
Outcome 3	88,720	360,220	600,320	719,320	519,370	2,287,950	**64%**
Outcome 4	11,100	40,100	58,600	107,100	182,150	399,050	**11%**
Management	35,850	34,350	33,850	33,850	31,850	169,250	**5%**
Total	**276,570**	**714,170**	**853,270**	**929,270**	**797,220**	**3,570,000**	**100%**
%	8%	20%	24%	26%	22%	100%	

As shown in the table below, UNDP's contribution was scheduled primarily for administrative purposes. The funding ranged from 18% to 22% of the total budget for each implementation year.

Table 6: UNDP Contribution (US$)

Year	1	2	3	4	5	Total	%
Outcome 1	3,000	3,000	3,000	3,000	3,000	15,000	**8%**
Outcome 2	4,500	4,500	4,500	4,500	4,500	22,500	**11%**
Outcome 3	7,500	7,500	7,500	7,500	7,500	37,500	**19%**
Outcome 4	0	0	7,500	7,500	7,500	22,500	**11%**
Management	20,400	20,400	20,400	2,400	20,900	102,500	**51%**
Total	**35,400**	**35,400**	**42,900**	**42,900**	**43,400**	**200,000**	**100%**
%	18%	18%	21%	21%	22%	100%	

Table 7 below shows the project's budget execution, based on data provided by the Project Team. As can be seen from the table, the most intensive years for the project have been 2016, 2017 and 2018. These are the years associated with the largest investment in the infrastructure projects under Outcome 3. Certainly, from an expenditure perspective, Outcome 3 has been the major component of the project. Also, as can be seen from the table, execution rates have been quite volatile for the project, illustrating the adaptive changes that were made to the project approach, especially in terms of sequencing of activities and components, as discussed in previous sections of this report.

Table 7: Project Expenditures by Year and Outcome (US$)[17]

No.	Outcome Area	Budgeted (as per Pro Doc)	Spent	Execution Rate
Year 2015				
1	Outcome 1	45,750	30,042	66%
2	Outcome 2	28,450	9,000	32%
3	Outcome 3	48,110	3,000	6%
4	Outcome 4	5,550	2,110	38%
5	Project Management	28,125	74,624	265%
6	**Total**	**155,985**	**118,776**	**76%**
Year 2016				
1	Outcome 1	124,600	34,193	27%
2	Outcome 2	162,400	249,422	154%
3	Outcome 3	367,720	555,193	151%
4	Outcome 4	40,100	4,979	12%
5	Project Management	54,750	80,181	146%
6	**Total**	**749,570**	**923,968**	**123%**
Year 2017				
1	Outcome 1	40,600	141,250	348%
2	Outcome 2	127,400	48,718	38%
3	Outcome 3	607,820	416,516	69%
4	Outcome 4	66,100	81,649	124%
5	Project Management	54,250	76,457	141%
6	**Total**	**896,170**	**764,590**	**85%**
Year 2018				
1	Outcome 1	30,600	46,833	153%
2	Outcome 2	45,900	87,103	190%
3	Outcome 3	726,820	903,230	124%
4	Outcome 4	114,600	66,652	58%
5	Project Management	54,250	49,224	91%
6	**Total**	**972,170**	**1,153,042**	**119%**

[17] In the Project Document, the project budget was shown for five years. However, considering that the project went on for six years of implementation, to correctly illustrate the project budget the amount for the first year was divided into two equal parts for 2015 and 2020.

No.	Outcome Area	Budgeted (as per Pro Doc)	Spent	Execution Rate
Year 2019				
1	Outcome 1	29,650	13,954	47%
2	Outcome 2	41,700	20,370	49%
3	Outcome 3	526,870	227,854	43%
4	Outcome 4	189,650	174,808	92%
5	Project Management	52,250	14,556	28%
6	**Total**	**840,120**	**451,542**	**54%**
Year 2020				
1	Outcome 1	45,750	20,738	45%
2	Outcome 2	28,450	29,700	104%
3	Outcome 3	48,110	253,665	527%
4	Outcome 4	5,550	43,267	780%
5	Project Management	28,125	10,712	38%
6	**Total**	**155,985**	**358,082**	**230%**
ALL YEARS				
1	Outcome 1	316,950	287,010	91%
2	Outcome 2	434,300	444,313	102%
3	Outcome 3	2,325,450	2,359,458	101%
4	Outcome 4	421,550	373,465	89%
5	Project Management	271,750	305,754	113%
6	**Total**	**3,770,000**	**3,770,000**	**100%**

With regards to co-financing, the project team has estimated that SOCAR's has contributed US$ 42,502,058 throughout the implementation period (please see Letter of Confirmation in Annex IX of the report), thus exceeding the planned amount of US$ 30,900,000 by US$ 12,502,058, or about 40%.[18] In addition US$ 900,000 in-kind contribution was provided by SOCAR as envisaged in the Project Document.

Table 8: Financing and Co-financing by Outcome Area

Total Project Budget by Component	UNDP and GEF ($)	Co-Financing ($) by beneficiary	Financial contribution ($) by beneficiary	Project Total ($)
Outcome 1	316,950	0		316,950
Outcome 2	434,300	0		434,300
Outcome 3	2,325,450	42,502,058	117,600	44,945,108
Outcome 4	421,550	0		421,550
Project Management	271,750	0		271,750
Total project costs	**3,770,000**	**42,502,058**	**117,600**	**46,389,658**

[18] The SOCAR co-financing estimates presented in this report were provided by the project team and were not verified by the evaluation team. They were also not officially confirmed by SOCAR or any other authority.

3.2.5. Monitoring and Evaluation

Design at Start-up

Overall, the M&E tools identified in the Project Document have been appropriate and have included the standard instruments used in UNDP and GEF projects. As noted in previous sections of this report, they have enabled the project stakeholders to identify corrective measures and enact them. An area where the tracking mechanism could have been more effective is gender. The table below summarizes these tools, as outlined in the Project Document.

Table 9: Project M&E tools identified in the Project Document

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ PM ▪ UNDP CO, UNDP GEF	Indicative cost 5,000	Within first three months of project start up
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/PM will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ PM	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ PM ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Thematic status/ progress reports	▪ PM ▪ Key Experts	57,800	bound to finalisation of components
Mid-term Evaluation	▪ PM ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost 25,000	At the mid-point of project implementation
Final Evaluation	▪ PM ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 25,000	At least three months before the end of project implementation
Project Terminal Report	▪ PM ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost per year: 5,000	Yearly (5 times throughout project duration)
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST *Excluding project staff (PM and PAA) time and UNDP staff and travel expenses*		US$ 137,800	

Overall, the rating of "Monitoring and Evaluation" at project start-up is "Satisfactory".

Implementation

For the assessment of M&E activities during the implementation phase, the evaluation team had access to some of the project documentation related to monitoring and reporting. The following documents were reviewed in the course of this evaluation:

- Project Document
- Inception Report
- Project Implementation Reports (available for years 2017, 2018, 2019 and 2020)
- End-of-Project Report
- Project Steering Committee Minutes
- Annual Work Plan Review/Budgetary Reviews
- Results from Questionnaires/Interviews

The following are some of the monitoring instruments used by the Project Team during the implementation of the project:

- The Inception Workshop was held on 3 March 2016. The Inception Workshop assisted project stakeholders to fully understand and take ownership of the project. It brought the relevant stakeholders around a common platform and allowed them to share a better understanding of the project, including project goals and outcomes, objectives, focus sectors, key activities, priorities and work plans. The Inception Workshop resulted in an Inception Report which modified certain elements of the project.

- Throughout the duration of the project, the Steering Committee (SC) played an important role in monitoring and evaluating the work of the project. SC meetings were held once or twice per year, as needed. Among other things, the SC focused on options for generating continued support for stakeholders throughout the duration of the project, the addition of new buildings to be considered as part of the pilot programmes, reviewing the work plans and project financing procedures that were developed, reviewing project infrastructure needs such as driving simulators and hybrid vehicles available, and overall project progress.

- An MTR was completed in November 2017 by an independent international consultant. The consultant noted that overall, the project was meeting its timelines. However, there were a handful of items identified for follow up:
    - Outcome 1 was behind schedule, which included an analysis of GHG reduction opportunities (including development of marginal abatement cost curves), prioritizing the most feasible measures. The marginal abatement cost curves were to be used for awareness raising among decision makers and stakeholders.

- Outcome 2 was also behind schedule, which included the development of detailed NAMA programme/action plans based on results of outcome 1.
- The MTR encouraged the project team to begin work on outcome 4 (development of an MRV system) as soon as possible.
- One of the main goals of the project was to replicate the learnings from the outcomes more broadly across the country. Towards this end, the MTR encouraged the Project Team to further integrate its learnings and develop plans to disseminate the knowledge.
- The MTR encouraged the Project Team to support additional options to foster a national dialogue on NAMAs to improve policy and regulatory frameworks.
- The MTR encouraged the project team to hold a regional/international workshop with participants from similar projects to share information and lessons learned.
- The TMR noted the need to address policy, regulatory and institutional barriers as they are crucial in preventing the replication/implementation of GHG mitigation measures in the long-term.

Another important component of the project's M&E framework were the GEF Project Implementation Review (PIR) reports completed annually. Overall, PIRs were well-formulated and included key information:

- ***Basic Data*** – project IDs, project contacts, project type
- ***Overall Ratings*** – overall project ratings in terms of DO, IP and risk
- ***Development Progress*** – a list of objectives, outcomes, indicators, targets and cumulative progress since the project started
- ***Implementation Progress*** – cumulative GL delivery against total approved amount, as well as expected delivery for the year
- ***Critical Risk Management*** – list of critical risks and actions for mitigating them
- ***Adjustments*** – a list of delays with regard to key project milestones and options for addressing them
- ***Ratings and Overall Assessments*** – assessments from key project participants, including the Project Manager, UNDP CO Programme Officer, GEF Operational Focal Point, Technical Advisors, etc.
- ***Communicating Impact*** – how the project is improving people's lives
- ***Partnerships*** – activities and innovation occurring among project partners
- ***Grievances*** – environmental or social grievances addressed during the reporting period

The PIRs played an important role in monitoring the project's overall progress and provided detailed assessments of each of the main outcomes (construction, transportation and associated gas capture). The PIRs also played an important role in monitoring expenditures that were occurring, and monitoring overall cumulative expenditures for each phase of the project. The PIR reports included a clear description of project indicators, baseline levels for the indicators, the target for

the indicator at project completion, the current target that the indicator was at, and the cumulative progress since the project began. The PIR analysis also explained why certain activities were delayed or postponed, or why the sequencing of activities had changed. Box 6 below provides a brief overview of some of the main observations that were drawn in PIR reports.

Box 6: Key M&E Observations from PIR Reports

Some key M&E results from the PIR reports included the following:

- The term NAMA was found to be confusing, and there was a recommendation to avoid using the term in future projects
- As of the 2018 report, it was unclear whether the CO2e reduction targets would be reached, and the report requested more reliable data in this regard
- The 2018 PIR noted that work for outcome 1 was behind schedule – the key elements for outcome 1 being the setting of reduction targets and the MAC analysis.
- The 2018 PIR also noted that although outcome 3 was on track to be completed, additional time may be needed for the project in order to properly monitor and verify the emissions reductions occurring under the associated gas capture initiative.
- The 2019 PIR indicated that progress with regard to implementation of the three NAMAs was marginally unsatisfactory. This was because, as of the time of the 2019 report, only two of three NAMAs had been implemented and this was the same status as 12 months prior.
- The 2019 PIR also mentioned that the current amount of CO2e reductions resulting from the project was around 230,000 tonnes/CO2e per year and this was far behind the 560,000 tonnes/CO2e per year to be achieved by the end of the project.
- The 2019 PIR indicated that voluntary GHG reduction targets were still not defined for the residential housing, transport and energy production sectors.
- The 2019 PIR noted that overall implementation was marginally unsatisfactory as progress was very slow over the past 12 months with only $74,000 USD being spent, and in the remaining months of the project there was still $800,000 USD remaining in the budget.

Overall, there were a large number of M&E activities that were undertaken by the project team and other stakeholders involved in the project – covering staffing requirements, financial requirements, project planning and implementation requirements, etc. One aspect of the M&E system which was weak and did not generate sufficient information for the project, including this evaluation, was the gender dimension. Although not a central feature of this project, better gender-disaggregated information would have made the work of the project more focused on gender imbalances in this sector and would have also provided some better analytical material for this evaluation.

Overall, the rating of “Monitoring and Evaluation” during implementation is “Satisfactory”.

3.2.6. Execution and Implementation

Performance of the Executing Agency (SOCAR)

As UNDP's implementing partner in the project, SOCAR was overall responsible for the execution of the project. It exercised this role through the Steering Committee, as well as through day-to-day interactions with the Project Manager and the Project Assistant. The Steering Committee met annually (or twice a year, as need).

As noted already, SOCAR was identified as the execution entity by virtue of its crucial role in the energy sector and its size in Azerbaijan's economy. In the implementation of this project, SOCAR has made good use of its clout, influence and financial capabilities to advance the objectives of the project. In its leading role, SOCAR also served as the convener and coordinator of national institutions not only in the Steering Committee, but also in relation to daily matters related to the project. This was not an easy feat, as some stakeholders interviewed for this evaluation noted that the internal coordination among the national stakeholders and agencies sometimes presented a considerable challenge – especially in the context of the unprecedented impact of the Covid-19 pandemic. But with the help of the project team and support from the UNDP country office, SOCAR was able to mitigate the effect of the challenge and press forward with the execution of planned activities.

In this context, it is important to note that this is not the first energy efficiency project that SOCAR has implemented. SOCAR has been working on various carbon capture initiatives since 2010. In this view, SOCAR was able to approach the current NAMA project with a considerable amount of experience, particularly, in areas where the vast majority of GHG emissions were occurring (associated gas capture). Although there were some delays in the early stages of the project (i.e. with regard to the MAC studies, whether the NAMAs should apply at the country level or internally within SOCAR, the development of the associated gas capture at the Siyazzaneft oil-field), the Project Team with support and oversight from SOCAR was able to apply adaptive management and make adjustments in order to ensure that all project components were completed by the end of the project and in a satisfactory manner.

For these reasons, the rating of Executing Agency's performance in the project is "Satisfactory".

Performance of Implementing Agency (UNDP)

UNDP has provided continued support to the project throughout its implementation, including in the identification of objectives and activities, preparation of the concept, preparation of the detailed proposal, approval of the Project Document, start-up of project activities, oversight, supervision, and execution of actions, and evaluation of the project. The following are some key contributions of UNDP in this project.

- UNDP played a key role in the monitoring and evaluation of the project, working closely with project partners to ensure that the outputs of the project were on track through field visits, consultations and reviews with stakeholders.
- UNDP also provided advisory support to the project. Its experience with similar projects in other countries was particularly useful. To this end, the project received substantial technical assistance from the Regional Technical Advisor in the UNDP Istanbul Regional Hub, in addition to the international and local consultants. The adviser has not only provided monitoring support to the project team, but has also helped with recommendations on budget allocations and guidance on operational decisions.
- UNDP also provided operational support to the project, especially with regards to the procurement process. Given the infrastructure-related nature of the pilots, procurement was an essential component of this project that was conducted successfully – albeit with some delays as in the case of the gas capturing pilot (more on this further in this report).

Overall, the performance of UNDP (the Implementing Agency) has been adequate, with an appropriate level of support provided to the Project Team. During the MTR and terminal evaluation, no concerns were noted with regard to UNDP's performance and its role in the project. In particular, no delays were noted in the transfer of funds and no shortcoming were detected in the conduct of monitoring activities.

In this context, the rating of Implementing Agency's performance in the project is "Satisfactory".

3.2.7. Impact of Covid-19

This is a specific section of the report dedicated to the effects of the Covid-19 pandemic on the project and response of the project stakeholders to the specific challenges created by the spread of the global pandemic throughout 2020.

While the pandemic certainly had an effect on this project as in most aspects of social life in the country, the project was fortunate in that most of the infrastructure works (related to the pilot initiates) has been completed by the time the pandemic struck (early 2020). This was an unintentional consequence, thanks to the decision of the project stakeholders to proceed with the pilots before the other outcomes. With the onset of the pandemic, the project team moved some of the "*soft*" activities such as trainings, conferences and meetings to online platforms. This prevented serious delays in these activities.

Some aspects of the project which were delayed or put on hold due to Covid-19 are listed as follows.

- As a result of travel restrictions, the project team and stakeholders were impeded in their ability to freely visit project sites during 2020.

- Data collection in the oil and gas fields of the gas capture component was delayed.
- Some of the training activities were significantly delayed due to inability to organize public events and gatherings. As mentioned above, one solution adopted by the project team was to deliver some of these trainings online.
- The MRV component of the project experienced delays to the pandemic.
- The establishment of the Energy Efficiency and Management Center was delayed as a result of restrictions in the procurement/importation of goods and equipment.
- Also, the conduct of the project's terminal evaluation was affected by the pandemic. The international consultant was not able to travel to the country and the evaluation was conducted remotely with the help of a local consultant. No face-to-face meetings were organized for this evaluation and also no project sites – including pilot sites – were visited.

Overall, Covid-19 did have a tangible impact on the project, but it did not significantly affect the achievement of its objectives. Due to the experienced delays, the project team requested a four-month no-cost extension and it expects the completion of all planned activities, despite the delays caused by the pandemic.

3.3. Project Results

This section provides an assessment of the project's progress in the accomplishment of RRF targets, as well as an examination of achievements along the standard dimensions of UNDP evaluations: i) relevance - the extent to which the project was relevant to the country's priorities and needs; ii) effectiveness - whether the project was effective in achieving the planned results; iii) efficiency - whether the process of achieving results was efficient; and, iv) sustainability - the extent to which project benefits are likely to be sustained.

3.3.1. Achievements of Objectives and Overall Results

This section provides a brief summary of what was achieved and what was not achieved by the project under the four respective outcome areas.

Outcome 1: Assessment of GHG emission mitigation potentials and target setting completed

The objective of Outcome 1 in the Project Document's results framework was to support the panning process for emissions reductions. As has been noted, the RRF was not sufficiently clear whether the planning process related to the country-level or just SOCAR. With the project stakeholders' decision to focus on SOCAR, after a careful assessment of GHG reduction and EE opportunities within SOCAR, the project focused on the three above-mentioned sub-sectors.

The project supported SOCAR in developing a GHG emissions' baseline and action plan[19] for SOCAR's buildings sector, using the bottom-up approach and relying on data from energy consumption information, SOCAR's buildings reports and energy audits. The baseline determined total energy consumption (kWh annually) and associated GHG emissions and served as the basis for the MACC analysis. The baseline and action plan were developed only for SOCAR's building sub-sector, on the assumption that SOCAR would develop similar baselines and action plans for the other sub-sectors. This exercise was beneficial as there was a lack of planning and target setting in SOCAR. The results of Outcome 1 were used for the development of the NAMA programmes under Outcome 2.

The project has supported the establishment of an Energy Efficiency Management Information Center in SOCAR's Ecopark located in Gala settlement near Baku. The Energy Efficiency Center was established to bring in the concept of energy efficiency in Azerbaijan and to build capacity in the field of energy efficiency. The center will serve as a hub for exchange of energy efficiency knowledge & services and it will provide a place to demonstrate innovative new products,

[19] What is referred as 'Action Plan' under Outcome 1 is not a single document but a combination of inputs provided under several consultancy deliverables, including investment scenarios, identification of the scope of activities and financing mechanisms, all presented in the consultants' reports. These inputs were submitted to SOCAR's Vice Presidency Environmental Office, which will share subsequently them with the offices on buildings and transportation according to SOCAR's internal regulations. Based on these inputs, the buildings and transportation VPs will develop customized Action Plans for their specific sub-sectors.

Figure 8: GALA Meetings and Trainings

construction techniques, technologies, and designs will be demonstrated to the public and also to construction industry.

In the final stages of the project, the team made an attempt to promote "*green building certification*". Since there is no locally-based "*green building certification*" company, but an entity that facilitates such certification through foreign companies, the project initiated discussions with that entity to arrange certifications by the first half of 2020. However, because of Covid-19 it turned out to be impossible to proceed with this activity due restrictions on work and travel. The project also promoted the concept of "integrated building design" through trainings for designers and architects, enabling them to apply such an approach in their work. The project organized training for 225 civil engineers and architects from SOCAR and other institutions.

Outcome 2: NAMA programmes developed

Figure 9: Signing Ceremony

On the basis of the activities under Outcome 1, the project supported SOCAR in the development of NAMA programmes in the three identified sub-sectors. The project intended the NAMA programmes to be comprehensive in scope and sustainable over time, with fully feasible financial mechanisms. They included three feasibility studies for the programmes, stakeholder workshops implemented, and specific measurement criteria for each NAMA as a means of determining its GHG reduction benefits over time. The NAMA programmes were developed using the MAC studies and data from the pilot initiatives. They constitute a list of specific measures to be undertaken in the three sectors, the investment amounts that are required and the emission reductions and corresponding savings in energy bills that will result. The NAMA programmes are expected to be replicated at the national level.

Outcome 3: NAMAs in the oil & gas end-use sector implemented

Originally, the purpose of Outcome 3 was to develop pilot programmes based on the results of outcomes 1 and 2. However, as discussed in previous sections, the implementation order was changed so that the Project Team could first use the learnings and knowledge gained through the pilot activities for the development of outcomes 1 and 2. Each of the pilot activities in Outcome 3 was for the most part completed in a satisfactory manner.

Install retrofits in new and existing residential, service and public buildings

This pilot programme included a large-scale focus on 18 existing SOCAR service and administrative buildings and included the following key accomplishments:

- Reconstruction and refurbishment of 6 SOCAR buildings focused on enveloping to reduce heat loss.
- Installation of six Wind Turbines with total installed capacity of 24 kw and installation of Solar PV Panels with total capacity of 63 kw carried out in Garadag, Gala settlement and Azerkimya facility in Sumgayit.
- New energy efficiency measures implemented for heating and cooling systems
- Lighting systems replaced with new LED lights

The project reported that as a result of these energy efficiency renovating and retrofitting activities it was possible to achieve 35% energy savings in the six buildings with total area of 10,000 square meters. Electricity savings due to this component of the project were estimated to have been 5,890,725 kW/h.

Sustainable Transport at SOCAR: improve the fuel-efficiency improvement in passenger cars, trucks, buses, special purpose vehicles

Figure 10: Driving Simulator

The activities under this pilot were directed to the renovation of SOCAR Transport Fleet. The main achievements in this area included:

- Renewal of SOCAR's fleet vehicles by adding four hybrid vehicles. After seeing the results of these vehicles, SOCAR purchased an additional three energy-efficient vehicles based on their financial contribution.[20]
- An eco-driving simulator was purchased in 2018 to support the training of SOCAR drivers.
- More than 1,350 drivers had been trained by the spring of 2020.

The above actions resulted in GHG reductions in the transportation sub-sector in the range of 8% to 10%.

SOCAR's Associated Gas Capturing Program: capture associated gas evaporating from existing on-shore Siyazanneft oil-field and direct it to nearby residential areas

[20] Fuel consumption and pollution to the environment from usage of such cars are a lot lower than that of conventional cars.

Figure 11: Gas Compressors Opening Ceremony

The Associated Gas Capture component was started in February 2017 with the recruitment of an international consultant and local experts. After several site visits and analysis of data, the international consultant prepared a feasibility study which identified activities for the implementation of the component. Siyazanneft has 63 active wells fielded into three oilfields, which are in total 55 km long and 3 km wide. The wellheads release associated petroleum gas (APG) to the environment. The pilot's objective was to capture the associated gas (70-80 percent of it being methane) and distribute it to consumers living in the nearby village of Siyazan. The pilot was completed in September 2019, with a public opening ceremony of the three gas compressors in Siyazan. As a result of installation of gas compressors, nearly 7 mln cubic metres of gas that was previously vented into the atmosphere every year is now collected and delivered to approximately 600 households in 12 villages. More than 2,500 people who used wood from the Siyazan forests, kerosene, coal and other harmful fuels for heating and cooking have now access to clean fuels. As of 2020, 4.6 million cubic meters of methane per year was being captured, thus mitigating the impact on climate change. SOCAR intends to expand the current distribution network to other communities and thereby increase the number of households who are benefiting.

It is important to note here the disproportionate effect this project has had on vulnerable groups – in this case rural inhabitants of the oil-field area who have directly benefited from the project. The number of 2,500 people who have directly and immediately benefitted from a more efficient and cleaner form of energy and an additional number who will potentially benefit from the expansion of this type of technology in other areas is a significant achievement which testifies to the power of the poverty-environment nexus. However, the data available for the evaluation does not allow for a more detailed investigation of the benefits of the project disaggregated by gender or disabilities. These are dimensions that should be monitored more systematically in similar projects in the future.

Outcome 4: MRV system and national registry for mitigation actions in the energy generation and end-use sectors developed

Under Outcome 4, the project supported SOCAR and MENR in developing "MRV Guidelines for Azerbaijan". The guidelines help relevant officials in the design of MRV systems and in validating baseline scenarios and GHG emission targets. An MRV committee was established under SOCAR in 2015 as the entity responsible for the oversight of GHG reduction activities. SOCAR's Environmental Department was supported in its capacity to collect and enter emissions data into an electronic database and to manage all relevant baseline and monitoring information. This information enabled SOCAR to calculate the corresponding baseline and future emissions data. SOCAR's GHG inventory is now updated on a regular basis. GHG reductions are subsequently

registered in the national GHG registry which is maintained by MENR. This component also included a range of training events, which are shown in more detail in Annex VII of this report.

The box below presents a synthesized summary of the project's key practical achievements.

Box 7: Summary of Achievements

- How many buildings became energy-efficient – 6
- What amount of cubic meters of gas was saved – 7 mln m3 a year
- The total amount of space that turned into energy-efficient model - 10,000 m2 actual versus 8,000 m2 planned
- How many hybrid vehicles were brought into the country - 6 hybrid cars were brought to the country and handover to SOCAR
- How many eco-driving simulators installed – 1- the latest modification of Eco-Driving simulator is installed, which increased the number of trainees in eco-driving to 1200/year as well as SOCAR employees and other governmental institutions.
- If all three components are prolonged and replicated broadly, what is the amount of energy saving that we can achieve countrywide? - Cost-effectiveness of GEF-supported investment achieved in terms of GHG abatement: the total direct project emission reductions over project lifetime are calculated at 561,160 tonnes CO2eq/year, which brings the GHG abatement costs for the planned GEF contribution of USD 3.57 million down to USD 6.36 mln.
- Total lifetime direct GHG emission reductions of about 0.56 mln. t CO2eq
- Total lifetime indirect GHG emission reductions of 6.24 mln. t CO2eq
- Total lifetime energy saved approx. 200,000 toe

Figure 12: Training Events

Table 10: Status of Objectives and Outcomes at the Point of Evaluation

In the table below, Green is used to indicate that the target has been achieved.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
Project Objective To support the development, implementation and monitoring of NAMAs in the low-carbon end-use sector, in order to build upon a strong national commitment for reducing the energy demand of oil & gas end use sectors	Number of NAMAs in energy end-use sectors implemented	No strategic programme in place that prioritises EE and RE requirements	3 NAMAs implemented by the end of the project	• National NAMA registry	**Assumptions:** – Government is focussing its legal and policy framework to align with international best-practice in energy efficiency and renewable energy – National efforts on institutional level to mitigate the effects of GHG emissions in oil & gas end-use and production sectors are being strengthened. – SOCAR is implementing its Climate Change strategy to get engaged in energy efficiency and renewable energy investments. **Risks:** – The lack of proper energy efficiency and renewable energy legislation and policy measures (strategies, actions plans, monitoring activities) maintains within the country framework – The Government does not commit adequate resources and funding	**Completed** The project has implemented three NAMAs in the following sub-sectors: • transportation • buildings • associated gas capture (APG)
	Direct and indirect GHG emission reduction and energy savings facilitated by the project	0	Total lifetime direct GHG emission reductions of about 0.56 mln. t CO_{2eq} Total lifetime indirect GHG emission reductions of 6.24 mln. t CO_{2eq} Total lifetime energy saved approx. 200,000 toe	• GHG emissions growth reduced as result of activities implemented under NAMAs • Projects will be monitored using specific MRV methods		**Completed** Jointly with SOCAR's Research Institute, the project calculated the GHG emission reductions achieved under the project. According to these estimations, for 2019 the project delivered 38,500 tCO2eq of emission reductions. Overall reductions amounted to 61,500 tCO2. Total energy saved is estimated at 515.18515 TOE. Indirect emissions were not considered by the project because no financing was available for implementing SOCAR's full NAMA programme.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
	Co-financing leveraged for implementation of prioritized NAMAs	0	30,000,000 US$	• NAMA implementation report	support to sustain project investments in energy efficiency and renewables. – SOCAR does not commit adequate resources and funding support to sustain the maintenance of project investments during, and beyond the term of, the project.	**Completed** Co-financing provided by SOCAR for the implementation of prioritized NAMA has been US$ 42,502,058. This amount excludes the US$ 900,000 provided as in-kind contribution for the project.
Outcome 1: Assessment of GHG emission mitigation potentials and target setting completed	**Outputs:** 1.1 Relevant barriers that hinder the development and implementation of GHG mitigation measures assessed 1.2 Main oil & gas end-use sectors regarding status of energy performance and potential for decreasing energy intensity are analysed" 1.3 Detailed marginal abatement cost curves for the oil & gas end-use sectors developed to demonstrate effective mitigation policies and economic scenarios 1.4 Awareness among governmental institutions increased and the development of a national replication strategy supported 1.5 Voluntary emission reduction targets in the oil & gas end-use sectors are established and validated					
	Sub-sector voluntary GHG emission reduction targets established	Lack of governmental planning and target setting for energy and carbon intensive sub-sectors prevailing	Voluntary GHG emission reduction targets to be defined at least for main sub-sectors: • Residential/Housing • Transport • Energy Production	• National Climate Strategy in place • Sub-sectoral targets for short-, medium- and long-term • Action Plans for GHG mitigation (min. 3-5 years ahead)	**Assumptions:** – Overall system of Azerbaijan's energy efficiency and renewable energy policy is still in its early stages of its rationalization and implementation – lacking appropriate national data and information basis target setting mechanisms for EE and RE – GHG mitigation measures are to be effectively tackled (at mitigation costs < USD 25/t CO_{2eq}) **Risks:** – Lack of proper energy efficiency and renewable energy legislation and policy measures (strategies,	**Completed** The project supported the development of the GHG emission baseline for SOCAR's building sector using the bottom-up approach and based on energy consumption data, SOCAR's NAMA project buildings reports and energy audits. The baseline determined total energy consumption (kWh annually) and associated GHG emissions. It served as the starting point for the MACC analysis. The baseline was developed only for the building sub-sector (within SOCAR). The project also supported the development of an Action Plan which identified key activities,

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
					actions plans, monitoring activities) within the country framework – underestimation of available potentials for GHG mitigation No national replication of measures as result of NAMA project implementation	investment requirements and possible funding mechanisms that can be further explored by SOCAR.[21]
	Marginal abatement costs curves for oil & gas end-use sectors defined	No detailed economic reviews and scenarios that compare the effectiveness of GHG mitigation technologies	Develop detailed marginal abatement cost curves for the oil & gas end-use sectors to demonstrate effective mitigation policies and economic scenarios and under which conditions GHG mitigation could be effectively realised: margin < USD25/tCO2eq	• Technology reviews and documents • Economic assessments and scenarios • Comparison of MAC with international best-practice • Progress Report Outcome 1		**Completed** GHG marginal abatement cost curves for the buildings and transport sub-sectors and emission reduction policies and action plans have been developed by the project. An action plan was not needed for the gas capturing sub-sector in the same way as for the other two sub-sectors.
Outcome 2 NAMAs in oil & gas end-use sectors developed	**Outputs:** 2.1 Three designed programs for the implementation of selected prioritized feasible NAMAs in main oil & gas end-use sub-sectors 2.2 Fully capable and qualified private and public sector entities in the design and implementation of NAMAs 2.3 Defined and established financial instruments mitigation actions in the oil & gas end-use sectors					
	Sectors for prioritized and feasible NAMAs are identified and selected	GHG mitigation activities are subject to increased governmental focus. Without proper strategies and framework in place there is no proper focus established	By end year 2: Feasibility of at least 3 NAMAs in selected oil & gas end-use sectors is identified: • Targeting to significant deviation from baseline emissions • Comprehensive programme to be implemented	• 3 feasibility studies for NAMA sectors available • Stakeholder workshops implemented • Specific NAMA criteria for selection in place	**Assumptions:** – NAMAs are facilitating transformation to low carbon low energy pathways – NAMA Programmatic approach will support replicability on the national level – SOCAR can contribute as a relevant actor on the Azeri market to substantial GHG	**Completed** The project completed NAMA programmes in the following oil & gas sub-sectors: • transportation • buildings • associated gas capture (APG)

[21] What is referred as 'Action Plan' under Outcome 1 is not a single document but a combination of inputs provided under several consultancy deliverables, including investment scenarios, identification of the scope of activities and financing mechanisms, all presented in the consultants' reports. These inputs were submitted to SOCAR's Vice Presidency Environmental Office, which will share subsequently them with the offices on buildings and transportation according to SOCAR's internal regulations. Based on these inputs, the buildings and transportation VPs will develop customized Action Plans for their specific sub-sectors.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
					emission reductions in key energy end-use sectors **Risks:** – SOCAR does not commit adequate resources and commitment during NAMA project design – NAMA implementation strategy for selected energy end-use sub-sectors is abandoned – Lack of stakeholder commitment hinders the development of sector-specific GHG mitigation programmes.	
Outcome 3: NAMAs in the oil & gas end-use sector implemented	**Outputs:** 3.1 Potential NAMA 1: SOCAR's Green Building Program implemented 3.2 Potential NAMA 2: Sustainable Transport at SOCAR implemented 3.3 Potential NAMA 3: SOCAR's Associated Gas Capturing Program implemented					
	SOCAR's Green Building Programm is implemented and replicated	No strategic programme in place that prioritises EE and RE requirements of buildings constructed within SOCAR	• By end of project: Implementation of an investment program to cover 2-3 demonstration building new constructions and/or refurbishments using improved design and EE & RE technologies for commercial and/or residential buildings • Green building certifications for 2-3 demo projects available • Integrated building design approach	• Direct (10,500 t CO_{2eq}) & Indirect (1.29 mln t CO_{2eq}) lifetime emission reductions from project activities (pilot investments, about 8,000 m² useful area) • Target energy consumption of new/refurbished buildings at least 50% below baseline • Monitoring energy performance of demo buildings	**Assumptions:** – NAMA Programme is based on identified project opportunities in 3 energy end-use sectors, having high impact for replication – List of project ideas is based on SOCAR's corporate development and CC Mitigation Strategy – International best-practice in building EE **Risks:** – NAMA Projects do not materialize as planned	**Completed** In order to meet project targets, SOCAR conducted the large-scale refurbishment of 18 existing buildings, such as reconstruction and refurbishment, adopted energy efficiency measures for heating/cooling systems, replaced outdated lighting system with energy efficient lamps including LED lights both in administrative buildings and production sites. These activities led to savings of energy in the amount of 5,890,725 kW/h.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
			applied to new/refurbished buildings and approx. 80-100 architects/designers trained	• Information campaign on EE buildings implemented by SOCAR targeted on designers/architects	– SOCAR does not commit adequate financial and personal resources during NAMA project implementation – NAMA Projects do not result in replicable activities due to lack of technical, economical or organisational feasibility	Furthermore, the amount of US$ 3,267,820 was spent to increase energy efficiency and reduce its consumption in buildings by implementing EE measures and installation of advanced heating and cooling systems and enveloping the buildings. SOCAR, with support of the project, conducted two workshops in which more than 120 engineers from the construction department and units of SOCAR and architects from different state institutions were trained. Further, SOCAR conducted the following activities: establishment of water cleaning plant in Sumgayit Azerkimya PU, replacement of incandescent lamps with LED lamps and increasing of energy efficiency in SOCAR facilities, establishing and improving oil and gas pipelines, establishment of low-pressure gas capture facility.
	SOCAR's Sustainable Transport Initiative implemented and replicated	There are no measures to address fuel economy or efficient/alternative technologies for vehicles in place	• Implementation of 25 pilot investments in new alternative fuel sources or vehicles with improved emission standards by end of project • Development of a sustainable fleet	• Direct (1,600 t CO_{2eq}) & Indirect (9,700 t CO_{2eq}) lifetime emission reductions from project activities (pilot investments) • Monitoring results of demo		**Completed** Various scenarios were developed for CO2 reductions in transportation through several measures. i) number of drivers trained - all SOCAR fleet drivers regularly undertook eco-driving lessons

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
			management programme to optimize SOCAR's vehicle fleet and intra-company transportation logistics within 5 years after project end • Training programme on eco-driving practices initiated and delivered by project end	investments and fleet management practices • Minimum 10 of SOCAR's vehicle fleet switched to alternative fuel sources • Minimum 200 of SOCAR's light vehicles and 500 of heavy vehicles drivers trained on eco-driving practices and leading to estimated 10-15% fuel saving 5 years after project end		(on-road or with a simulator), including knowledge and skills relating to the characteristics of transmission systems and optimization of fuel consumption; ii) vehicles included in the upgraded fleet management system, improving the monitoring of drivers' performance and optimizing routes, thus reducing fuel consumption and hence GHG emissions; and iii) number of new electric or hybrid vehicles replacing the existing ones - this was done with the goal of progressive replacement of existing passenger cars in the fleet with new electric and hybrid cars.
	SOCAR's associated gas capturing programme implemented and nearby villages supplied with natural gas, to avoid significantly methane emissions at SOCAR's oil & gas production units.	About 21 mln m^3 of methane/year are evaporating from Siyazanneft oil & gas field; nearby villages are having problems with low-quality heating	• By end of project, SOCAR's gas capturing programme will be combined with a pilot programme to connect about 600 households from 12 nearby villages to a clean and safe gas network • Improved technologies introduced at SOCAR for gas capturing • Monitoring of GHG emission reductions will be integrated	• Direct (0.55 mln t CO_{2eq}) & Indirect (4.94 mln t CO_{2eq}) lifetime emission reductions from project activities (pilot investments) • Approx. 600 households/local businesses connected to gas network • Monitoring GHG benefits of demonstration activities • Progress Report Outcome 3		**Completed** The construction and installation of three compressor stations has been finalized. Gas pipelines have been installed. Capturing of 4.6 million cubic meters of methane per year has been achieved, thus mitigating its negative impact on climate change. Approximately 600 households in 12 villages, including about 2,500 people who had never had access to clean fuels are now connected to gas.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
			into SOCAR's GHG Inventory by project end • Afforestation programme initiated by SOCAR to mitigate loss of village forests by end of project			Previously they used wood from the Siyazan forests, kerosene, coal and other harmful fuels for heat and cooking.
Outcome 4 MRV system and national registry for mitigation actions in the energy generation and end-use sectors developed	**Outputs:** 4.1 Defined and established sectoral and sub-sectoral reference baselines for oil & gas end-use sector sectors 4.2 Established sub-sectoral GHG inventories for key oil & gas end-use sub-sectors 4.3 Established and operational national registry mechanism for mitigation actions in the oil & gas end-use sectors					
	Regular GHG Inventory conducted	Poor institutional capacity and support to develop proper GHG inventories based on lack of appropriate legal & policy framework to enhance low energy low carbon strategies	By end of project, GHG inventories will be annually available and to benefit from a stronger data quality	• Annual GHG inventories developed • Peer reviews organised during Project • Progress Report Outcome 4	**Assumptions:** – MRV requirements are to be introduced based on international standards and experience (e.g. UNFCCC) – All NAMAs require the MRV mechanism to be applied accordingly – Lack of technical capacity to apply specific MRV methodologies or implement internal processes to ensure data quality; – Data collection mechanism and institutionalisation will be in line with activities under component 1 **Risks:** – Lack or resistance of institutional co-operation maintained	**Completed** The project developed a Practical Guideline for designing MRV systems. SOCAR has its Climate Change Strategy and Associated Gas Reduction Plan in place already and is implementing mitigation actions/projects within this Climate Change Strategy and Associated Gas Reduction Plan, as well as updating its GHGs inventory on an annual basis.
	National registry mechanism for implemented NAMAs in place	Lack of institutional capacity to monitor GHG mitigation activities	NAMA reporting at national level through a domestic mitigation registry implemented by end year 3 will ensure compliance with international MRV requirements	• National registry institutionalised • Web-based registry of each NAMA at UNFCCC • Progress Report Outcome 4		**Completed** Pilot projects on GHG reductions have been registered in the national GHG registry. Also, a mechanism is in place to update the national registry using the outcomes of the completed NAMAs under the project. A guideline has been

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
					– Lack of availability of proper data for MRV or GHG Inventory development – NAMA implementation is not enough bound to deliver replication potentials on national level	provided to MENR (National Focal Point on Climate Change) for including into the registry all GHG reduction projects reported at the national level.
	Mechanism to validate GHG emission reduction targets in place	Without accurate databases the GHG targets setting mechanisms are weak and without strong backing	MRV Guideline for AZB developed by the end of the project to validate new baseline scenarios/GHG emission reduction targets against actual emission reduction achievements	• Continuous monitoring of NAMA implementation • Specific benchmarks for GHG mitigation targets monitored and achieved • Progress Report Outcome 4		**Completed** To validate the new baseline scenarios and GHG emission targets, the MRV Guidelines have been developed and presented to SOCAR and MENR. A MRV committee was established within SOCAR in 2015 and is now responsible for the overall implementation of GHG reduction activities by SOCAR. The MRV Committee is a supervisory body and the Environmental Department is responsible for obtaining and entering the data into an electronic database to record and manage all relevant baselines and monitoring information for the reduction of GHGs. The database will include unique identification data for every building covered under the programme as well as the transport fleet. This information will enable SOCAR to calculate the corresponding baseline and future emissions as new

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
						buildings and new vehicles are recorded in the database. • MRV System for Buildings • MRV for the Transport Sector • MRV for the Associated Gas Capture Sector.
	Training & capacity building programme for national institutions implemented	Governmental institutions involved in data collection, statistical analysis and planning do have own methods in place, without proper exchange and review mechanisms available	A series of specific training & capacity building programmes will be implemented by end of project (minimum 5 trainings): • Improvement of Statistical database • Sectoral baselines • GHG Inventory Methodologies	• Training materials • Inventory manuals • Database of GHG emissions • Compatibility with IPCC 2006 Revised Guidelines • Progress Report Outcome 4		**Completed** The project, in cooperation with SOCAR, organized training programmes on all three components. Three trainings were conducted by international and local consultants on sustainable transportation for drivers and staff of the transportation department. The total number of participants exceeded 160. Separate outdoor trainings were conducted for drivers. The training on eco-driving simulator was ongoing at the point of the terminal evaluation. Until the time of this evaluation, more than 1,350 drivers had received training. Two special trainings were conducted for 60 and 45 engineers of SOCAR's construction department on the implementation of Energy Efficiency measures in

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
						buildings. In addition, a training on the use of electrical equipment, heating and cooling systems, and energy efficient lighting systems was conducted for engineers from different departments. Two workshops were conducted to raise awareness and share knowledge on effective policies and programmes to enhance the understanding of energy efficiency
	Replication strategy for different mitigation measures in energy end-use sectors developed	Only basic awareness raising and information activities provided on energy end-use and carbon mitigation activities	Lessons-learned about implemented NAMAs are disseminated and published by the end of the project; SOCAR to replicate project results within implementation of company's Climate Mitigation Strategy and up to 10 years after project end	• Sector-specific best-practice cases • Publications • Media coverage • Follow-up investments initiated by SOCAR to multiply lessons-learned in pilot NAMAs		**Completed** A long-term programme was developed based on the results of the pilot projects. It included a list of specific measures to be undertaken in the three sectors, the required investments and the resulting emission reductions and corresponding savings in energy bills. The two seminars/workshops that were held on 6th March 2018 and 5th to 6th December 2018 were attended by, among others, the representatives of IFIs as a first step to engage them in the future energy-efficiency improvement programme. The training simulator which was purchased under the project helped to impart eco-driving skills to vehicle operators.

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
						During the implementation period of the project, several trainings and workshops were conducted by the project team jointly with SOCAR. Representatives of both state and private construction and transport companies were invited to participate in these events. As a result of these workshops, transport companies acquired a large number of EE buses and construction companies began to use the experience and knowledge in EE obtained at these workshops in their activities. For example, the Baku Transport Agency has acquired a large number of EE buses and provides eco-driving trainings for its drivers. Private construction companies in their new projects use the enveloping of the buildings by thermal isolation and the installation of energy-efficient lighting. The project team has followed these activities and has exchanged information with them. Information on the results of the pilot projects and lessons learned was disseminated through brochures and **a** broad media campaign, including TV, printed newspapers and internet- based

Objectives and Outcomes	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions	Status of Implementation
						media. The project's regularly renewed website www.nama.az has provided information on project activities. The project has supported the establishment of an Energy Efficiency Management Information Center in SOCAR's Ecopark located in Gala settlement near Baku. The Energy Efficiency Center was established to bring in the concept of energy efficiency in Azerbaijan and to build capacity in the field of energy efficiency. The center will serve as a hub for exchange of energy efficiency knowledge & services and it will provide a place to demonstrate innovative new products, construction techniques, technologies, and designs will be demonstrated to the public and also to construction industry.

3.3.2. Relevance

This section provides an assessment of the relevance of the project. While there may be many criteria for assessing relevance, here it will be assessed along the following dimensions: i) relevance to the country's needs and priorities; ii) relevance to country's international commitments; iii) relevance to *UN Country Priorities* and UNDP's *Country Mandate and Strategy*.

Relevance to the Country's Needs and Priorities

The project was designed at the request of the government with the involvement of key ministries, as well as SOCAR as the main beneficiary. Azerbaijan is a fast-developing country with an economy that is largely dependent on oil & gas. According to 2nd National Communication to the UNFCCC, annual GHG emissions were 51 mln TCO2/year in 2005 with the energy sector accounting for the largest share of domestic emissions. National annual consumption of oil & gas is now at about 5 mln TOE, with residential and transport sectors together accounting for over 90Vo of end use. Azerbaijan's energy intensity (0.7l toe/AJS$) is twice as high as the world's average (0.3 toe/US$) and nearly 4 times above the level of energy intensity in OECD countries. In this context, there is significant potential to increase efficiency of oil & gas use and reduce GHG emissions.

A key challenge for Azerbaijan is to reduce its dependence on hydrocarbon exports and to move towards an efficiency-driven, diversified economy that is propelled by an educated workforce, a well-functioning labour market and an efficient system of governance that has the ability to harness the benefits of new technologies and be resilient to internal and external shocks (particularly in the oil & gas sector). A central challenge is to diversify the economy and create new and sustainable sources of growth which will help reduce dependence on the oil & gas sector which currently accounts for more than 70% of state budget revenues, 92% of exports and 7% of employment. The government has identified tourism, information technology and agro-industry as priority sectors for diversification.

As a developing country, Azerbaijan is highly vulnerable to the effects of climate change. Further, it expects its population to increase by 100,000 people per year, which will increase demand for energy and other natural resources. Nonetheless, Azerbaijan is committed to reducing its GHG emissions by 35% in a broad-based effort - including the following key sectors: energy; oil & gas; residential/commercial buildings; transportation; agriculture; waste; *Land Use, Land-Use Change, and Forestry (LULUCF)*; and the use of alternative and renewable energy sources.

Before this project, Azerbaijan lacked good analytical and practical data for the identification and introduction of energy efficiency practices and approaches. The project created a good knowledge platform within SOCAR, but also MoE and MENR, which is expected to enable the replication and scaling of energy efficiency measures in various sectors. From SOCAR's perspective, the pilot initiatives in the construction, transport and gas capture sectors were particularly useful. These

were practical interventions that demonstrated the feasibility of innovative interventions that had thus far not been fully tried in the country on a large-scale basis.

Azerbaijan does not have a dedicated climate change strategy yet. As has been noted, the NAMA project was designed to support the implementation of Azerbaijan's commitments to the United Nations Framework Convention on Climate Change and the Kyoto Protocol, as well as the *State Programme on the Use of Alternative and Renewable Energy Sources* which identified the following targets to be achieved by 2030 (compared to the 2010 baseline): (i) 30% share of renewable energy in gross domestic power consumption; (ii) energy savings equivalent to 3,060 mln m3 of natural gas; and, (iii) 30% GHG emissions reductions by 2030. The project was also designed to support the implementation of SOCAR's Climate Change Mitigation Strategy, with which it committed to reduce GHG emissions by 40% - or the equivalent of 20 mln tons of CO2 - by 2020.

Relevance to the Country's International Commitments

Azerbaijan joined the UNFCCC as a non-Annex 1 developing country in 1995, ratified the Kyoto Protocol in September 2000 and the Paris Agreements in January 2017. In September 2015, Azerbaijan submitted its *Intended Nationally Determined Contribution* to the UNFCCC as part of the Paris Agreements where it stated that it "believes climate change is a potential threat for humanity and supports the adoption of a new Global Agreement on climate change to be applied to all Parties in the 21st Conference of Parties to the UNFCCC to be held in Paris late 2015".

As a signatory to the Paris Agreement, Azerbaijan has committed to a 35% reduction in GHG emissions from 1990 levels by 2030. In pursuit of this goal, the government has taken steps to develop legislation, regulations, raise awareness, enhance its technological capacities and improve energy distribution networks and transmission lines. SOCAR is the main energy producer in the country and generates the largest amount of GHGs and therefore, along with ME and MENR, is well positioned to take a leadership role as it relates to the government's priorities to improve EE and reduce GHG.

Relevance to UN Country Priorities and the UNDP's Country Mandate and Strategy

The NAMA project is in alignment with *UN Country Priorities* (United Nations Azerbaijan Partnership Framework/UNAPF 2016-2020) and UNDP's *Country Mandate and Strategy*, and has helped support the following initiatives:

- UNAPF Strategic Priority Area 1: Promoting Sustainable and Inclusive Economic Development Underpinned by Increased Diversification and Decent Work
    - *Economic growth that is sustainable and promotes longer-term development within the context of a highly competitive economy, balanced development of regions, development of human capital and an effective transition to an information society.*

- UNAPF Strategic Priority Area 2: Strengthening Institutional Capacities and Effective Public Social Services
    - *Improvement of legislation and strengthening of institutional potential, development of human capital, enhanced institutional capacities for transparent evidence-based and gender-responsive policy formulation and implementation.*
- UNAPF Strategic Priority Area 3: Improving Environmental Management and Resilience to Natural and Human-Induced Disasters.
    - *Improvement of legislation and strengthening of institutional potential and development of human capital. Sustainable development policies and legislation are in place and are in compliance with multilateral environmental agreements, recognizing social and health linkages, and addressing issues of environmental and natural resource management, energy efficiency and renewable energy, climate change, and resilience to hazards and disasters.*
- UNDP Country Programme Document ((2016-2020): Related Strategic Plan Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded
    - ***Output 3.1***: Institutions and mechanisms are strengthened for better monitoring, analysis and reporting on GHGs emissions, carbon flows and carbon storage potential, including reporting under major multilateral environmental agreements
        - **Indicator 3.1.1**: Reporting complies with requirements of the conventions
        - **Baseline**: Partly complies
        - **Target**: Fully complies
        - **Indicator 3.1.2**: Extent to which the capacities for carbon monitoring are improved
        - **Baseline**: 1
        - **Target**: 3

- Sustainable Development Goals: Within the SDG framework, this project in particular supports:
    - *Affordable and Clean Energy*
    - *Decent Work and Economic Growth*
    - *Industry Innovation and Infrastructure*
    - *Reducing Inequality*
    - *Sustainable Cities and Communities*
    - *Responsible Consumption and Production*
    - *Climate Action*

Relevance to GEF's Strategic Priorities

The project has also clearly been very relevant to GEF's strategic priorities in the area of climate change due to its ultimate impact on emissions.

Based on the examination of project activities and the opinions of stakeholders interviewed in the course of the evaluation, the project is rated as "Relevant".

3.3.3. Ownership

The NAMA project has enjoyed full ownership from the respective government bodies, and especially SOCAR. This is a result not only of the significant relevance of the project, but also the proactive interest these institutions have taken on the project. The national ownership of this project was demonstrated in the following ways:

- Full participation and engagement of national institutions, particularly SOCAR, in project activities.
- Leadership role national institutions played in project activities.
- Strong role of the Steering Committee in providing guidance and decision-making
- Financial contributions provided by national institutions
- Engagement in the evaluation process, taking full responsibility for the activities of the project

3.3.4. Effectiveness

Effectiveness in the context of this evaluation means the extent to which the project achieved what it planned to achieve at the outset. Table 7 (above) provided a detailed overview of the project's achievements against the results framework presented in the Project Document.

Based on the analysis of the data provided by the project team and the data collected from interviewes with project stakeholders, the following main conclusions can be made:

- Overall, the NAMA project has completed all the major activities envisaged at the outset of the project. There are no major gaps in this project that resulted from a lack of implementation, lack of financing or unresponsivenes of partners. Those gaps that have already been pointed out in this report were related to the design of the project and not the implementation process.
- The targets related to the project outcomes have largely been achieved. This includes the development of three NAMAs implemented by the end of the project, reduction of GHG emissions and co-financing leveraged for the project. As shown in the table below, the actual reduction of GHG emissions as a result of the pilot projects has been estimated by the project to have amounted to 580,301 tCO2eq/25 years (see Annex XI of this report for the calculation of this). This total amount can be broken down in 567,404 tCO2eq/25 years from APG Emissions, 2,110 tCO2eq/25 years from Transport Emissions and 10,787 tCO2eq/25 years from Building Emissions. This amount represents 96% of what was planned in the Project Document. Overall energy savings during the project are estimated at 515,185 TOE and GHG reductions in the range of 61,500 tCO2.

- As has already been noted, a decision was made by project stakeholders to change the order in which outcome activities were undertaken, starting with the pilots under Outcome 3 first and proceeding with the implementation of the other outcomes. Ultimately, by the end of the project all outcomes were completed satisfactorily. The Project Document and the overall project design were flexible enough to allow for this kind of adaptive management.
- The original co-financing amount from SOCAR outlined in the Project Document was US$ 30,000,000. Due mainly to the scale of the associated gas capture component of the project additional co-financing was required. Thus, SOCAR invested an additional US$ 12,502,058 under Outcome 3 in order for the project to meet its objectives.

Table 11: Summary of DIRECT GHG Reductions due to Pilot Projects

Name of the Component	Target in Pro DOC	Actual Reduction Achievement	Percentage Achievement
	tCO2eq / 25 years	tCO2eq / 25 years	%
APG Capture	594,044	567,404	96%
Transport	1,593	2,110	132%
Buildings	10,500	10,787	103%
Total	**606,137**	**580,301**	**96%**

Based on data provided by the project team, Table 10 (below) shows an analysis of project achievements for each objective identified in the project's results framework.[22] It also shows with colour codes the targets that have been achieved (green is used for targets that have been achieved and red for targets that have been not).

It is important here to also note the scope of the project as an important factor that affects the effectiveness of the project. As discussed previously in this report, in a situation of unclarity on whether project activities should apply to the national scale or just SOCAR, project stakeholders made a decision to focus activities within prioritized sectors under SOCAR. Although a useful decision as it unblocked the situation by providing clarity to the project team, it limited the applicability of project activities – especially the pilots. For example, buildings pilot targeted a quite narrow sector, given that the number of buildings owned by SOCAR is quite small - 0.5% of total buildings in the country and less than 2% of new buildings. Therefore, the replicability of the results of this project will be crucial for its success. As will be seen in the sustainability section of this report, it is too early to talk with confidence about the scaling and replication effect of this project, given the limited amount of time that has passed since the completion of the pilots. Some scaling results are visible, especially in the transportation sector with the training of divers, but

[22] The analysis presented in the table relies on information provided by the project team and not verified through the evaluation.

still so far replication effects remain limited. Certainly, the Covid-19 situation and the escalation of the conflict with Armenia have hampered any possible attempts that could have been undertaken in this area. In the future, it will be important for SOCAR, MoE and MENR to focus on a replication strategy of the main lessons and experiences derived from this project. Fostering this type of understanding should be a priority of the project team for the remaining time of this project.

Given that all of the project's planned activities have been completed and almost all targets have been met, the rating of the project's effectiveness is "Satisfactory".

3.3.5. Efficiency

To assess efficiency, the report focuses on a number of parameters that are closely associated with efficient project management. These parameters are categorized into the following categories: i) *Expenditure and Budget Execution Rates*; ii) *Timeliness of Project Activities*; and, iii) *Scale of Pilot Interventions*.

Expenditure and Budget Execution Rates

Table 8 shows project expenditures by outcome area for the project's duration. The project started with a slow execution rate in 2015 but subsequently the pace accelerated over the following years. The largest expenditures happened in 2018 where the majority of investments in the associated gas component of the project occurred. Due to the Covid restrictions in 2020, the project team applied for a four-month extension to finalize all the scheduled works in accordance with budget by the end of 2020. By the end of 2020 all of the project budget had been spent.

The table also shows that Outcome 3, which focused on pilot activities, has resulted in by far the largest expenditures for the project. Project management costs have constituted about 8% of total expenditure, which is a good indicator of efficiency.

Table 12: Project Expenditure (US$)

Outcome Areas	2015	2016	2017	2018	2019	2020	Total	Shares
Outcome 1	30,042	34,193	141,250	46,833	13,954	20,738	287,010	**91%**
Outcome 2	9,000	249,422	48,718	87,103	20,370	29,700	444,313	**102%**
Outcome 3	3,000	555,193	416,516	903,230	227,854	253,665	2,359,458	**101%**
Outcome 4	2,110	4,979	81,649	66,652	174,808	43,267	373,465	**89%**
Project Mgmt.	74,624	80,181	76,457	49,224	14,556	10,712	305,754	**113%**
Total	**118,776**	**923,968**	**764,590**	**1,153,042**	**451,542**	**358,082**	**3,770,000**	**100%**

Table 9 shows the project's execution rates for each year, as well as for all years, based on planned budgets. Throughout the duration of the project, there was a large amount of variation with regard to funds that were budgeted in comparison to funds that were spent (ranging from 54% in 2019 to 230% in 2020). The pilots' component included the largest expenditures and there were large

variations in this context as well – including a 6% budget execution rate in 2015 and a 527% budget execution rate in 2019. There was also a large amount of variation with the MRV component ranging from an execution rate of 12% in 2016 to 780% in 2020.

Table 13: Budget Execution Rates (in US$ and %)

Year 2015				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	45,750	30,042	66%
2	Outcome 2	28,450	9,000	32%
3	Outcome 3	48,110	3,000	6%
4	Outcome 4	5,550	2,110	38%
5	Project Management	28,125	74,624	265%
6	**Total**	155,985	118,776	76%
Year 2016				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	124,600	34,193	27%
2	Outcome 2	162,400	249,422	154%
3	Outcome 3	367,720	555,193	151%
4	Outcome 4	40,100	4,979	12%
5	Project Management	54,750	80,181	146%
6	**Total**	749,570	923,968	123%
Year 2017				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	40,600	141,250	348%
2	Outcome 2	127,400	48,718	38%
3	Outcome 3	607,820	416,516	69%
4	Outcome 4	66,100	81,649	124%
5	Project Management	54,250	76,457	141%
6	**Total**	896,170	764,590	85%
Year 2018				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	30,600	46,833	153%
2	Outcome 2	45,900	87,103	190%
3	Outcome 3	726,820	903,230	124%
4	Outcome 4	114,600	66,652	58%
5	Project Management	54,250	49,224	91%
6	**Total**	972,170	1,153,042	119%
Year 2019				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	29,650	13,954	47%
2	Outcome 2	41,700	20,370	49%
3	Outcome 3	526,870	227,854	43%
4	Outcome 4	189,650	174,808	92%
5	Project Management	52,250	14,556	28%
6	**Total**	840,120	451,542	54%
Year 2020				

No.	Outcome Area	Budgeted (Pro Doc)	Spent	Execution Rate
1	Outcome 1	45,750	20,738	45%
2	Outcome 2	28,450	29,700	104%
3	Outcome 3	48,110	253,665	527%
4	Outcome 4	5,550	43,267	780%
5	Project Management	28,125	10,712	38%
6	**Total**	155,985	358,082	230%
All Years				
No.	**Outcome Area**	**Budgeted (Pro Doc)**	**Spent**	**Execution Rate**
1	Outcome 1	316,950	287,010	91%
2	Outcome 2	434,300	444,313	102%
3	Outcome 3	2,325,450	2,359,458	101%
4	Outcome 4	421,550	373,465	89%
5	Project Management	271,750	305,754	113%
6	**Total**	3,770,000	3,770,000	100%

Further, the project's administrative expenses have been low given that it was managed by only two staff - a Project Manager supported by a Project Assistant.

Table 14: Project Expenditure Structure

Expenditure Categories	2015	2016	2017	2018	2019	2020	All Years
Contractual Services-Companies	57780	856,471	423,932	854,988	226,890	8544.61	2,428,606
Local Consultants	0	69,650	91,800	81,150	15,000	27,824	285,424
International Consultants	38700	59,826	113,290	107,700	21,532	56,813	397,861
Grants	0	0	0	0	0	0	0
Events, conferences, travel	0	6,170	15,494	7,676	1,845	402	31,587
Admin expenses	17168	21,035	27,422	38,092	13,491	9,790	126,998
TOTAL	**113,648**	**1,013,152**	**671,938**	**1,089,605**	**278,758**	**103,374**	**3,270,475**

Timeliness of Activities

Another indicator of project efficiency is the extent to which implementation falls behind established timelines.[23] Although the project was able to execute its overall objectives in an effective manner, there were a number of delays throughout the course of the project, including:

- Although the Project Document was signed in March 2015, the implementation did not begin until July 2015. This delay was a result of the need to re-advertise the Project

[23] One quick way of assessing this is to look at the period of extension required to complete planned activities. Clearly, project extensions lead to higher administrative costs which reduce the overall efficiency of the intervention.

Manager position twice. During this time, SOCAR also wanted to review the qualifications of team members.

- After being postponed twice, the inception workshop was organized one year after the project was formally launched. The inception workshop was postponed the first time due to a tragic incident caused by a wind storm and had to be cancelled a second time due to the fact that key staffing positions were not filled.
- For some project components, national expertise was not available, thus international experts had to be utilized, which made the recruitment process lengthier.
- Outcomes 1 and 2 were delayed in favour of proceeding with Outcome 3, so that practical experience from the pilot projects could first be gained and then subsequently used to inform outcomes 1 and 2. Initially, the Project Team found that there was insufficient data available for the MACC analysis and the target setting that was to occur under Outcome 1.
- The gas capture component was the most challenging and experienced some delays due to tendering procedures and a lack of offers by contractors. A more detailed explanation of the delays related to the installation of the gas capturing equipment is provided in Box 7 below.
- As has already been noted, a key factor that impacted the project was the onset of COVID-19 in March 2020. The pandemic delayed the completion of certain activities. In some cases, the Project Team and stakeholders had to postpone or delay planned visits to the worksites. Other examples of delays due to COVID 19 included data collection procedures, training sessions and the establishment of the energy efficiency center.

Box 8: Delays in the project's Gas Capture Component

The implementation of the Gas Capture Component was a challenging part of the project. The tender for the purchase of equipment was announced as planned at the end of 2017, with the initial deadline 20 November 2017. However, since no response was received, the deadline was extended by one month. Yet, again it did not result in any bids. At this point, SOCAR mobilized co-financing in the amount of about US$ 5 m, committing these funds for piping works and requesting the project team to procure high-tech equipment. The procurement method then had to be reconsidered and was changed from RFQ to ITB. The project team had to re-advertise the tender, and in response to the second advertisement, only one company applied. Given the importance, complexity and size of the assignment, the project team considered one application insufficient for making a good selection, thus, extended the deadline once again. However, there were no additional applications, and therefore the project team proceeded with the evaluation. The evaluation was completed on 12 July 2018, and after completion of all procurement and administrative steps the contract was signed on 1 October 2018. The contractor mobilized resources and initiated the manufacturing of the equipment as soon as it could. However, the installation of the equipment in the mountainous area was difficult due to the upcoming fall and winter seasons, when the installation could not take place due to severe weather conditions. To make the most efficient use of the wintertime, it was decided to prepare the sites for the placement the equipment and undertake piping and manufacturing of the equipment. The installation works resumed in the spring of 2019 and was finalized in accordance with the

updated schedule by the fall of 2019. The inauguration ceremony of gas compressors took place on 23 September 2019 with the participation of high-level officials and the media.

Scale of Pilot Interventions

Another aspect of the project's efficiency is the fact that the pilot initiatives were selected on the basis of the largest scale/impact that could be achieved on emissions, thus getting the largest return for the money spent. Thus, in the selection of the buildings for the pilots, those with the highest GHG emission reductions potential were identified. For example, the admin/service building of AzerKimya was selected, as SOCAR has many similar buildings in its different sub-divisions and the experience accumulated at the AzerKimya building could be used for those buildings as well. Further, the pilot of the associated gas capturing was selected as having the largest GHG emission reduction potential. Similarly, the pilot in the transportation sector was selected due to SOCAR having the biggest car fleet in the country, thus with significant replication potential.

Given all the above-mentioned factors, and also taking into account some of the delays which were nevertheless largely overcome by the point of this terminal evaluation, the efficiency dimension of the project is rated as "Satisfactory".

3.3.6. Sustainability

While the sustainability of project outcomes is shaped by a number of factors, the focus of this section is on risks related to financial, socio-political, institutional, and environmental considerations.

Financial Resources

The likelihood of financial sustainability for some of the activities pursued by this project beyond the project's lifetime is good. One of the main reasons for selecting SOCAR as the project's implementing partner was its financial position and its ability to provide co-financing. As has been noted, SOCAR has provided 42,502,058 USD in co-financing, in excess of the original commitment, which is a good indication of its interest in this area. Given that SOCAR is the largest oil & gas producer in the country, it is likely that they will be able to financially support additional scaling up of NAMAs beyond the duration of this project.

However, the question here is not only what happens within SOCAR as a state-owned company, but what happens to energy efficiency and climate change mitigation in the country as a whole. The project's focus on SOCAR was good for sensitizing SOCAR's leadership in these matters and improving the likelihood of financial commitments by SOCAR in the future. While it might have helped raise the awareness of other sections of the government and society, these actions were not

targeted specifically on other sectors. Therefore, financial commitments outside of SOCAR for energy efficiency investments are not clear. Also, the lack of direct involvement from the banking sector seems to have been a missed opportunity of the design of this project, as their involvement would have guaranteed greater resources for investments in this area.

Further, for greater results the project could have involved more actively the Ministry of Finance in some of the activities to ensure that the awareness of its officials on energy efficiency matters has increased. Admittedly, the Ministry of Finance top priorities do not include emissions, given the refugee crisis in the country and the need for cheap and affordable energy. Had the role of the Ministry of Finance (and others) been crafted more adequately, giving it not only a more important place in the project, but also organizing project activities more intensively around public financial management issues, the results of the project would have been more sustainable.

Given the above-mentioned, the likelihood of sustainability of the project's outcomes from a financial perspective is rated as "Moderately Likely".

Socio-Economic Risks

The main socio-economic risks to the sustainability of project outcomes emanate from the geo-political instability, which proved to be one of the factors that has challenged this project. Unfortunately, closer to the end of the project the conflict with Armenia escalated, which combined with the Covid-19 pandemic, did have an impact on the speed of activities. However, the geo-political situation is expected to stabilize and so is the Covid-19 situation.

At the same time, Azerbaijan has made huge economic progress in the last couple of decades, and has been able to improve its infrastructure. Despite the oil price crisis which has affected the country's finances, the progress on the economic front is expected to continue, which bodes well for further investments in energy efficiency, especially in a crucial sector for the economy such as the oil and gas sector.

The likelihood of sustainability from a socio-economic perspective is rated as "Likely".

Institutional framework and governance

Given SOCAR's role as the leading energy company in Azerbaijan, the experience and expertise acquired through the NAMA project is expected to be shared with other large companies and state agencies through relevant workshops and other means of experience-sharing. The project's awareness-raising aspect has been an important component of activities. From the outset, it was acknowledged that the project would increase awareness with regard to energy efficiency and GHG reduction initiatives. Towards this end, the Project Team has taken a series of important steps. During the implementation phase, several workshops and training sessions were organized by the Project Team and SOCAR which included representatives from various ministries, as well as the construction and transport sector (all these events are shown in Annex VII of this report).

Other initiatives to promote the results of the project and raise awareness include efforts of the Project Team and SOCAR to publish results in brochures, broadband media, television stations, print newspapers, and internet-based media. The project has also developed a website for the dissemination of knowledge to relevant stakeholders and the general public.

With regards to the pilots, there is some evidence of replication in certain areas. The project team has reported the following replication examples:

- Based on the outcome of the buildings energy efficiency retrofits that were carried out under the project, SOCAR is scaling-up its "*Green Buildings*" programme to install similar measures at its other buildings. Using the experience accumulated through the NAMA project, SOCAR has constructed a new administrative building for the Neftgaztikinti Trust with the application of energy efficient technologies. New technologies, such as energy efficient windows, heat isolation, energy efficient ventilation systems, energy efficient heating and cooling systems, and so on, were used in the building. The costs of construction were reported to have amounted to US$ 5,419,800. Data and calculations on emissions reductions generated by these additional activities are lacking.
- Some construction companies have begun to apply the knowledge gained through the workshops in their business activities, including thermal insulation enveloping techniques, as well as EE lighting practices.
- The success of the "*Associated Gas Capture*" programme in the Siyazan-neft oil field has led to SOCAR launching a similar programme on a larger scale in other oil fields.
- Following the project's positive experience with the eco-driving simulator, several transportation companies have acquired energy efficient buses. For example, the Baku Transport Agency has introduced energy efficient buses and provides eco-driving training for its drivers. The driving training simulator is being used by SOCAR's drivers, as well as some external agencies on a regular basis, thus creating a culture of eco-driving in the country. Based on the fuel savings from the hybrid-electric vehicles that were purchased by SOCAR, the future fleet replacement/expansion plan will add more such vehicles.
- Drawing on the project's demonstration of possibilities of switching to renewable energy sources at the level of individual facilities, MENR has expressed an interest in the installation of solar panels in facilities located in national parks and other protected areas.

It is also notable, that the achievements and lessons-learned of this project are being currently used for the design of the new project for which UNDP has already received endorsement letter from the Government of Azerbaijan - namely the project "*Scaling up investment in energy efficiency in buildings through enhanced energy management information system (EMIS) and green social housing*". The experience accumulated in the NAMA project will be used in the design of this new project.

For all these achievements, the level of scaling and replication is not fully-fledged and at the desired level yet. There is no strong evidence that the main results of the project are widely applied

in other areas/sectors outside the direct sphere of influence of this project. These are still early days, as the project is in its final stage, and the full effects of the scaling up need to been seen after some time has passed. In the coming months, the national partners, in cooperation with UNDP should seek to further promote some of the innovative solutions and successes that were tested through this project. Some of these concrete actions aimed at information dissemination and awareness raising are identified in the recommendations' section of this report.

The project's sustainability is rated as "Moderately Likely".

Environmental Risks

The activities involved in this project do not involve any direct environment risk. Therefore, this dimension of sustainability is rated as "Likely".

The following table summarizes the sustainability of the project's achievements according to the four dimensions.

Table 15: Sustainability Rating

Sustainability Dimension	Risk Assessment
Financial risk	ML
Socio-Economic risk	L
Governance risks	ML
Environmental risks	L

3.3.7. Impact

Overall, the project has generated benefits for a range of stakeholders. SOCAR has benefited in a direct way from the energy and financial savings that have resulted from the project activities in key areas of SOCAR's work. At least 550 SOCAR workers have benefited directly from the six energy efficiently retrofitted administrative and service buildings at SOCAR facilities in Sumgayit, Gala settlement and Garadag settlement of Baku city which will use approximately 20 per cent less energy.[24] The number of indirectly benefitted people from all six buildings is estimated by the project to be more than 2500 a year. Baku citizens have benefited from reduced emissions from vehicles, whereas villagers in Siyazan are now reliably supplied with gas and enjoying a cleaner form of energy. The actual reduction of GHG emissions as a result of the pilot projects has been estimated by the project to have amounted to 580,301 tCO2eq/25 years (see Annex XI of this report for the calculation of this). This total amount can be broken down in 567,404 tCO2eq/25 years from APG Emissions, 2,110 tCO2eq/25 years from Transport Emissions and 10,787

[24] Technical aspects of the retrofitting works at administrative and service buildings include installation of energy efficient windows, floor heating systems, energy efficient ventilation systems, wall heating isolation systems, decorative facade cover layer, and solar power systems.

tCO2eq/25 years from Building Emissions. This amount represents 96% of what was planned in the Project Document.

Other benefits have accrued in the area of capacity building, especially for SOCAR. Primarily, representatives of SOCAR and other relevant institutions have befitted directly from all the capacity building activities, including the training events. For example, the number of drivers from the SOCAR transportation department who benefitted from the indoor and outdoor trainings during the first phase of the project is 1,350. The key priority going forward will be to transfer the capacity building potential to other national institutions outside of SOCAR, in particular in other sectors where knowledge and experience on energy efficiency are more limited, but the potential for savings is large.

Another dimension of NAMA project's impact has been at the level of demonstration – not only for SOCAR, but also for the country more widely. It has demonstrated a range of innovative solutions to practical and specific problems. For example, the training programs developed with international expertise and delivered to major staff involved in vehicle operation at SOCAR are expected to lead to larger fuel and emission savings. These innovative solutions are well-recognized and appreciated by the national counterparts.

Another dimension of the impact of this project can also be found at the level of emissions reductions, which has been noted throughout this report and which is an important aspect of improvements in the environmental sphere in Azerbaijan. It is important here to note that the NAMA programme was seen as a valuable opportunity to develop and implement a large-scale GHG mitigation programme for SOCAR in line with the company's long-term sustainable development strategy, which could be replicated at the national level and thus influence the country's overall GHG emission regime. A major transformation at the national level – beyond SOCAR – is not visible yet. Some of this is to be expected, also given the current circumstances globally, and more importantly in the country. There are a number of reasons for this.

- The main reason is that at this point in time it is too early to talk about the replication and scaling effects of this project - the project has not yet fully completed its activities.
- Initiatives with lasting impact on energy efficiency and GHG reductions require effective legislation, policies and regulations. However, as has been noted in this report, the design of the project did not extend to the development of any policy or legal instruments. Certainly, the project did assist on some policy initiatives, but the level of intervention was limited.[25]

[25] As has been noted, project experts assisted with the development of the Energy Efficiency Law and the knowledge and learnings from the project were referenced in the In-depth Review of the Energy Efficiency Policy of the Republic of Azerbaijan conducted in 2019 and published in 2020 by the Energy Charter Secretariat. Further, a recommendation of the MTR was to "Support policy and regulatory dialogue on a national level to adopt necessary regulations to support the long-term action plan's implementation on a country level". In response to this recommendation, the Project Team conducted a comparative study of policies, laws and regulations of other countries, and a workshop was planned in 2020 in Baku to present the findings of the report. The workshop was held virtually/online due to Covid-

- Further, a range of activities were not possible to undertake in 2020 due to Covid-2019.
- Also, the escalating conflict with Armenia has shifted government priorities elsewhere.

For all of this, the potential for replication at a larger level outside the realm of SOCAR remains significant. Such scaling up would result in far wider benefits for the country. In the remainder of this project's lifetime (until final completion), but also after the project's lifetime, it will be important for SOCAR, UNDP and the other stakeholders to further the efforts on the dissemination of lessons and experiences acquired through this project.

3.3.8. Gender Mainstreaming

SOCAR and project staff have emphasized the fact that gender issues have been taken into consideration during the implementation of project activities. As a result of the activities conducted under the first project component, energy efficiency in buildings benefitted the working conditions of the women personnel working in those buildings and hence their social condition. The second component where gender issues were taken into consideration is trainings and seminars. When preparing the list of participants and selecting specialists for capacity-building and awareness-raising activities, the project team has sought to involve a larger number of females. The third component was related to the provision of gas previously vented and flared from the oil wells to the people living in nearby areas. As has been noted, 12 villages were provided with the natural gas in the area where previously wood from the nearest forests was used as the main source of heat and for cooking. Therefore, provision of natural gas solved the main household problem of the women living there. In total, 600 households with the 2,500 citizens were provided with the natural gas – of whom 1,650 are women.

The table below presents a breakdown of project beneficiaries in different dimensions of the project by gender.

No	Project Activities	Total number of participants/ beneficiaries	Number of female participants/ beneficiaries	Female participation by percentage
Green Building Component				
1	Retrofitting and renovation/restoration works in 6 administrative and service buildings	550	125	23
2	The joint UNDP-SOCAR Conference on 06.03.2018	80	23	29
3	NAMA Workshop on Awareness raising on 5-6.12.2018	86 the first day, 65 the second day (76)	23, 26 (25)	27, 40 (34)
4	NAMA Webinar on EE Awareness raising in buildings and transport 25.08.2020	71	35	49
5	Trainings on EE in Buildings	230	63	27
Gas Capturing Component				

19 restrictions. A comprehensive report was made available for authorities in Azerbaijan to learn the best practices of other countries with regard to legislation, policy and regulations which support EE and GHG reduction initiatives.

1	Installation of gas compressors	2500	1650	66
2	Training on Potential of using associated gas, June 2018	20	7	35
Total		**3527**	**1928**	**55**

While not central to the NAMA project, the assessment of the effects of the project on gender, poverty or disability could have received greater attention. For example, gender dynamics in these types of interventions are relevant not only in terms of the distribution of the benefits of the project, but also the engagement of men and women in the activities of the project. The analysis of the data from this project would have been easier if there was a better disaggregation of information by gender. Furthermore, the project should have instituted a stronger monitoring and reporting framework for the gender dimension (as has been noted elsewhere). One of the recommendations of this report is related to the gender dimension.

4. CONCLUSIONS AND LESSONS LEARNED

The NAMA project reviewed in this report has overall been a successful project with relevant results for the country and generally well-appreciated by the stakeholders. The pilots are particularly valued by the national counterparts due to their significant demonstrative value. The project was able to introduce and test the feasibility of technologies which had been limited or absent in the country. A good body of knowledge was created by the international and local experts engaged by the project.[26] The fact that SOCAR put a significant amount of its own resources into these initiatives is indicative of its interest in the results of the pilots. Furthermore, this project has been well-managed and, despite some delays that are highlighted in this report, it has been able to achieve most of its objectives on time. The cooperation between the project stakeholders has been constructive and productive. This project has not suffered from major coordination problems or disagreements which are common in such interventions that involve multiple stakeholders.

The project has benefited from effective adaptive measures which have had a positive effect. These measures include decisions not only to correct the design of the project at the initial stages and focus activities on more feasible directions – such as focusing on gas capturing, as opposed to wind and solar – but also to change the course of activities in a more meaningful way (i.e. proceed with the pilots first and then carry out the other activities). These decisions have enabled the project to not get bogged down in uncertainty and inaction.

For all these strengths and positive aspects, it should be noted that the project would have benefited from greater involvement of sectors and actors outside of SOCAR and more durable institutionalized solutions embedded into national policy and legislative frameworks. Such an approach would have implied greater participation of other relevant stakeholders with a mandate in the area of energy efficiency and would have been much more beneficial to the sectors outside SOCAR. In this context, having a country-level NAMA programme would have been beneficial, but the amount of effort to achieve that would have been considerable, given the amount of information and analysis required to estimate emissions at the national level. The development of an adequate national-level mitigation plan remains a task for national stakeholders.

Going forward, the focus of the activities initiated under this project should be on the further dissemination of the lessons generated, with a goal of further dissemination of the good practices, which include the gas capturing methods, the green transport practices and the building insulation technologies. This project could be used as an inspiration and starting point for further collaboration among all the stakeholders involved. UNDP and the respective government authorities should continue joint projects and existing cooperation in areas of common interest -

[26] The project team did a good job in synthesizing most of this generated knowledge into a “end-of-project” report. The End-of-Project Report was prepared to capture in the form of an executive summary all the actions that were undertaken by the project since its inception. It discusses the targeted outcomes of the project and the extent to which they have been achieved. It also identifies those goals which were not met and the underlying reasons.

climate change, energy efficiency, reducing carbon emissions and environmental protection in general – relying on the foundations created by the experience of this project.

LESSONS LEARNED

The following are some major lessons that may be drawn from the experience of this project:

Lesson 1: Financial investments into GHG initiatives do not have to be costly in order to have a significant impact

Among the various GHG initiatives that the project has implemented, the associated gas capture component offers by far the greatest potential for reducing emissions. The global warming potential of methane gas is 21 times higher than CO_2 over a 100-year period, and prior to the NAMA project there were many drilling sites that were releasing it directly into the atmosphere. In this context, the NAMA project has been capturing methane gas at a rate of 4.6 million m^3 per year, and vast majority of the project's financing has been targeted towards this component of the project. However, this being said, financial investments into GHG initiatives do not have to be costly in order to achieve significant results. The eco-driving component of the project demonstrated this principle well as both the MTR and PIR reports noted that the training sessions resulted in fuel savings in the range of 8% to 14% with very small investment costs.

Lesson 2: Importance of Flexible Approaches and Co-financing Arrangements

The NAMA project is a multi-year initiative involving multiple components (construction, transport and gas capture) and a large budget ($47,972,058 USD). Given the large scope of this project, it was perhaps inevitable that some activities would not pan out fully in accordance with the design of the Project Document. In this context, the Project Team noted that the associated gas initiative was the most challenging component of the project and timelines had to be pushed back. The delays and additional expenses were largely attributable to procurement procedures for equipment. As these procurement challenges occurred, SOCAR was able to resolve the issue by mobilizing $5,000,000 USD of its own financing. Moreover, there were other complications which arose periodically throughout the duration of the project which required additional co-financing as well. In total, throughout the duration of the project SOCAR invested US$ 12,502,058 in additional co-financing beyond the original budget projection of $30,900,000 US$ as a means of resolving issues as they arose and keeping the project on track.

Lesson 3: The importance of adaptive management

There were numerous examples of adaptive management applied throughout the duration of the project, such as the decision to focus on gas capturing and driving simulator, and move away from solar and wind, given the feasibility of possible interventions. Such flexibility helped keep the project on track. Some of these examples were noted previously in this report. The importance of

an adaptive approach to these kinds of projects cannot be overestimated. First of all, some of the initial assessment conducted before the start of the project might not have been adequate. As was the case in this project, the project design was not optimal and created a number of gaps that had to be filled during implementation by the Project Team and the Steering Committee. Further, the external environment can be volatile – major risks materialized around this project, as has been noted in this report. Also, country and political priorities change and they shape the expectations and requirements of the project. In these conditions, it is important to have an adaptive approach and respond in ways that are most optimal for achieving the ultimate goals of the project. From this perspective, this project is a good example of a programme that was flexible and adaptable enough to achieve successfully the ultimate goal that was set at the beginning of the intervention.

Overall Project Performance Rating

Monitoring and Evaluation	
Overall quality of M&E	S
M&E design at project start up	S
M&E Plan Implementation	S
IA & EA Execution	
Overall Quality of Project Implementation/Execution	S
Implementing Agency Execution	S
Executing Agency Execution	S
Outcomes	
Overall Quality of Project Outcomes	S
Relevance	R
Effectiveness	S
Efficiency	S
Sustainability	
Overall likelihood of Sustainability:	ML
Financial resources	ML
Socio-economic	L
Institutional framework and governance	ML
Environmental	L
Overall Project Results	**S**

5. RECOMMENDATIONS

The evaluation also identified the following key recommendations for project stakeholders. Some of these recommendations are forward-looking in nature and could be applicable to the design of similar initiatives in the future.

Recommendation	Responsible Party	Timeframe
Recommendation 1: Institutionalizing Training Programme Given the amount of training information and experience generated through this project, it is recommended that SOCAR, MoE and MNER, with continued support from the UNDP further institutionalize the training programme whose foundations were created through this project. The parties could explore how this programme could be established more firmly in the framework of existing government structures (under SOCAR or MNER) on a more permanent basis. The parties could also explore potential improvements and expansion of this training programme. So that newer topics are built into the existing framework. During the coming months, UNDP could consider exploring further support in this area through its new programming and could consider this area as a possible area of cooperation in the development of its new country programme.	SOCAR, MoE, MNER, UNDP	Within a year
Recommendation 2: Further replicating the gas capture programme The "*Associated Gas Capture*" programme in the Siyazan-neft oil field is one of the major highlights of this project. This initiative has indeed introduced a significant innovation in the country. This experience has led to SOCAR considering the expansion of the programme on a larger scale in other oil fields and taking certain steps in this area. This evaluation recommends that this experience be promoted more proactively by raising the awareness of policymakers and experts in different areas and institutions about its results and benefits. The three national entities involved should exert more concerted effort based on a clear promotion plan led by SOCAR and the two ministries over the coming few months. Based on the actual results achieved, the three national parties should involve all major national stakeholders in a dialogue and enhance the development of a national strategy to replicate the project activities and outcomes towards the country's national policy objectives and framework, the required mechanisms and capacities for GHG mitigation. UNDP could also play a role in this area by	SOCAR, MoE, MNER	Within a year

supporting the activities through its significant experience in awareness-raising activities.		
Recommendation 3: Promoting energy efficiency in the transport sector Similarly to the point made in the recommendations above, this project has introduced a significant innovation in the transport sector through the eco-simulator and electric vehicles. Based on interviews for this evaluation, it seems that there is significant interest for this type of innovation in the country. This evaluation recommends that the three national counterparts in question, with support from UNDP, undertake a more concerted and extensive campaign for the dissemination of this experience in other institutions related to the transport sector, and in particular within the private sector. Again, UNDP has a lot of experience with information and awareness-raising campaigns, so it can provide substantive support in this area. The awareness-raining campaign and the dissemination of the lessons learned through this project could be done on the basis of a comprehensive and systematic plan.	SOCAR, MoE, MNER, UNDP	Within a year
Recommendation 4: Embedding sustainable solutions into the policy and legislative level As has been discussed in this report, it is important for UNDP and the Government to ensure the sustainability of interventions like the ones pursued in this project by combining their demonstrative value with permanent changes in the policy and institutional frameworks. Some of the findings of this project with regards to approaches, standards, techniques, etc., could become more sustainably and reliably applicable elsewhere if grounded into the national legislation or policy framework. This will require a careful identification from the design stage of the project of those opportunities for policy interventions informed by, and harmonized with, the piloting of different business models and technologies. To this end, UNDP should strengthen project design requirements to ensure that future interventions are grounded in national policy frameworks.	UNDP	Continuous
Recommendation 5: Sustainable financing, especially role of banking sector Energy efficiency interventions are capital-intensive in nature. They require financing, which can be sourced either from the public budget or the private sector. The private sector is a powerful agent of chance for energy efficiency which should be always tapped. To	UNDP	Continuous

incentivize the engagement of the private sector, it is always important to make use of the market instruments. In this case, the project would have had much more sustainable results if its activities had allowed for greater engagement with the private sector. The banking sector is crucial here because the financing that it provides could be transformative for the area of energy efficiency. All the demonstrative effects of the NAMA project could have been more profound if there had been greater engagement of the banking sector in its activities which would enable its representatives to get a better appreciation and understanding of the successful approaches, models and technologies that the project was able to promote. Going forward, UNDP and its relevant government partners (especially MNER and MoE) should make greater efforts at crafting a role for the private sector in similar projects. The UNDP CO should ensure that energy efficiency project that have an investment component should rely on the market mechanism for the sustainable financing of activities. The role of banks in financing energy efficiency improvements should be assessed by UNDP in cooperation with MoE and MNER more carefully and partnerships could be explored more effectively.		
Recommendation 6: Greater focus on the effects of project interventions of gender and other dimensions UNDP should consider more carefully the integration of the gender perspective in the future design and implementation of similar initiatives. It should make sure that gender is mainstreamed in the design of project activities based on an analysis of the potential impact of those activities on men and women. This analysis should also look in the balance of power between man and women in how activities and decision-making are structured in the project. More importantly, expected project results should be framed in a way that ensures tangible benefits for women and their position in the society. The CO should also ensure that the monitoring and implementation systems capture and transmit information about the gender balance of activities and results in a systematic manner. Project reporting systems should be strengthened to present a clear picture of the gender balance in this sector through the use of gender disaggregated data.	UNDP	Continuous

ANNEX I: EVALUATION'S TERMS OF REFERENCE.

INTRODUCTION

In accordance with UNDP and GEF Monitoring and Evaluation (M&E) policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan (PIMS # 5138.)

OBJECTIVE AND SCOPE

The project was designed to support SOCAR in the implementation of its Climate Change Mitigation Strategy by promoting and upscaling GHG mitigation measures through a programmatic NAMA approach in the low-carbon end-use sectors, where pilot investments will be directed into low energy and low carbon technologies that are so far missing on a large scale on the Azeri market. The concept of NAMAs represents a valuable opportunity for a huge enterprise, such as SOCAR, to developing and implementing a large scale GHG mitigation program that is in line with the company's long-term sustainable development strategy and simultaneously will target the country's institutional & policy framework, address appropriate mechanisms and result in activities to realize significant GHG emission reduction achievements in the long term.

The proposed project is set within the country's ambitions to reduce GHG emissions and energy intensity of major energy end-use sectors in Azerbaijan and simultaneously introduce innovative energy efficiency and renewable energy technologies in main energy end-use sectors such as buildings and transportation systems.

The project has been organized around four outcomes, to be implemented over a period of five years.

- Outcome 1: Assessment of GHG emission mitigation potentials and voluntary target setting;
- Outcome 2: Design & establishment of NAMAs in oil & gas end-use sectors;
- Outcome 3: Implementation of a set of (up to 3) project NAMAs in the oil & gas end-use sector;
- Outcome 4: Monitoring, Reporting & Verification system and national registry for mitigation actions in the energy generation and end-use sectors to be set up.

The terminal evaluation will be conducted according to the UNDP guidance on final evaluations, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects. The terminal evaluation will take place over a period of four months and it will include one 10 days mission to Baku, Azerbaijan (not including weekend) and 15 home based days.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons learned that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of future UNDP programming.

EVALUATION APPROACH AND METHOD

An overall approach and method for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (fill in Annex C) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to Baku, including the project sites which are mostly located within Baku's vicinity. Interviews will be held with the key officials in the following organizations at a minimum:

- State Oil Company of Azerbaijan Republic (SOCAR) and its various departments;
- Ministry of Ecology and Natural Resources (MENR);
- National Climate Change Center (NCCC);
- Ministry of Energy of the Republic of Azerbaijan.

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex B of this Terms of Reference.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: relevance, effectiveness, efficiency, sustainability and impact. Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

PROJECT FINANCE / COFINANCE

The Final Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of conclusions, recommendations and lessons.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Azerbaijan. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

TEAM COMPOSITION

The evaluation team will be composed of 1 international consultant (Team Leader) and 1 national consultant. The consultants shall have prior experience in evaluating GEF projects in Azerbaijan or in other countries. Prior experience with evaluating GEF financed projects is an advantage. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

ANNEX II: KEY QUESTIONS DRIVING THE ANALYSIS OF DATA

Dimension	Key Questions
Relevance	Were project activities relevant to national priorities? Were project activities relevant for the main beneficiaries? Were project activities aligned to UNDP goals and strategies? Has the project tackled key challenges and problems? Were cross-cutting issues, principles and quality criteria duly considered/mainstreamed in the project implementation and how well is this reflected in the project reports? How could they have been better integrated? How did the project link and contribute to the Sustainable Development Goals? To what extent was the project relevant to the strategic considerations of the governments involved? To what extent was the project implementation strategy appropriate to achieve the objectives?
Effectiveness	To what level has the project reached the project purpose and the expected results as stated in the project document (logical framework matrix)? What challenges have been faced? What has been done to address the potential challenges/problems? What has been done to mitigate risks?
Sustainability	How is the project ensuring sustainability of its results and impacts (i.e. strengthened capacities, continuity of use of knowledge, improved practices, etc.)? Did the project have a concrete and realistic exit strategy to ensure sustainability? Were there any jeopardizing aspects that have not been considered or abated by the project actions? In case of sustainability risks, were sufficient mitigation measures proposed? Is ownership of the actions and impact on track to being transferred to the corresponding stakeholders? Do the stakeholders / beneficiaries have the capacity to take over the ownership of the actions and results of the project and maintain and further develop the results?
Efficiency	Have the resources been used efficiently? How well have the various activities transformed the available resources into the intended results in terms of quantity, quality and timeliness? (in comparison to the plan) Were the management and administrative arrangements sufficient to ensure efficient implementation of the project?
Stakeholders and Partnership Strategy	How has the project implemented the commitments to promote local ownership, alignment, harmonization, management for development results and mutual accountability?
Theory of Change or Results/Outcome Map	Is the Theory of Change or project logic feasible and was it realistic? Were assumptions, factors and risks sufficiently taken into consideration?

ANNEX III: INTERVIEW PROTOCOL

For each interview obtain the following information of all the people who were part of the meeting

Name of Interviewee	Title, Department	Institution
Date of Interview	Time	Location
Other Persons present/title	Team members present	

Below is the list of indicative questions which we need to answer for the FE. Depending on who we interview, we need to choose among the questions below the suitable ones to ask (particularly given that we have normally just around 1 hour for each interview). For example, with implementation partners of specific projects, we may want to focus on part A and some additional questions in other parts as appropriate. For donors and other development partners we may want to focus on part B.

1. EFFECTIVENESS:

1.1. To what extent has the project **achieved its expected objectives**? Were all the planned project outputs and outcomes achieved? What were the **key results achieved** (Please describe, in particular, what **"changes"** have been brought about by the project)?

1.2. Were there any key results not achieved and why? Were there any positive or negative unintended results?

1.3. What was the quality of the deliverables?

1.4. Do you think that all the strategies and plans that were supported will be implemented?

1.5. What were the major **factors contributing** to the achievements of this project? What were the **impeding factors**?

1.6. **Partnerships**: Who were the partners in implementing the project? In your view, how effective has UNDP been in using its partnerships?

1.7. To what extent were government counterparts engaged and interested in the project activities? What roles did they play? Can you mention specific government actors and specific roles they played?

1.8. UNDP's role in **policy guidance**: What was the quality of upstream policy advisory services provided through this project? To what extent was this project able to affect policy

change? If yes, can you mentioned some specific examples? What is the implication of such policy change to the country?

1.9. In what ways can UNDP strengthen its policy advisory role (what worked and what didn't work; why)?

2. RELEVANCE:

2.1. To what extent do you think the project objectives were **aligned with country needs and national priorities, policies or strategies**?

2.2. How was the work conducted under this project connected to the broader reform agenda under way in the transportation, building and oil & gas sector? Was it integrated with the existing reform architecture in the area? Please provide specific examples.

2.3. To what extent were the **approaches taken by the project** appropriate in terms of the project **design and 'focus**'?

2.4. How coherent was the project in terms of how it fit with the policies, programmes and projects undertaken **by other government counterparts**?

3. EFFICIENCY:

3.1. **Managerial and operational efficiency**:

a) Has the project been implemented **within expected dates, costs estimates**? Explain **'factors'** influencing the level of efficiency.

b) Has the project management taken prompt actions to solve implementation and other operational issues? What was **project management structure** (incl. reporting structure; **oversight** responsibility)?

c) How adequate were the Project Management arrangements put in place at the start of the project? Did the project display effective adaptive management?

d) What were the implications of the project's organizational structure for its results and delivery?

3.2. **Programmatic efficiency:**

a) Were the financial resources and approaches envisaged appropriate to achieving planned objectives? Was there a 'good' mix of upstream and downstream efforts to maximize the results?

b) Were the resources focused on a set of activities that were expected to produce significant results (**prioritization**)? Has the project achieved 'value for money'?

c) Has the project followed any known 'best practices'?

d) Were there any efforts to ensure 'synergies' with other donor initiatives in the target countries? Explain results, and contributing factors.

3.3. What could have been done to improve the overall efficiency of the project?

4. SUSTAINABILITY:

4.1. To what extent are **project benefits likely to be sustained** after the completion of the project? What are the supporting/ impeding factors?

4.2. What are the risks that are likely to affect the persistence of project outcomes?

4.3. What plans were put in place to ensure the continuity of the efforts (e.g., funding, technical capacity)? Has there been an **exit strategy** that describes these plans?

4.4. Do you think that the various key stakeholders see that it is in their interest that the project benefits continue to flow?

4.5. Would you want to see this project extended in its current form or some other form?

4.6. Do you think a project like this would be useful in promoting the achievement of SDGs in targeted countries?

B. ASSESSMENT OF THE PROJECT'S STRATEGIC POSITIONING

5.1. To what extent has the project been **responsive** to meeting the needs of the country?

a) How responsive was the project to changes in development priorities in the sector?

b) To what extent has the project been able to adapt its ongoing programme to take into account the changing realities and sensitivities in the sector?

c) To what extent has UNDP been able to adjust its implementation approach specifically to respond to the challenges created by political and institutional changes?

5.2. To what extent has the project been able to **integrate the concept of sustainable development** in the transportation, building and oil & gas sector (design, allocation of resources and implementation)? Examples?

5.3. What **was the comparative advantage of** UNDP, when compared to other actors in the same area?

- To what extent has UNDP been able to provide **technical guidance**, and knowledge?
- What are UNDP's **comparative strengths**, vis-à-vis other partners, if any?
- To what extent do UNDP have the skills and expertise needed to support this area?

5.4. To what extent has the project been able to establish **partnerships and networks** with relevant partners and build strategic alliances in supporting key national priorities in the project area?

5.5. What do you think would be the **role of UNDP in helping planning for, implementing strategies to achieve and/or monitor progress towards the Sustainable Development Goals?**

C. OTHER ISSUES

Are there any issues that you would like to raise about the project's performance that have not been covered in this interview?

ANNEX IV: LIST INTERVIEES AND REVIWED DOCUMENTS

List of interviewed persons

No.	Name Surname	Organization, position
1.	Chingiz Mammadov	UNDP Azerbaijan, Senior Programme Adviser/Programme Analyst
2.	Nazim Mammadov	UNDP Azerbaijan, NAMA Project Manager
3.	Rovshan Fatullayev	SOCAR, NAMA Project director, Deputy to Vice President of SOCAR in Ecology
4.	Zaur Mammadov	Ministry of Energy, Chief of Apparatus
5.	Emin Garabaghli	Ministry of Ecology and Natural Resources, Head of International Relations Department
6.	John O'Brien	UNDP Istanbul Regional Hub, Analyst responsible for Climate Change Mitigation
7.	Farrukh Mian	Project consultant (international), Lead Technical Adviser on a GEF/UNDP NAMA project in Azerbaijan
8.	Bahtiyar Kurt	UNDP Regional Technical Adviser İstanbul
9.	Jiri Zeman	International Consultant, NAMA - Azerbaijan Mid Term Review
10.	Andreas Karner	Consultant, Involved in design of the NAMA – Azerbaijan project

List of documents reviewed

I. Project Doc & MTR & SC Meetings

1. Project Document, November 2014
2. Mid Term Review, December 2017

Steering Committee meetings Minutes:

3. 28 December 2015
4. 14 June 2016
5. 25 July 2016
6. 19 April 2017
7. 13 September 2017
8. 17 July 2018
9. 24 October 2018
10. 26 August 2019

II. Project Finance

11. AWP NAMA July 2015
12. Budget revised July 2015
13. AWP NAMA January 2016
14. Budget revised July 2016

15. AWP NAMA November 2016
16. Budget revised November 2016
17. AWP NAMA March 2017
18. Budget revised March 2017
19. AWP NAMA April 2018
20. Budget revised April 2018
21. AWP NAMA December 2018
22. Budget revised December 2018
23. AWP NAMA February 2019
24. Budget revised January 2019
25. AWP NAMA amendment October 2019
26. Budget revised October 2019
27. AWP NAMA February 2020
28. Budget revised January 2020

III. Project reporting

29. Project Implementation Review (PIR), 2017
30. Project Implementation Review (PIR), 2018
31. Project Implementation Review (PIR), 2019
32. Project Implementation Review (PIR), 2020
33. Project Inception Report, June, 2016
34. Mid-Term Progress Report presentation. October 2018
35. Inception report, Associated Gas Capturing at Siyazan Oilfield, June 2017
36. Deliverable 1 , Baseline GHG emissions from SOCAR Vehicle Fleet, August 2016
37. INCEPTION REPORT, Energy Efficiency in Buildings, May 2016
38. Pre-Energy Audit Report: SOCAR Eco Park Administrative Building, August 2016
39. Pre-Energy Audit Report: SOCAR Eco Park ECO Centre , August 2016
40. Pre-Energy Audit Report : SOCAR Ethylene – Propylene Plant, Administrative Building , August 2016
41. Pre-Energy Audit Report : SOCAR Waste Centre, Household Building , August 2016
42. Pre-Energy Audit Report: SOCAR Waste Centre, Laboratory and Canteen building , August 2016
43. Post-Energy Audit Report: SOCAR Eco Park Administrative Building, September 2019
44. Post-Energy Audit Report: SOCAR Eco Park ECO Centre, September 2019
45. Post-Energy Audit Report: SOCAR Ethylene – Propylene Plant, Administrative Building, September 2019
46. Post-Energy Audit Report: SOCAR Waste Centre, Household Building , September 2019
47. Post-Energy Audit Report: SOCAR Waste Centre, Laboratory and Canteen building , September 2019

IV. UNDP CO Doc

48. Initiation plan, December, 2013
49. Local Project Appraisal Committee Meeting Minutes, May 2013
50. Total Budget and Workplan 1, April 2013
51. Project Preparation Grant , May 2013

52. Project Field Trip Report :Trip to SOCAR's Ecopark on Apsheron, July, 2013
53. Project Document Checklist, June 2013
54. Minutes of the Local Project Appraisal Committee Meeting, November, 2014
55. Approved NAMA Project Document Signed bu SOCAR and UNDP. March, 2015.
56. Project final approval document, March, 2015
57. Proposed by SOCAR List Pilot EE projects, February, 2016
58. Appointment of Orkhan Akbarov as Project Director, May 2015
59. Appointment of Rovshan Fatullayev as Project Director, September, 2016

V. Other

60. Letter of Intent signed on 11.07.2019 between Ministry of Energy of the Republic of Azerbaijan and the United Nations Development Programme (UNDP) on cooperation on sustainable energy issues (EE, RE GHG emission reduction)
61. List of Workshops and training provided
62. Various materials (including presentations, video and photo files) about public awareness events, workshops and trainings provided.

ANNEX V: PROJECT'S RESULTS FRAMEWORK

	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
Project Objective To support the development, implementation and monitoring of NAMAs in the low-carbon end-use sector, in order to build upon a strong national commitment for the reducing the energy demand of oil & gas end use sectors	Number of NAMAs in energy end-use sectors implemented	No strategic programme in place that prioritises EE and RE requirements	3 NAMAs implemented by the end of the project	• National NAMA registry	**Assumptions:** – Government is focussing its legal and policy framework to align with international best-practice in energy efficiency and renewable energy – National efforts on institutional level to mitigate the effects of GHG emissions in oil & gas end-use and production sectors are being strengthened. – SOCAR is implementing its Climate Change strategy to get engaged in energy efficiency and renewable energy investments. **Risks:** – The lack of proper energy efficiency and renewable energy legislation and policy measures (strategies, actions plans, monitoring activities) maintains within the country framework – The Government does not commit adequate resources and funding support to sustain project investments in energy efficiency and renewables. – SOCAR does not commit adequate resources and funding support to sustain the maintenance of project investments during, and beyond the term of, the project.
	Direct and indirect GHG emission reduction and energy savings facilitated by the project	0	Total lifetime direct GHG emission reductions of about 0.56 mln. t CO_{2eq} Total lifetime indirect GHG emission reductions of 6.24 mln. t CO_{2eq} Total lifetime energy saved approx. 200,000 toe	• GHG emissions growth reduced as result of activities implemented under NAMAs • Projects will be monitored using specific MRV methods	
	Co-financing leveraged for implementation of prioritized NAMAs	0	30,000,000 US$	• NAMA implementation report	

	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
Outcome 1: Assessment of GHG emission mitigation potentials and target setting completed	**Outputs:** 1.1 Relevant barriers that hinder the development and implementation of GHG mitigation measures assessed 1.2 Main oil & gas end-use sectors regarding status of energy performance and potential for decreasing energy intensity are analysed" 1.3 Detailed marginal abatement cost curves for the oil & gas end-use sectors developed to demonstrate effective mitigation policies and economic scenarios 1.4 Awareness among governmental institutions increased and the development of a national replication strategy supported 1.5 Voluntary emission reduction targets in the oil & gas end-use sectors are established and validated				
	Sub-sector voluntary GHG emission reduction targets established	Lack of governmental planning and target setting for energy and carbon intensive sub-sectors prevailing	Voluntary GHG emission reduction targets to be defined at least for main sub-sectors: • Residential/Housing • Transport • Energy Production	• National Climate Strategy in place • Sub-sectoral targets for short-, medium- and long-term • Action Plans for GHG mitigation (min. 3-5 years ahead)	**Assumptions:** – Overall system of Azerbaijan's energy efficiency and renewable energy policy is still in its early stages of its rationalization and implementation – lacking appropriate national data and information basis target setting mechanisms for EE and RE – GHG mitigation measures are to be effectively tackled (at mitigation costs < USD 25/t CO_{2eq}) **Risks:** – Lack of proper energy efficiency and renewable energy legislation and policy measures (strategies, actions plans, monitoring activities) within the country framework – underestimation of available potentials for GHG mitigation No national replication of measures as result of NAMA project implementation
	Marginal abatement costs curves for oil & gas end-use sectors defined	No detailed economic reviews and scenarios that compare the effectiveness of GHG mitigation technologies and	Develop detailed marginal abatement cost curves for the oil & gas end-use sectors to demonstrate effective mitigation policies and economic scenarios and under which conditions GHG mitigation could be effectively realised: margin < USD25/tCO2eq	• Technology reviews and documents • Economic assessments and scenarios • Comparison of MAC with international best-practice • Progress Report Outcome 1	
Outcome 2 NAMAs in oil & gas end-use sectors developed	**Outputs:** 2.1 Three designed programmes for the implementation of selected prioritized feasible NAMAs in main oil & gas end-use sub-sectors 2.2 Fully capable and qualified private and public sector entities in the design and implementation of NAMAs 2.3 Defined and established financial instruments mitigation actions in the oil & gas end-use sectors				

	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
	Sectors for prioritized and feasible NAMAs are identified and selected	GHG mitigation activities are subject to increased governmental focus. Without proper strategies and framework in place there is no proper focus established	By end year 2: Feasibility of at least 3 NAMAs in selected oil & gas end-use sectors is identified: • Targeting to significant deviation from baseline emissions • Comprehensive programme to be implemented	• 3 feasibility studies for NAMA sectors available • Stakeholder workshops implemented • Specific NAMA criteria for selection in place	**Assumptions:** – NAMAs are facilitating transformation to low carbon low energy pathways – NAMA Programmatic approach will support replicability on the national level – SOCAR can contribute as a relevant actor on the Azeri market to substantial GHG emission reductions in key energy end-use sectors **Risks:** – SOCAR does not commit adequate resources and commitment during NAMA project design – NAMA implementation strategy for selected energy end-use sub-sectors is abandoned – Lack of stakeholder commitment hinders the development of sector-specific GHG mitigation programmes
Outcome 3: NAMAs in the oil & gas end-use sector implemented	**Outputs:** 3.1 Potential NAMA 1: SOCAR's Green Building Programme implemented 3.2 Potential NAMA 2: Sustainable Transport at SOCAR implemented 3.3 Potential NAMA 3: SOCAR's Associated Gas Capturing Programme implemented				
	SOCAR's Green Building Programme is implemented and replicated	No strategic programme in place that prioritises EE and RE requirements of buildings constructed within SOCAR	• By end of project: Implementation of an investment programme to cover 2-3 demonstration building new constructions and/or refurbishments using improved design and EE & RE technologies for commercial and/or residential buildings	• Direct (10,500 t CO_{2eq}) & Indirect (1.29 mln t CO_{2eq}) lifetime emission reductions from project activities (pilot investments, about 8,000 m² useful area) • Target energy consumption of new/refurbished buildings at least 50% below baseline	**Assumptions:** – NAMA Programme is based on identified project opportunities in 3 energy end-use sectors, having high impact for replication – List of project ideas is based on SOCAR's corporate development and CC Mitigation Strategy

	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
			• Green building certifications for 2-3 demo projects available • Integrated building design approach applied to new/refurbished buildings and approx. 80-100 architects/designers trained	• Monitoring energy performance of demo buildings • Information campaign on EE buildings implemented by SOCAR targeted on designers/architects	– International best-practice in building EE, **Risks:** – NAMA Projects do not materialize as planned – SOCAR does not commit adequate financial and personal resources during NAMA project implementation – NAMA Projects do not result in replicable activities due to lack of technical, economical or organisational feasibility
	SOCAR's Sustainable Transport Initiative implemented and replicated	There are no measures to address fuel economy or efficient/alternative technologies for vehicles in place	• Implementation of 25 pilot investments in new alternative fuel sources or vehicles with improved emission standards by end of project • Development of a sustainable fleet management programme to optimize SOCAR's vehicle fleet and intra-company transportation logistics within 5 years after project end • Training programme on eco-driving practices initiated and delivered by project end	• Direct (1,600 t CO_{2eq}) & Indirect (9,700 t CO_{2eq}) lifetime emission reductions from project activities (pilot investments) • Monitoring results of demo investments and fleet management practices • Minimum 10 of SOCAR's vehicle fleet switched to alternative fuel sources • Minimum 200 of SOCAR's light vehicles and 500 of heavy vehicles drivers trained on eco-driving practices and leading to estimated 10-15% fuel saving 5 years after project end	
	SOCAR's associated gas capturing programme implemented and nearby villages supplied with natural gas, to avoid significantly methane emissions at SOCAR's oil & gas production units.	About 21 mln m^3 of methane/year are evaporating from Siyazanneft oil & gas field; nearby villages are having problems with low-quality heating	• By end of project, SOCAR's gas capturing programme will be combined with a pilot programme to connect about 600 households from 12 nearby villages to a clean and safe gas network • Improved technologies introduced at SOCAR for gas capturing	• Direct (0.55 mln t CO_{2eq}) & Indirect (4.94 mln t CO_{2eq}) lifetime emission reductions from project activities (pilot investments) • Approx. 600 households/local businesses connected to gas network • Monitoring GHG benefits of demonstration activities	

	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
			• Monitoring of GHG emission reductions will be integrated into SOCAR's GHG Inventory by project end • Afforestation programme initiated by SOCAR to mitigate loss of village forests by end of project	• Progress Report Outcome 3	
Outcome 4 MRV system and national registry for mitigation actions in the energy generation and end-use sectors developed	**Outputs:** 4.3 Defined and established sectoral and subsectoral reference baselines for oil & gas end-use sector sectors 4.4 Established sub-sectoral GHG inventories for key oil & gas end-use sub-sectors 4.3 Established and operational national registry mechanism for mitigation actions in the oil & gas end-use sectors				
	Regular GHG Inventory conducted	Poor institutional capacity and support to develop proper GHG inventories based on lack of appropriate legal & policy framework to enhance low energy low carbon strategies	By end of project, GHG inventories will be annually available and to benefit from a stronger data quality	• Annual GHG inventories developed • Peer reviews organised during Project • Progress Report Outcome 4	**Assumptions:** – MRV requirements are to be introduced based on international standards and experience (e.g UNFCCC) – All NAMAs require the MRV mechanism to be applied accordingly – Lack of technical capacity to apply specific MRV methodologies or implement internal processes to ensure data quality; – Data collection mechanism and institutionalisation will be in line with activities under component 1 **Risks:** – Lack or resistance of institutional co-operation maintained – Lack of availability of proper data for MRV or GHG Inventory development
	National registry mechanism for implemented NAMAs in place	Lack of institutional capacity to monitor GHG mitigation activities	NAMA reporting at national level through a domestic mitigation registry implemented by end year 3 will ensure compliance with international MRV requirements	• National registry institutionalised • Web-based registry of each NAMA at UNFCCC • Progress Report Outcome 4	
	Mechanism to validate GHG emission reduction targets in place	Without accurate databases the GHG targets setting mechanisms are weak and without strong backing	MRV Guideline for AZB developed by the end of the project to validate new baseline scenarios/GHG emission reduction targets against actual emission reduction achievements	• Continuous monitoring of NAMA implementation • Specific benchmarks for GHG mitigation targets monitored and achieved • Progress Report Outcome 4	
	Training & capacity building programme for	Governmental institutions involved in data collection,	A series of specific training & capacity building programmes	• Training materials • Inventory manuals	

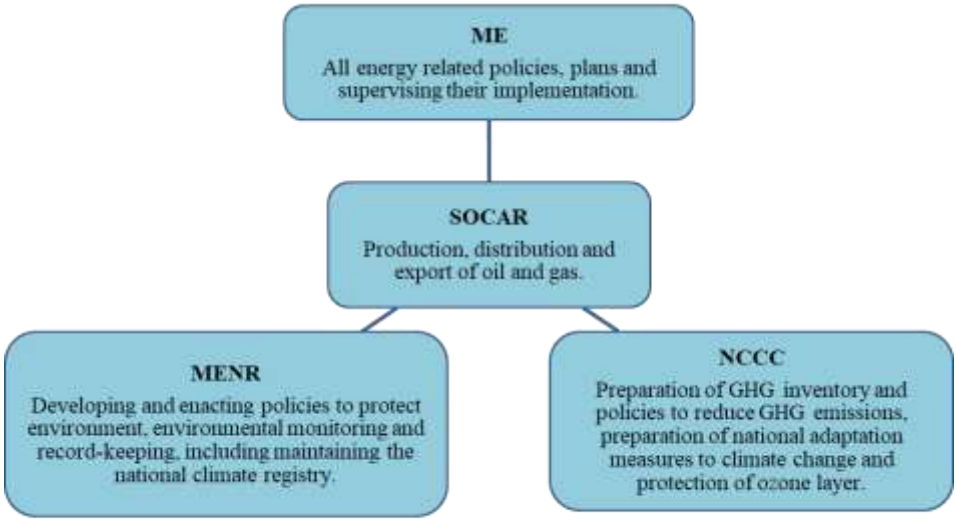
	Indicator	Baseline	Target/s (End of Project)	Source of verification	Risks and Assumptions
	national institutions implemented	statistical analysis and planning do have own methods in place, without proper exchange and review mechanisms available	will be implemented by end of project (minimum 5 trainings): • Improvement of Statistical database • Sectoral baselines • GHG Inventory Methodologies	• Database of GHG emissions • Compatibility with IPCC 2006 Revised Guidelines • Progress Report Outcome 4	– NAMA implementation is not enough bound to deliver replication potentials on national level
	Replication strategy for different mitigation measures in energy end-use sectors developed	Only basic awareness raising and information activities provided on energy end-use and carbon mitigation activities	Lessons-learned about implemented NAMAs are disseminated and published by the end of the project; SOCAR to replicate project results within implementation of company's Climate Mitigation Strategy and up to 10 years after project end	• Sector-specific best-practice cases • Publications • Media coverage • Follow-up investments initiated by SOCAR to multiply lessons-learned in pilot NAMAs	

ANNEX VI: ANALYSIS OF PROJECT'S RESULTS FRAMEWORK

Indicator	Target/s (End of Project)	S	M	A	R	T
Number of NAMAs in energy end-use sectors implemented	3 NAMAs implemented by the end of the project	√	X	√	√	√
Direct and indirect GHG emission reduction and energy savings facilitated by the project	Total lifetime direct GHG emission reductions of about 0.56 mln. t CO_{2eq} Total lifetime indirect GHG emission reductions of 6.24 mln. t CO_{2eq} Total lifetime energy saved approx. 200,000 toe	X	√	X	X	X
Co-financing leveraged for implementation of prioritized NAMAs	30,000,000 US$	√	√	√	√	√
Sub-sector voluntary GHG emission reduction targets established	Voluntary GHG emission reduction targets to be defined at least for main sub-sectors: • Residential/Housing • Transport • Energy Production	X	X	X	√	√
Marginal abatement costs curves for oil & gas end-use sectors defined	Develop detailed marginal abatement cost curves for the oil & gas end-use sectors to demonstrate effective mitigation policies and economic scenarios and under which conditions GHG mitigation could be effectively realised: margin < USD25/tCO2eq	√	√	√	√	√
Sectors for prioritized and feasible NAMAs are identified and selected	By end year 2: Feasibility of at least 3 NAMAs in selected oil & gas end-use sectors is identified: • Targeting to significant deviation from baseline emissions • Comprehensive programme to be implemented	X	X	√	√	√
SOCAR's Green Building Programme is implemented and replicated	• By end of project: Implementation of an investment programme to cover 2-3 demonstration building new constructions and/or refurbishments using improved design and EE & RE technologies for commercial and/or residential buildings • Green building certifications for 2-3 demo projects available • Integrated building design approach applied to new/refurbished buildings and approx. 80-100 architects/designers trained	X	X	√	√	√
SOCAR's Sustainable Transport Initiative implemented and replicated	• Implementation of 25 pilot investments in new alternative fuel sources or vehicles with improved emission standards by end of project • Development of a sustainable fleet management programme to optimize SOCAR's vehicle fleet and intra-company transportation logistics within 5 years after project end • Training programme on eco-driving practices initiated and delivered by project end	X	X	√	√	√
SOCAR's associated gas capturing programme implemented and nearby villages supplied with natural gas, to avoid significantly methane emissions at SOCAR's oil & gas production units.	• By end of project, SOCAR's gas capturing programme will be combined with a pilot programme to connect about 600 households from 12 nearby villages to a clean and safe gas network • Improved technologies introduced at SOCAR for gas capturing • Monitoring of GHG emission reductions will be integrated into SOCAR's GHG Inventory by project end	√	√	√	√	√

Indicator	Target/s (End of Project)	S	M	A	R	T
	• Afforestation programme initiated by SOCAR to mitigate loss of village forests by end of project					
Regular GHG Inventory conducted	By end of project, GHG inventories will be annually available and to benefit from a stronger data quality	X	√	√	√	√
National registry mechanism for implemented NAMAs in place	NAMA reporting at national level through a domestic mitigation registry implemented by end year 3 will ensure compliance with international MRV requirements	X	√	√	√	√
Mechanism to validate GHG emission reduction targets in place	MRV Guideline for AZB developed by the end of the project to validate new baseline scenarios/GHG emission reduction targets against actual emission reduction achievements	√	√	√	√	√
Training & capacity building programme for national institutions implemented	A series of specific training & capacity building programmes will be implemented by end of project (minimum 5 trainings): • Improvement of Statistical database • Sectoral baselines • GHG Inventory Methodologies	X	X	√	√	√
Replication strategy for different mitigation measures in energy end-use sectors developed	Lessons-learned about implemented NAMAs are disseminated and published by the end of the project; SOCAR to replicate project results within implementation of company's Climate Mitigation Strategy and up to 10 years after project end	X	√	√	√	√

ANNEX VII: KEY PROJECT STAKEHOLDERS



- **SOCAR** was designated to be the main executing partner of the project. The NAMA programme was seen as a valuable opportunity to develop and implement a large-scale GHG mitigation programme in line with the company's long-term sustainable development strategy, which could be replicated at the national level and thus influence the country's overall GHG emission regime.

- **MENR** was designated to take the lead in implementation of components 1 and 4 and ensure coordination with the UNDP-GEF project on preparation of the 3rd National Communication and Biennial Update Report.

- **NCCC** was envisaged to be involved in outcomes 1, 2 and 4, and in particular ensure complementarities and coordination between the activities of the NAMA project and the preparation of national communications and the maintenance of the GHG inventory.

- **MoE** was envisaged to be a key counterpart in the development of policy instruments for NAMA implementation in light of its overall mandate in the energy sector.

ANNEX VIII: WORKSHOPS AND TRAININGS CONDUCTED BY THE PROJECT

Workshops/Conferences		
DATE	**TITLE**	**PARTICIPANTS**
2016-03-03	NAMA Launch Event	around 100
2018-03-06	The joint UNDP-SOCAR Conference on Opportunities for GHG Emissions Reduction under the NAMA Project	around 80
5-6.12.2018	NAMA Workshop on Awareness raising and knowledge-sharing on effective policies and programmes in implementation of Energy Efficiency measures in energy end-use sectors	86 first day, 65 second day
2020-08-25	NAMA Webinar on EE Awareness raising in buildings and transport	71

TRAININGS			
International Consultant on EE Green Building has conducted the trainings:			
	DATE	**TITLE**	**PARTICIPANTS**
1	2017-04-20	EE in Green Buildings	60 engineers and technical staff of construction department of SOCAR
2	May-18	Energy saving in administrative buildings	respectively 40 and 55 people from SOCAR and other government institutions
3	September 2018		
4	June 2019	Green Buildings design and energy savings	30 and 45 engineers and technical staff of construction department of SOCAR.
5	October 2019		

International Consultant on Sustainable Transport has conducted the trainings:			
Indoor trainings:			
1	2017-04-10	Alternative fuels and vehicles: current international experience,	55 specialists from SOCAR transport department
2	5-9.03.2018	Training on Fleet management	40 specialists from SOCAR transport department
3	June 2019	Development of transportation online management system	37 specialists from SOCAR transport department
Outdoor trainings:			
4	June 2019	Two outdoor trainings on sustainable transport and Eco driving	total number of participants 52
5	December 2019		
6	Since early 2019 up to date	Ongoing Eco-driving training, 1,350 driver and specialists and the representatives of other governmental institutions	
International Consultant on Gas Capturing has conducted the trainings:			
1	June 2018	Potential of using associated gas	20 staff of SOCAR
International Consultant on MRV has conducted the trainings:			
1	11-14 October, 2017	Monitoring, Reporting, Verification (MRV) issues in the framework of UNDP / GEF and Government of the Republic of Azerbaijan (SOCAR) NAMA project	23 staff of SOCAR
2	December of 2018	Corporate and NAMA MRV Systems in SOCAR	20 staff of SOCAR

ANNEX X: CO-FINANCING CONFIRMATION LETTER BY SOCAR

Unofficial translation

SOCAR20100002085001176 2X00071

121
16 December 2020
Baku

President of SOCAR
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AZ 1029, Azerbaijan,

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Alessandro Fracassetti
UNDP Azerbaijan Resident Representative

On Replication projects

Dear Alessandro Fracassetti,

As you know the United Nations Development Programme (UNDP) and State Oil Company of Azerbaijan Republic (SOCAR) have been successfully implementing the "Nationally Appropriate Mitigation Actions (NAMAs) for low-carbon end-use sectors in Azerbaijan" (NAMA) project. During the period of project implementation SOCAR in its turn has also realized numerous similar projects on provision of energy efficiency in buildings, capturing of associated gas vented from wells and pipelines. In particular, energy efficient industrial water cleaning system in Azerkimya PU was reestablished, energy efficient equipments and LED lamps were installed in many administrative buildings. In addition, 18 old buildings and facilities were repaired using energy efficient isolation materials, new administrative building of SOCAR Neftgaztikinti Trest was constructed using modern technologies, new gas supply equipments were installed by Azerigaz PU, and pipelines were repaired.

SOCAR has invested 42 502 058 USD for the abovementioned projects.

Attachment: Information about the project 1 page

Yours sincerely,

Ms. Rafiga Huseynzade

SOCAR Vice-president on Ecology

No	Co-financed Activity	Amount of Co-financing, USD
Green Building and Gas Capturing Components		
1	Construction of water treatment system, installation of EE technologies, installation of equipment and refurbishment of outdated facilities, refurbishment operations, installing of LED energy efficient lights in 18 administrative buildings and production sites, replacing of Incandescent lamps by energy efficient lamps including LED lights, construction of the new administrative building of the Neftgaztikinti Trust with the application of energy efficient technologies, installation of equipment for gas supply and refurbishment of outdated facilities for pipelines.	**42 502 058**
Total		**42 502 058**

ANNEX XI: ESTIMATION OF GHG EMISSION REDUCTIONS

Table 16: Summary of DIRECT GHG Reductions due to Pilot Projects

Name of the Component	Target in Pro DOC	Actual Reduction Achievement	Percentage Achievement
	tCO2eq / 25 years	tCO2eq / 25 years	%
APG Capture	594,044	567,404	96%
Transport	1,593	2,110	132%
Buildings	10,500	10,787	103%
Total	606,137	580,301	96%

Table 17: BUILDINGS: Comparison of Targets of DIRECT GHG Reduction as given in ProDoc with Actual Achievement

Direct Emission Reductions from Buildings	Area (m2)	Baseline energy use (MWh/m2/year)	GEF energy use target per m2 (MWh/m2/year)	Annual energy saving (MWh)	CO2 Emission Factor (tCO2eq/MWh)	Annual Direct Emission Reduction (tCOeq/year)	Total Targeted Direct Lifetime (25 years) Emission Reduction (tCO2e)	
Target as given in the Pro Doc.	8000	0.3	0.15	1200	0.350	420	10500	
Target revision based on actual data based on pre- and post-energy-audits	9850	0.3	0.15	1477.5	0.292	431	**10787**	103%

Direct Emission Reductions from Buildings	Area (m2)	Annual Electrical Energy Consumed (MWh)		Annual Heat Energy Consumed (MWh)		Total Annual Energy Use After Retrofit (MWh/year)	Total Annual Energy Use Before Retrofit (MWh/year)	Actual Annual Energy Use per m2 after retrofits (MWh/m2/year)
Actual Achieved (see MTR Report by Jeri Zaman)	9850	Before Retrofit	After Retrofit	Before Retrofit	After Retrofit	633.3	1090.4	0.06
		299.3	247.3	791.1	386.0			

Emission Factor for Electricity (tCOeq/MWh)	Emission Factor for Gas (tCOeq/MWh)	Total Annual Emissions (tCO2eq)		Annual Reduction in Emissions (tCOeq/year)			Total Direct Lifetime (25 years) GHG Emission Reduction (tCO2e)
		Before Retrofit	After Retrofit	From Electricity	From Gas	Total	
0.530	0.202	318	209	28	82	109	2735

Table 18: TRANSPORT: Comparison of Targets of DIRECT GHG Reduction as given in ProDoc with Actual Achievement

Key assumptions:
10 Years of Service 2.35 kg CO2/liter gasoline 2.68 kg CO2/liter of gasoil

Type of vehicle	**Nb of vehicles/ Nb of drivers**	**Fuel baseline l/100 km**	**Project fuel consump l/100 km**	**Fuel saving l/100 km**	**Vehicle mileage km/year**	**Fuel saved l/year**	**t CO2eq**
Vehicle technology shift							
Auris	3	10.2	5.6	4.6	25000	3450	81.1
RAV	2	11.2	7.7	3.5	20000	1400	32.9
Efficient driving practices (on-road training)							
Cars	29	11.6	9.5	2.1	36110	21991.0	516.8
Trucks	30	40.4	38.7	1.7	45357	23132.1	619.9
Buses	31	25.2	23.3	1.9	37940	22346.7	598.9
						Sub-total	**1849.6**
Efficient driving practices (simulator)							
Trucks	63	40.4	38.7	1.7	45357	48577.3	1301.9
Simulator/on-road training efficiency factor							
20%	260.4					**Total**	**2110**

Table 19: ASSOCIATED PETROLEUM GAS CAPTURE: Comparison of Targets of DIRECT GHG Reduction as given in ProDoc with Actual Achievement

	No. of households	Average HH size m2	Baseline energy demand (MWh)	NG demand Nm3/a	Methane content Nm3/a	Methane Content t/a
	(a)	(b)	c=(a)x(b) x 0.3	(d)=c x 1000/10.25/80%	e=d x 80%	f=e x 0.72 / 1000
Target (as in ProDoc)	600	80	14400	1756098	1404878	1012
Actual Achievement	600	80	14400	1756098	1404878	1012
	Ch4 x 21 GWP tCO2eq/a	**Energy demand (kerosene) MWh**	**CO2 EF tCO2/MWh**	**Baseline GHG Emission tCO2/a**	**Total baseline GHG emissions tCO2eq/a**	**Estimated Emissions over 25 years tCO2eq/a**
	g=f x 21	h=c x 50%	(i)	j= h x i	k= g + j	l= k x 25
Target (as in ProDoc)	21242	7200	0.35	2520	23762	594044
Actual Achievement	21242	7200	0.202	1454	22696	**567404**
					Achievement	**96%**

ANNEX XII: UNDP-GEF TE AUDIT TRAIL