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United Nations Development Programme

Ministry of Agriculture and Environment Protection of Turkmenistan

Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza (GEF Project ID # 9279; UNDP PIMS # 5452)

Mid-Term Review Report

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The Evaluation Team had the support of all the persons that have been interviewed to understand the context in which the Project has been developed, analyze the progress to date of the different activities that have been programmed and elaborate the conclusions and recommendations presented in this report.

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Acronyms and Abbreviations

APPR	-	Annual Project Progress Report
AWP	-	Annual work plan
CDR	-	Combined Delivery report
CIS	-	Commonwealth of Independent States
CO	-	Country Office
CoM	-	Covenant of Mayors
CPAP	-	Country Programme Action Plan
CTA	-	Chief Technical Adviser
EE	-	Energy Efficiency
ESCO	-	Energy Service Company
GEF	-	Global Environment Facility
GHG	-	Greenhouse gases
IFI	-	International Financial Institution
INDC	-	Intended Nationally Determined Contributions
IRH	-	Istanbul Regional Hub (of UNDP)
LED	-	Light-Emitting Diodes
LogFrame	-	Logical Framework (or Project Results Framework – PRF)
LPAC	-	Local Project Appraisal Committee
M & E	-	Monitoring & Evaluation
MAEP	-	Ministry of Agriculture and Environment Protection
MCA	-	Ministry of Construction and Architecture
MoE	-	Ministry of Energy
MoU	-	Memorandum of Understanding
MSW	-	Municipal Solid Waste
MTR	-	Mid-Term Review
MW	-	Megawatt
MWh	-	Megawatt Hour
NDC	-	Nationally Determined Contributions
NGO	-	Non-governmental Organization
NIM	-	National Implementation Modality
NPC	-	National Project Coordinator
PB	-	Project Board

PIF	-	Project Identification Form
PIP	-	Project Implementation Plan
PIR	-	Project Implementation Review
PIU	-	Project Implementation Unit
PM	-	Project Manager
ProDoc	-	Project Document
RES	-	Renewable Energy Sources
RFP	-	Request for Proposal
RTA	-	Regional Technical adviser
SEAP	-	Sustainable Energy Action Plan
SEIT	-	State Energy Institute of Turkmenistan
SESP	-	Social and Environmental Standards Procedure
SNT	-	Building Code of Turkmenistan (Строительные Нормы Туркменистана in Russian)
SUT	-	Sustainable Urban Transport
TA	-	Technical assistance
TLTT	-	Technological Losses for Transformation and Transportation
ToR	-	Terms of Reference
TT	-	Tracking Tool
TUIE	-	Union of Industrialists and Entrepreneurs of Turkmenistan
UNDAF	-	United Nations Development Assistance Framework
UNDP	-	United Nations Development Programme
UNEP	-	United Nations Environment Programme
UNFCCC	-	United Nations Framework Convention on Climate Change

Units

kV	-	Kilovolt
kWh	-	Kilowatt-hour = 3,600 kilojoules (KJ) = 3.6 megajoules (MJ)
MWh	-	Megawatt-hour = 1,000 kWh
TJ	-	Terajoule = 278 MWh

1. Executive Summary

1.1. Project Information Table

Project title:	Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza		
UNDP Project ID (PIMS #)	5452	PIF Approval Date:	09 June 2016
GEF Project ID (PMIS #)	9279	CEO Endorsement Date:	20 September 2017
ATLAS Business Unit, Award # Proj. ID:	00081872	ProDoc Signature Date (date project began):	11 June 2018
Country:	Turkmenistan	Date Project Manager hired:	July 2018
Region:	Central Asia	Inception Workshop date:	25 September 2018
Focal Area:	Climate Change	Midterm Review Completion Date:	July 2021
GEF Focal Area Strategic Objective:	CC 2: Demonstrate Systemic Impacts of Mitigation Options *(Program 3: Promote Integrated Low-Emission Urban Systems)*	Planned Operational Closure Date:	11 June 2024 with recommendation to extend 1 more year
Trust Fund:	GEF Trust Fund	If revised, proposed op. closing date:	11 June 2025
Implementing Partner (GEF Executing Entity):	Ministry of Agriculture and Environment Protection		
Other execution partners:	N/A		
NGOs/CBOs involvement	Nature Conservation Society of Turkmenistan		
Private sector involvement			
Geospatial coordinates of project sites			
Financial Information			
PDF/PPG	At approval (US$)	At PPG completion (US$)	
GEF PPG grants for project preparation	120,000.00 USD		
Co-financing for project preparation			
Project Financing	at CEO endorsement (US$)	at Midterm Review (US$)	At Terminal Eval. (US$)
[1] GEF financing:	6,060,046.00		
[2] UNDP contribution:	100,000.00		
[3] Government:	57,000.000		
[4] Other parties:	N/A		
[5] Total co-financing [2+3+4]	63,160,046.00		
PROJECT TOTAL COSTS [1+5]	63,160,046.00		

1.2. Project Description

The development objective of this Sustainable Cities project is to promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits. According to the Project document, several results (outcomes, outputs) will be achieved in Ashgabat, Awaza, and other cities across Turkmenistan, and among them:

- Improved capacities and enabling conditions in Ashgabat and Avaza to identify, design and implement integrated low-carbon and climate-resilient solutions;
- Reduction of GHG emissions and other negative environmental impacts;
- Nationwide replication and scaling-up of results of first project two components, enhancement of capacity of agencies and managers, and adoption of policies and regulation.

These outcomes and outputs were planned to be achieved through the implementation of three Project components. Component 1 is focused on Ashgabat, Component 2 on Avaza, and Component 3 is seeking scale-up via policy and regulations at the national and municipal level throughout Turkmenistan.

Component 1: Sustainable urban development in Ashgabat is designed to achieve two targeted outcomes and four outputs:

Outcome 1.A: Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space

Outcome 1.B: Reduced GHG emissions and other negative environmental impact through interventions involving public spaces and infrastructure

Output 1.1: Energy-efficient public lighting implemented in Ashgabat, with technical justification prepared for replication

Output 1.2: Sustainable urban transport solutions in Ashgabat developed and applied

Output 1.3: Waste volumes reduced, and recycling expanded in Ashgabat

Output 1.4. City-wide sustainability plans developed and approved

The implementation of **Component 2: Sustainable Tourism Infrastructure and Management Practices in Awaza** also will lead to achieving two outcomes and four outputs:

Outcome 2.1: Improved capacities and enabling conditions in Awaza for integrated low-carbon and climate-resilient tourism development

Outcome 2.2: Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Awaza

Output 2.1. Practices to reduce energy consumption, water use, and waste implemented by hotels in Awaza

Output 2.2: Demonstration and replication of solar-powered public lighting

Output 2.3: Optimally efficient surface transportation implemented in Awaza

Output 2.4: Managerial and technical capacity of planners, officials, and facility managers in Awaza enhanced via training

The implementation of **Component 3: Municipal and National Policy** will lead to achieving one outcome and two outputs:

Outcome 3: Nationwide replication and scaling-up of results of first two components via information dissemination, enhancement of capacity of agencies and managers, and adoption of policies and regulation

Output 3.1: National policies developed and adopted in support of integrated and scaled-up green urban practices, supported by capacity enhancement for responsible agencies and individuals

Output 3.2: National incentives and standards adopted for fuel efficiency of imported cars

1.3. Project Progress Summary

The progress is summarized below.

Component 1: Sustainable urban development in Ashgabat

Tangible results have been achieved in reducing energy consumption and related GHG emissions from street lighting in Ashgabat and Awaza. Within the framework of the Project, the existing technical conditions of street lighting systems in Ashgabat and Awaza were studied. Based on the study, it was proposed to install LED lamps in street lighting systems and reconstruct electrical networks in order to reduce technical losses. The Ministry of Energy accepted this proposal and implemented measures (the Sustainable Cities project provided technical assistance), which resulted in:

- Reduction of electricity consumption in Ashgabat by 578 MWh in 2019; 94,869 MWh in 2020; and 80,902 MWh in 6 months of 2021. In Awaza cumulative energy savings reached 15,252 MWh. The mid-term target for this sector has been exceeded by more than 60 times. The main reason was very high losses before the implementation.
- GHG reductions: 724 tCO2 in 2019 (including 326 tCO2in Ashgabat and 398 tCO2 in Awaza); 58,897 tCO2 in 2020 (53,498 tCO2 and 5,399 tCO2); 48,426 tCO2 (45,622 tCO2 and 2,804 tCO2) in January-June 2021. The mid-term target for all sectors has been achieved by 135%. Before the end of the Project the GHG reduction, due to the already implemented measures, will reach 475,000 tCO2, i.e. end-of-project target will be achieved by 130%.

In Ashgabat, the practice of collecting recyclable wastes with subsequent processing has been introduced. The Sustainable Cities project purchased and installed 120 metal containers for collecting plastic waste. More than 35 tons of plastic waste have been collected and then processed by the private company. It is expected that this practice will be continued in a sustainable way (the interest of the municipality and the participation of highly motivated private companies were secured - critical factors for sustainability).

Little has been achieved in the transition to sustainable transport (by reducing the use of private cars and using public or non-fuel modes of transport instead).

Component 2: Sustainable Tourism Infrastructure and Management Practices in Awaza

The implementation of activities under this component was seriously affected by the restrictions introduced in the country in connection with the COVID-19 pandemic. Methodology to execute energy audit in hotels developed, necessary equipment purchased. However, due to COVID-19-related travel restrictions, Awaza hotels were closed, and energy audit was executed in Ashgabat, in hotel Grand Turkmen. Implementation of measures recommended by the energy audit is not completed yet.

National consultant studied best international practices and the current practice of using green standards in Avaza hotels. In addition, about 10 outreach materials on green hotels have been prepared.

No solar-powered charging station has been installed in Awaza.

Component 3: Municipal and National Policy

Fuel economy standards and incentives for passenger vehicles are not developed because of the lack of cooperation with the Agency TurkmenAvtoTransport.

Upon request of the Government of Turkmenistan, the Sustainable Cities project has developed the following legal/policy documents:

- New Law of Turkmenistan "On Renewable Energy Sources (adopted by the Parliament on March 13, 2021);
- National Strategy of Turkmenistan on Development the Renewable Energy till 2030 (approved by the Decree of the President of Turkmenistan on December 4, 2020);
- New Law of Turkmenistan "On Energy Efficiency" (under the discussion in the Parliament);
- National Strategy of Turkmenistan on Waste Management (a draft has been developed);
- A number of by-laws on energy efficiency, renewable energy, waste management, air pollution control.

1.4. MTR Ratings & Achievement Summary Table

Table 1: Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Midterm Level & Assessment	Achieve-ment Rating
OBJECTIVE: To promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits	**Indicator 1:** Reduction in GHG emissions from transport, public lighting, and hotel management, relative to baseline **Assessment:** 724 tCO2 in 2019; 58,897 tCO2 in 2020; 48,426 tCO2 in January-June 2021. Before the end of the Project the GHG reduction, due to the already implemented measures, will reach 475,000 tCO2, i.e. end-of-project target will be achieved by 130%.	S
	Indicator 2: Reduction in energy consumption from transport, public lighting, and hotel management, relative to baseline **Assessment:** Energy consumption in Ashgabat has been reduced by 176,349 MWh (635 TJ); in Awaza by 15,252 MWh (55 TJ). In total, energy savings due to the implemented activities amount to 690 TJ	MS
	Indicator 3: Number of direct individual and institutional participants (including both women and men) in project-led initiatives on alternative transport, pilot waste sorting and reduction, and green hotel management **Assessment:** The end-of-project target has already been exceeded	MS
OUTCOME 1.1: Improved capacities and enabling	[redacted]	MU

Project Strategy	Midterm Level & Assessment	Achieve-ment Rating
conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space **OUTCOME 1.2: GHG emissions** and other negative environmental impact through interventions involving public spaces and infrastructure	[redacted]	
	Indicator 5: Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan **Assessment:** Electricity consumption from public outdoor lighting in Ashgabat has been reduced by 578 MWh in 2019, 94,363 MWh (about 95 million kWh) in 2020, and 80,907 MWh in 6 months of 2021.	HS
	Indicator 6: Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs **Assessment:** In Ashgabat, the practice of collecting recyclable wastes with subsequent processing has been introduced. The Sustainable Cities project purchased and installed 120 metal containers for collecting plastic waste. More than 35 tons of plastic waste have been collected and then processed by the private company.	MS
	Indicator 7: Number of cities of Turkmenistan (and total population therein) that formally adopt sustainability practices in transport, lighting, and waste management **Assessment:** Ashgabat and Awaza adopted sustainability practices in lighting; Ashgabat adopted sustainability practices in waste management	MS
OUTCOME 2.1: Improved capacities and enabling conditions in Awaza for integrated low-carbon and climate resilient tourism development **OUTCOME 2.2:** Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Awaza	**Indicator 8:** Reduction of energy consumption and water consumption in Awaza hotels **Assessment:** Methodology to execute energy audit in hotels developed, necessary equipment purchased Due to COVID-19-related travel restrictions, Awaza hotels were closed, and energy audit was executed in Ashgabat, in hotel Grand Turkmen	MU
	Indicator 9: Adoption and implementation of green hotel management standards by Awaza hotels **Assessment:** National consultant studied best international practices and the current practice of using green standards in Avaza hotels. In addition, about 10 outreach materials on green hotels have been prepared	MU
	[redacted]	MU
OUTCOME 3: Nationwide replication and scaling-up of results of first two components via information dissemination, enhancement of capacity of agencies and	[redacted]	U

Project Strategy	Midterm Level & Assessment	Achieve-ment Rating
managers, and adoption of policies and regulation	[redacted]	
	Indicator 12: Number of citizens reached by public-relations and knowledge-sharing on sustainable urban development **Assessment:** Thousands of people have gained access to information on sustainable urban development through articles in newspaper Neutral Turkmenistan and on the websites of local news agencies. The project actively used also social networks (FB, Instagram) to widespread the knowledge and results achieved Project organised events dedicated to the World Environment Day, with a focus on sustainable urban development. Dozens of awareness raising materials have been prepared (publications, banners, press releases for the media, etc.)	S
OVERAL RATING		**MS**

Indicator Assessment Key | Green= Achieved | Yellow= On target to be achieved | [redacted]

HS – Highly Satisfactory; S - Satisfactory; MS - Moderately Satisfactory; MU - Moderately Unsatisfactory; U – Unsatisfactory; HU – Highly Unsatisfactory.

1.5. Concise summary of conclusions

- The Sustainable Cities project is poorly designed. The design doesn't include barrier analysis; it covers practically all the aspects of urban development. Design flaws stem from the following: (i) the economic feasibility of some of the proposed measures has not been studied; (ii) Project outputs are unbalanced. The predominant share of avoided emissions was expected to be achieved through the achievement of only one outcome (Output 3.2); (iii) Targets for some indicators are set without knowledge of baselines. However, the Sustainable Cities project is still important and relevant.
- There was no activity planned in the ProDoc that specifically and directly aimed to tackle gender inequality as a primary focus, the project sought equal engagement and equal benefits in all implemented activities.
- Design flaws were not adequately addressed during the inception phase (for example, no problem was noted in this regard in the inception report) or during the implementation phases (no baseline studies were carried out to set/revise targets).
- The implementation of the Sustainable Cities project has been seriously affected by restrictions imposed in the country in response to the global COVID-19 pandemic: Progress on energy audits in Awaza has been slow and somewhat problematic; procured equipment was delivered with a significant delay; the transition to online mode also led to a delay in the provision of technical assistance to beneficiaries, as this technical assistance was provided through close cooperation of international

consultants and local experts.

- 3 out of 12 targets have been achieved (coloured in green in Tab. 5), 6 are on target to be achieved (coloured in yellow), and 3 targets related to sustainable transport, are not on target to be achieved (coloured in red).
- End-of-Project co-financing target has been achieved by 80%, and GHG reduction mid-term target by 135% (end-of-project target will be achieved by 130%), as adaptive management was applied to a large extent (innovative technical solutions were proposed; economic attractiveness of the proposed solutions demonstrated; full support of the Ministry of Energy secured), resulting in a sharp decrease in energy losses in street lighting in Ashgabat.
- The rating for project implementation and adaptive management is Moderately Satisfactory (MS).
- The current project team will need to be strengthened to handle the workload required to achieve the project outcomes, given that no progress has been made in the middle of implementation in promoting sustainable transport and sustainable urban planning.
- The project failed to establish effective collaboration with key stakeholders in the area of sustainable transport as well as sustainable urban planning. As a result, their capacities and potential co-financing were not used.

The overall progress towards results at the Project Objective level is rated as Moderately Satisfactory (MS).

1.6. Recommendation Summary Table

#	Recommendation	Entity Responsible
1	**Strengthen the Project Team.** a. Renew/extent the existing contract with the CTA. If the travel restrictions are released, the CTA has to spend about 50% of his time in the country. b. Hire a national consultant to in energy audit of hotels in Awaza. c. Hire a task leader for sustainable transport sub-component. d. Hire a consultant in sustainable urban planning (international or national based on consultations with the Khyakimlik of Ashgabat, and recommendations of CTA). e. Hire a consultant in GHG reductions calculations. His/her duties among others will included development of monitoring plans for pilot projects, as well as user manuals for the implementation of monitoring plans.	PM
2	**Increase the effectiveness of the Project Board.** There is a need to accelerate work on the individual components of the Sustainable Cities project. The main reasons for the lack of progress in these components are: (i) lack of communication with government bodies; and (ii) lack of mechanisms to ensure implementation of PB decisions. The following is	The chairman of the Board/NPC, UNDP RR/DRR

	recommended to correct this situation: a. Increase the frequency of PB meetings (twice a year, at least until full participation of all key stakeholders is ensured) b. The project manager performs the functions of the PB secretary, including: I. The PM will prepare and communicate to the PB members a list of critical issues (quarterly or monthly, depending on urgency). This, in turn, will help the PB to communicate the issue at a higher political level as well as carefully develop the necessary guidance. II. At PB meetings, the PM will present not only achievements and success stories, but also problems, delays, needs for revisions, etc. III. In its decisions, PB will appoint responsible persons (members of the PB, MP, etc.) for implementation. The PM will periodically (bi-weekly, monthly) check the status and inform UNDP CO and National Project Coordinator.	
3	**Provide targeted trainings to the relevant staff of Governmental Agencies, representatives of private companies and public organizations, in best practices to identify, design and implement projects in the fields of sustainable urban planning, street lighting, waste recycling, sustainable transport.** Training programme will consist of general (similar to each category of trainees) and specific parts. For example, training program for governmental representatives may include elements of economic analysis (including consideration of environmental and social benefits), international practices of urban planning; for public sector: overview of advanced technologies, elements of financial (cost-benefit) analysis, etc.	PM, CTA, Project consultants
4	**Intensify studies to determine the baselines, and adjust targets for those indicators baseline levels of which were not available before the start of the Sustainable Cities project** According to Annex J to the ProDoc, "the project will conduct a comprehensive inventory of cars in service in Turkmenistan at the beginning of the project under Activity 1.2.4. This inventory will be used to update both the baseline and alternative scenarios" - This has not been done yet.	PM, CTA, Project consultants
5	**Re-design the implementation strategy for transport-related activities.** The implementation strategy for the transport-related component, will be revised in the following way: a. Proper tire inflation – no activity will be implemented except the information materials disseminated. b. Construction of new bus lanes – no activity to be implemented. c. Construction of new bicycle lanes – (i) integration of bicycle lanes in large urban projects under the development (e.g. "Ashgabat-City", new capital of Akhal province); (ii) development of a concept	PB, NPC, PM, CTA, UNDP CO, RTA

	of municipal bicycling programme (proposal on the necessary infrastructure has already developed by the CTA) when the bicycles and electric scooters owned by the municipality, will be available for rent. d. Design of e-passes, map updates, and a mobile app for riders - no activity to be implemented (mostly already implemented) e. Development of standards and incentives – considering that this activity will have the strongest impact on achievement of targets in the transport sector, as well as the difficulties in establishing cooperation with the Agency TurkmenAvtoTranspot, it is recommended to conduct an analysis of baseline and future opportunities in sustainable transport and/ or e-mobility for Turkmenistan. For this purpose, a consultant (an individual or, preferably, a company) will be hired, the scope of work of which may include: e.1. Development of a baseline scenario for sustainable transport and/or e-mobility (Policy, legal and regulatory framework, future of the fuel-based transport considering projected fuel prices, preparedness of the community members, etc.) e.2. What is needed to move towards in terms of sustainable transport and/or e-mobility by transport categories (public transport; government, municipal and other public fleets; personal vehicles including electric vehicles; micro-mobility, etc). e.3. Recommendations on policy and legislation development (e.g. low carbon transport strategy) e.4. Assessment of non-motorized mobility (bikes, scooters, etc.) potential in Turkmenistan and development of promotional strategies. e.5. Best international practice to promote e-mobility in the Region, in countries with similar to Turkmenistan circumstances; existing mechanisms (global/regional/national e-mobility programmes, etc.) e.6. Identification of possible pilot activities, with high scaling up potential, to be implemented by the Green Cities project in transport sector. f. Solar-power charging stations for electric cars – As a first step, the dynamics of the growth of the number of electric vehicles on the Turkmen market will be studied. Then, the impact of providing infrastructure including sufficient number of charging stations to incentivize drivers to switch to electric vehicles, will be assessed. The above can be a part of the scope of work of Consultant mentioned in Recommendation 3.e. If the study shows the potential of e-mobility in Turkmenistan, at least one charging	

	station (preferably solar-powered) will be installed for electric busses already purchased by the Agency TurkmenAvtoTransport.	
6	**Conduct economic and financial analysis (cost-benefit analysis) for typical waste recycling projects.** The study will be based on the experience of already implemented pilot projects and include economic attractiveness of recycling of municipal solid wastes (plastic, paper, glass, organics). The outreach materials will be prepared for policy makers, businesses, general public. For particular waste categories, in cooperation with the private companies, business model will be developed, marketing campaign will be planned (and possibly implemented)	Project Team
7	**Continue providing technical assistance in development of policy/strategy documents** It is recommended to provide assistance in the development of policy/strategy documents upon the request of the Government. The list of such documents inter alia may include: a. Adoption of a Law on Energy Efficiency b. Development of National strategy on Waste Management c. Development of NDC d. Development of National Renewable Energy Action Plan e. Development of National Energy Efficiency/Energy Savings Action Plan	Project Team
8	**Revise the LogFrame.** The revision of the Project Results Framework (LogFrame) is recommended as follows: a. Add an Indicator: Number of institutions, covered by capacity building activities to identify and design and implement integrated low-carbon and climate-resilient solutions in cities. Corresponding end-of-project target: At least 3 institutions (Ministry of Environment, Ministry of Energy, Agency TurkmenAvtoTransport) and at least 4 cities (municipal utilities/services dealing with public lighting, waste management, public transport): Ashgabat, Awaza and two other cities b. Re-determine targets for those indicators, baseline levels of which were not available before the start of the Sustainable Cities project but were determined during the implementation of the Project. Hire an expert with experience in UNFCC CO2 emissions baseline accounting. c. Establish an indicator and target for Output 2.2: Demonstration and replication of solar-powered public lighting (in Awaza) d. Establish an indicator and target for Output 2.4: Managerial and technical capacity of planners, officials, and facility managers in Awaza enhanced via training	PB, PM, UNDP CO, RTA

9	**Consider assistance to the khyakimlik of Ashgabat in application energy and water saving technologies in construction of new city parks.** According to the Decree signed by the President of Turkmenistan in February 2021, a total of 30 million seedlings of deciduous, coniferous, fruit trees and grapes are to be planted in Turkmenistan in 2021. This practice is likely to continue after 2021. These activities require efficient use of water and energy. The ongoing UNDP / GEF project "Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan" has already tested water and energy saving technologies that can be applied in newly built city parks in Ashgabat. Given that "the development and implementation of integrated water resource management strategies to mitigate climate change and ensure resilience to climate change" is a priority area for GEF-6, it is recommended that assistance be provided to the Ashgabat khyakimlik to improve existing water and energy practices. As a first step, water and energy conservation measures will be identified and a cost-benefit analysis carried out. Based on the results of the analysis, a pilot project can be planned and implemented. This project could be funded by averted costs due to (i) cancellation of measures aimed at proper tire inflation; (ii) installing fewer solar-powered charging stations for electric vehicles	PB, PM, CTA, UNDP CO, RTA
10	**Extend the duration by 12-18 months.** If the duration of the project is extended without increasing the budget (no-cost extension), then it is highly likely that all the project outcomes and outputs will be achieved, including those ones, that are not on track to be achieved. Indeed, no problems are expected with an energy audit followed by the implementation of energy- and water-saving measures in Awaza hotels, if the experience at the Grand Turkmen hotel in Ashgabat demonstrates the feasibility of such measures. The situation is more difficult with sustainable transport. The targets (at least the most important ones in terms of GHG reduction), can only be achieved if Recommendation 5 is followed. Therefore, the extension of the duration will be implemented subject to (i) acceptance (in full) of Recommendation 5; and (ii) available budget.	PB, PM, UNDP CO, RTA

2. Introduction

This Mid-Term Review (MTR) report summarizes the findings of the MTR for the UNDP-GEF full-sized project entitled "Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza" ("Sustainable Cities project") with financing support provided by the Global Environment Facility (GEF). The MTR has been conducted by the MTR Team consisting of the International Consultant, MTR Team Leader and the National Consultant, MTR Team Member (herein referred to as the "Consultants").

2.1. Purpose of the MTR and objectives

The purpose of the MTR of this Sustainable Cities project is to assess the progress towards the achievement of the project objectives and outcomes as specified in the Project Document (), whether it is on track to its stated objective - to promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing greenhouse gas (GHG) emissions and creating other environmental, social, and economic development benefits. The MTR serves as a tool for assessment of the success or failure of the Project and identification of the necessary changes to be made in order to enhance the likelihood of achievement of the Project objectives and intended results by the end of the Project.

The main output of the review shall be specific recommendations for adaptive management to improve the project over the second half of its lifetime.

2.2. Scope & Methodology: principles of design and execution of the MTR, MTR approach and data collection methods, limitations to the MTR

The Consultants have developed a methodology for execution of MTR in accordance with the Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects[1], according to which the MTR among others shall include a review of:

- Project strategy (Project design, Project planning matrix, use of SMART[2] indicators and targets);
- Progress towards the Project objective and outcomes;
- Project implementation and adaptive management; and
- Sustainability.

The MTR Team (Consultants) very carefully studied the ToR, especially requirements set towards the MTR Approach and Methodology, Scope of Work and identified Deliverables. The proposed approach is based on the clear understanding of the task and ways of its addressing. The main elements of the approach were as follows:

- The scope of the MTR covered the entire Project and its components;

[1] http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf

[2] Specific, Measurable, Achievable, Relevant and Time-Bound

- The MTR assessed the implementation of the Sustainable Cities project, taking into account the status of: (i) implementation of planned activities; (ii) achievement of the objective, outcomes and outputs; and (iii) the resource disbursements;
- Close cooperation was established between the MTR Team leader and MTR team member from the very beginning. Permanent communication was established between the MTR Team (Consultant) and the Sustainable Cities project Team. The Consultants established communication also with the UNDP Country Office in Turkmenistan and Regional Technical Advisor (RTA);
- The MTR is based on the analysis of documents (PIF, ProDoc, Inception Report, PIRs, AWPs, CDRs, Minutes of Board Meetings, technical reports, etc.) and online interviews of stakeholders (due to the COVID-19 related travel restrictions, MTR mission to Turkmenistan hasn't been organized), as well as the evidenced information from other sources, which was cross-checked against the consistency; hence the information presented in MTR be credible and reliable. Additionally, the team conducted a literature review of other relevant projects in Turkmenistan and CIS;
- Initial list of stakeholders to be interviewed has been prepared based on desk study and then adjusted based on the communication with the Project Team;
- The interviews of the stakeholders have been thoroughly prepared. The interviews helped in better understanding the national policy priorities relevant to this Sustainable Cities project, overall environment in which the project is being implemented, status of the stakeholders' involvement, prospects of scaling-up, etc.
- This MTR report has been be prepared in full accordance with the guidance provided in the ToR including:
  - ✓ Review of the Project Strategy: To what extent is the Sustainable Cities project strategy relevant to country priorities, country ownership, and the best route towards expected results?
  - ✓ Progress Towards Results: A review of the Project Tracking Tool and GHG emission reduction progress, a review of progress towards outcomes;
  - ✓ Project Implementation and Adaptive Management: management arrangements, work planning, Monitoring and Evaluation system, applied adaptive management (if any), reporting and communications, cost-effectiveness, etc. will be thoroughly reviewed. Special attention will be paid to the need of application of an adaptive management in the remaining duration of the Sustainable Cities project. Some of the established targets may be ambitious and objectively, not achievable at full scale. Therefore, it will be necessary to revise/adjust some of the project outputs and/or activities. In this case, a revision of the implementation strategy will be recommended, including a description of the main aspects of the revision; and
  - ✓ Sustainability: A review of financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results.

The developed approach in general worked effectively. The MTR Team has conducted interviews with all key stakeholders except Khyakimlik (Municipality) of Tukmenbashi. The stakeholders could answer all the questions of the MTR Team as well as provided valuable information from their fields of activities related either to the Project implementation or general policy, legal, regulatory, institutional frameworks, needs

and actual opportunities for different aspects of urban development in Turkmenistan. The interviews explored critical success factors, challenges or barriers to success, and results, as well as gender and reporting considerations.

Based on the above mentioned it is the MTR Team's opinion that the information obtained during the MTR and included in this report is credible and reliable.

2.3. Structure of the MTR report

This MTR report is structured according to the MTR ToR, which in turn is compliant with the Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects. The report consists of three main parts and annexes:

Chapter 3 – description of the Sustainable Cities project, its background and development context, problems to be addressed and barriers to be overcome, Project strategy, implementation arrangements, milestones, overview of stakeholders

Chapter 4 – description of the findings of the MTR regarding:

- Sustainable Cities project strategy and design (project results framework / LogFrame)
- Progress towards intended results of the Project and remaining barriers to overcome
- Sustainable Cities project management (management arrangements, work planning, financing and co-financing, monitoring and evaluation systems, stakeholder engagement, reporting and communications) including by adaptive management
- Sustainability

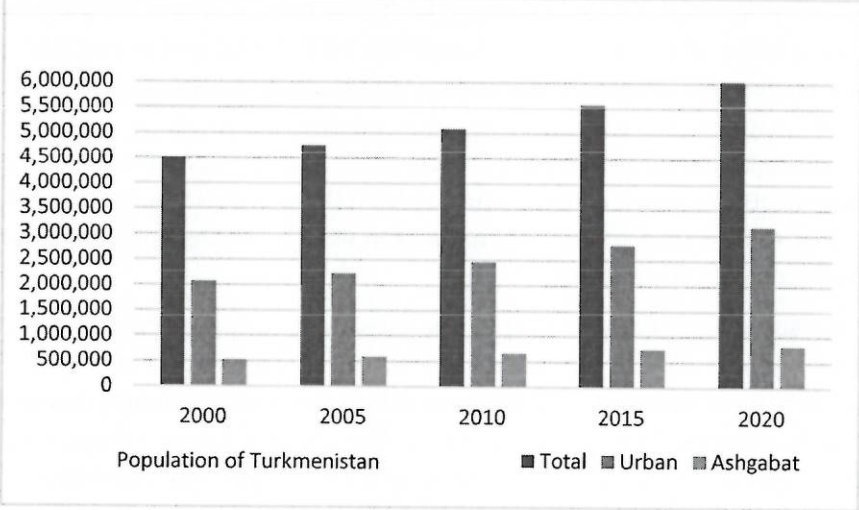
Chapter 5 – Conclusions and proposed recommendations

Annexes – MTR ToR, MTR evaluative matrix, List of persons interviewed, List of documents reviewed, etc.

3. Project Description and Background Context

3.1. Development context: environmental, socio-economic, institutional, and policy factors relevant to the project objective and scope

The population of Turkmenistan is steadily growing last decades. The country is also undergoing a steady shift toward greater urbanization, with an increasing proportion of citizens living in cities.



Source: https://www.worldometers.info/world-population/turkmenistan-population/

The most notable urban growth has taken place in Ashgabat, the capital of Turkmenistan, and also in the new resort zone of Awaza on the Caspian Sea. The population growth has triggered the creation of several new developed areas, with expansion of the infrastructure.

Before the start of the Sustainable Cities project, Ashgabat was creating facilities and upgrading infrastructure in preparation for hosting the 5th Asian Indoor and Martial Arts Games (held in September 2017). The similar, construction and infrastructure development, was observed in Awaza, with numerous entertainment centers, high-quality hotels, children's health resorts, cottage villages, health and recreation centers, etc. In 2010ies, Awaza has undergone rapid infrastructure development, including construction of roads, a new gas-fired power plant, a desalination plant on the Caspian Sea, a sewage treatment plants, water supply networks, and a full renovation of the airport at the nearby city of Turkmenbashi. In addition, Awaza plays the role of a major business, cultural and sports center, where top-level meetings, representative international forums and creative festivals take place[3].

The development of Ashgabat and Awaza has led to increased negative environmental impact including gradually increasing GHG emissions, among them due to the increased waste including Municipal Solid Waste (MSW), rising use of private motor vehicles, etc.

Even though Ashgabat and Awaza, before the Sustainable Cities project start, have implemented certain measures to manage this impact, such as: (i) replacement of all spent street lamps with light-emitting diodes (LEDs) in Ashgabat; (ii) limitation of private car traffic in Awaza, nevertheless, there was much untapped technical potential to: (a) decrease the volume and impact of private vehicle traffic in all cities;

[3] https://www.mfa.gov.tm/en/articles/5

(b) further expand efficient street lighting; (c) reduce waste and increase recycling; and (d) introduce "green" practices to hotels.

The development challenge of the project is to measurably reduce the negative impacts of urban growth in Turkmenistan while also advancing social and economic development goals.

The Sustainable Cities project is in line with the national priority on urban sustainability. The Project is directly consistent with Turkmenistan's Intended Nationally Determined Contribution (INDC), submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015, as well as the National Climate Change Strategy of Turkmenistan, adopted in 2012. In November 2016, Turkmenistan hosted the first-ever United Nations Global Sustainable Transport Conference in Ashgabat, participants of which endorsed Ashgabat Statement on Commitments and Policy Recommendations, in which (in Article 23) they reaffirmed their commitment to sustainable transport: "There is a need to improve vehicle and propulsion technology, encourage electric mobility, enhance end-use fuel efficiency in transport, improve and upgrade public transportation, reduce road congestion, encourage vehicle sharing and integrated charging system, and shirt to more compact city planning".

The development context for the Sustainable Cities project is also consistent with the UNDP and GEF priorities globally and in Turkmenistan as well. It falls within the UNDAF (2010-2015) Outcome 3.2: Environmentally sustainable use of natural resources contributes to effectiveness of economic processes and increased quality of life. The Sustainable Cities project is also in line with the Country Programme Action Plan (CPAP) for 2010-2015, agreed between the Government of Turkmenistan and UNDP Country Office in Turkmenistan, Component C of which (Improving sustainable development and inclusive growth) was aimed at improving sustainable development and inclusive growth, and mainstreaming the environment and energy component will contribute to UNDAF Outcome 3.

3.2. Problems that the project sought to address: threats and barriers targeted

Despite the clearly defined goal and the provision of appropriate political and financial support for green urban development, the Government of Turkmenistan still needed support to achieve this goal, as well as to ensure the sustainability of the planned results. For this, the Global Environment Facility (GEF) has approved the project "Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza" for promoting and implementing integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits.

The Project document does not contain a barrier analysis as such. Instead, three groups of problems and issues underlying the Sustainable Cities project development challenge, were identified.

Immediate causes

- Lack of incentives and regulations on fuel efficiency. Prior to the start of the project, the country had regulations regarding the age and engine power of imported used cars. But there were no rules / incentives for fuel efficiency. This, along with very low gasoline prices, has little incentive for consumers to opt for smaller, more fuel-efficient vehicles. Hybrids and electric vehicles were virtually non-existent on the market. ***This can be considered as a Financial Barrier.***

- Lack of required specific infrastructure. Smart-grid technologies to achieve energy savings in urban lighting networks were also lacking in Turkmenistan. Despite the fact, that Ashgabat had a waste recycling plant, optimizing sorting and recycling, as well as testing the incoming and outgoing waste streams was a challenge. In both areas, a technical and financial feasibility assessment was needed, as well as capacity development for the introduction of these new types of infrastructure in Turkmenistan. ***The above can be considered as Technology and Financial Barriers.***

Underlying causes

- Lack of data and technical and financial justification for public investment in sustainable urban development. For all the advanced technologies proposed by the Project - energy efficient transport, energy efficient lighting, waste recycling and sustainable tourism in Awaza - there was little or no justification. ***The above can be considered as Technology and Financial Barriers.***
- Relative lack of attention to sustainable development solutions in other cities of Turkmenistan – ***Policy Barrier.***
- Lack of systematic planning of resilience in Ashgabat and Awaza. Economic development plans and state budget allocations for Ashgabat and Awaza focused on economic growth, social benefits and improved image of Turkmenistan, but environmental sustainability was minimally reflected – ***Policy Barrier, Environmental Barrier.***

Root causes

- Lack of political priority for sustainability in the past - ***Policy Barrier.***
- Lack of technical capacity in planning and design to ensure the sustainability of cities - ***Capacity Barrier***.
- Lack of public awareness of behavioural change to ensure sustainability.

As mentioned above, there is no analysis of the barriers in the ProDoc, and therefore there is no clear plan for their removal. However, it is indicated which planned activities will be aimed at solving a specific issue (barrier).

3.3. Project Description and Strategy: objective, outcomes and expected results

The objective of this Sustainable Cities project is to promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, and thereby reducing GHG emissions and creating other environmental, social, and economic development benefits. The project was aimed at achieving several general outcomes in Ashgabat, Awaza, and other cities across Turkmenistan, and among them:

- Improved capacities and enabling conditions in Ashgabat and Awaza to identify, design and implement integrated low-carbon and climate-resilient solutions
- Reduction of GHG emissions and other negative environmental impacts
- Nationwide replication and scaling-up of results of first project two components, enhancement of capacity of agencies and managers, and adoption of policies and regulation.

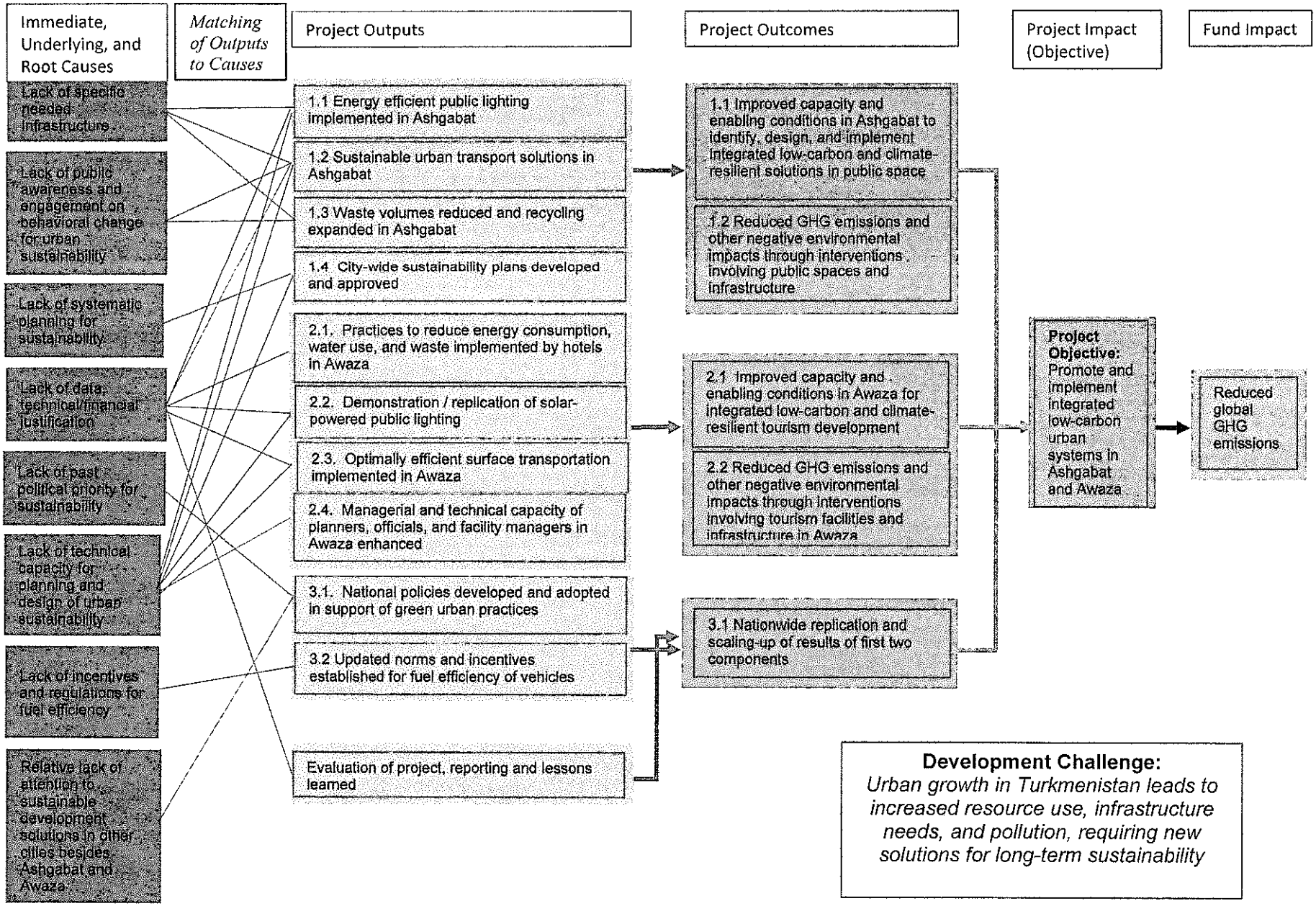
These outcomes were planned to be achieved through the implementation of three Project components. Component 1 is focused on Ashgabat, Component 2 on Awaza, and Component 3 is seeking scale-up via policy and regulations at the national and municipal level throughout Turkmenistan. Component 1. Sustainable urban development in Ashgabat is designed to achieve two targeted outcomes and four outputs. The implementation of Component 2. Sustainable Tourism Infrastructure and Management Practices in Awaza also will lead to achieving two outcomes and four outputs. And the implementation of Component 3. Municipal and National Policy – to one outcome and one output. To achieve the identified outputs, corresponding activities were planned. Planned activities and achieved results are presented in Tab.1 and on Fig.1.

Table 1: Components, Outcomes and Outputs of Sustainable Cities Project

Component	Outcome	Output	Activity
Component 1: Sustainable urban development in Ashgabat	**Outcome 1.1:** Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space	**Output 1.1:** Energy-efficient public lighting implemented in Ashgabat, with technical justification prepared for replication	Activity 1.1.1. Piloting of EE lighting linked with smart-grid feedback and dispatching.
			Activity 1.1.2. Documentation of LED street lamp performance and justification of replication
		Output 1.2: Sustainable urban transport solutions in Ashgabat developed and applied	Activity 1.2.1. Design and construction of dedicated bus and bicycle lanes
			Activity 1.2.2. Design of e-passes, map updates, and a mobile app for riders
			Activity 1.2.3. Behavioural-choice programs and outreach on sustainable transport
			Activity 1.2.4. Data collection and analysis on transport volumes, choices, and preferences
	Outcome 1.2: Reduced GHG emissions and other negative environmental impact through interventions involving public spaces and infrastructure	**Output 1.3:** Waste volumes reduced, and recycling expanded in Ashgabat	Activity 1.3.1. Public information campaign to reduce solid waste
			Activity 1.3.2. Piloting of sorting of recyclable household waste in Ashgabat
			Activity 1.3.3. Morphological analysis of waste streams into and out of Ashgabat recycling facility
		Output 1.4. City-wide sustainability plans developed and approved	Activity 1.4.1. Development of sustainability plans for Ashgabat and other cities
Component 2: Sustainable Tourism	**Outcome 2.1:** Improved capacities and enabling conditions	**Output 2.1.** Practices to reduce energy consumption, water use, and waste	Activity 2.1.1. Development and implementation of green standards for hotels

Infrastructure and Management Practices in Awaza	in Awaza for integrated low-carbon and climate-resilient tourism development	implemented by hotels in Awaza	Activity 2.1.2. Execution of energy/water audits
			Activity 2.1.3. Public promotion of successes in green hotel practices in Awaza
	Outcome 2.2: Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Awaza	**Output 2.2:** Demonstration and replication of solar-powered public lighting	Activity 2.2.1. Demonstration and replication of solar-powered lighting
		Output 2.3: Optimally efficient surface transportation implemented in Awaza	Activity 2.3.1. Piloting of solar-powered charging stations for public taxi fleet
		Output 2.4: Managerial and technical capacity of planners, officials, and facility managers in Awaza enhanced via training	Activity 2.4.1. TA and training for planners, officials, and facility managers in Awaza
Component 3: Municipal and National Policy	**Outcome 3:** Nationwide replication and scaling-up of results of first two components via information dissemination, enhancement of capacity of agencies and managers, and adoption of policies and regulation	**Output 3.1:** National policies developed and adopted in support of integrated and scaled-up green urban practices, supported by capacity enhancement for responsible agencies and individuals	3.1.1. Development and adoption of national policies and budgets in support of scaled-up urban sustainability practices
			3.1.2. Training and information delivery for capacity enhancement of responsible agencies and individuals
		Output 3.2: National incentives and standards adopted for fuel efficiency of imported cars	Activity 3.2.1. Development and implementation of fuel economy standards and incentives for motor vehicles

Figure 1: Theory of Change. *Source: Project Document*



3.4. Project Implementation Arrangements: brief description of the Project Board, key implementing partner arrangements, etc.

The Sustainable Cities project is implemented under the UNDP National Implementation Modality (NIM). Hence, the main responsibility on the Project management lies on the Implementing Partner – Ministry of Agriculture and Environmental Protection (MAEP). It should be noted that in the ProDoc, the State Committee on Environmental Protection and Land Resources of Turkmenistan (State Committee) has been identified as the national implementing partner. And it played its role until the restructuring of the Government of Turkmenistan in January 2019. As a result of this restructuring a new Ministry (MAEP) has been created, which became an Implementing Partner. This change did not have a significant impact on the implementation of the Sustainable Cities project, as the project team successfully established cooperation with the new management and relevant specialists from MAEP. State Committee for Environment Protection and Land Resources has appointed, and then MAEP re-appointed the National Project Coordinator (NPC) - Mr. Berdi Berdiyev, a Head of the Department on Coordination of International Ecological Cooperation and Projects of MAEP.

Overall governance of the Sustainable Cities project is carried out by the Project Board (PB), while the day-to-day management on behalf of the Implementing Partner, and decision-making is the responsibility of the Project Implementation Unit (PIU). Fundamental Tasks of the Project Board include: (i) Oversight and coordination of the activities of the Project; (ii) Creation of conditions for collaborative participation of local authorities with project staff and consultants, making possible the successful realization of project activity; (iii) Review, assessment, and elaboration of recommendations, as well as consultative and expert delivery of suggestions on strategy, contents, volume, and timetables for concrete steps of the work of the Project; and (iv) Delivery of assistance in the realization of the work plans of the Project. Initially, the composition of the PB was determined in the . Then, in Inception report, the composition was extended by including representatives of additional institutions in the PB (however, Annex E: Terms of Reference for the Project Board, is copied from the ProDoc, including the composition of PB). According to Inception report, the PB consists of the representatives of the following agencies:

- Ministry of Agriculture and Environment Protection
- Union of Industrialist and Entrepreneurs
- Municipality of Ashgabat city
- Municipality of Turkmenbashi city (responsible for Awaza)
- UNDP
- Ministry of Energy – added in the Inception report
- Agency "TurkmenAvtoTransport" of the Ministry of Industry and Communication – added in the Inception report
- Ministry of Construction and Architecture – added in the Inception report
- State Committee on Tourism – added in the Inception report

The National Project Coordinator serves as Chair of the Project Board, with assistance from UNDP in organizing and running all meetings and other exchanges of information. Meetings of the Project Board will take place at least once annually in time for approval of the following year's Annual Work Plan. There were 4 meetings of the PB organised before the MTR: The first PB meeting took place on September 26, 2018 in Awaza; The second one - on January 17, 2019; The third one – on February 12, 2020; and the fourth one – on September 30, 2020.

The Project Implementation Unit consists of a full-time Project Manager (PM), a full-time Field Assistant (FA), and a part-time International Chief Technical advisor.

3.5. Project timing and milestones

July 2015	Project Identification Form (PIF) endorsed by UNDP-GEF Executive Coordinator on behalf of the Government
August 2015	PIF submitted to the GEF Secretariat
January 2016	Project concept note approved by the GEF
May 2016	Project preparation grant approved by the GEF
September 2017	Project approved for implementation by GEF Council/CEO Approval
November 2, 2017	Local Project Advisory Committee (LPAC) approved the Project Document
May 29, 2018	Project Document signed by the UNDP
June 11, 2018	Project Document signed by the Committee for Environmental Protection and Land Resources – **Project start date**
July 1, 2018	Project Start Date Project Manager hired
September 25, 2018	Inception workshop
September 26, 2018	**First meeting of the Project Board**
October 10, 2018	Project registered by the Ministry of Finance and Economy
January 17, 2019	**Second meeting of the Project Board**
February 4, 2019	Project Field Assistant appointed
May 14, 2019	Meeting of the UNDP CO management with the Minister of Agriculture and Environmental Protection on joint implementation of planned activities within the framework of the Sustainable Cities project
May 16, 2019	Meeting of the UNDP CO management with the Chairman of the Union of Industrialists and Entrepreneurs of Turkmenistan on attracting the private sector for the joint implementation of the planned activities under the Sustainable Cities project
August 5, 2019	Purchase of 55 metal mesh containers for plastic waste collection
September 5, 2019	Presentation of the Sustainable Cities project at the International conference "Innovative technologies for energy efficiency" organized by the State Energy Institute of Turkmenistan
March 18, 2019	Hiring of International Chief Technical Advisor
September 16, 2019	Meeting of the UNDP CO management with the Mayor (Hyakim) of Ashgabat on joint implementation of planned activities under the Sustainable Cities project
September 18, 2019	Meeting of the UNDP CO management with the Minister of Construction and Architecture on joint implementation of planned activities under the Sustainable Cities project

September 19, 2019	Meeting of the UNDP CO management with the Chairman of the Agency "TurkmenAvtoTransport" on joint implementation of planned activities under the Sustainable Cities project
September 22, 2019	Meeting between the UNDP CO management with the Minister of Energy on joint implementation of planned activities under the Sustainable Cities project
October 31, 2019	Organization of the workshop in Ashgabat "Energy efficiency and Energy saving in Sustainable Cities", timed to coincide with the World Cities Day;
	Planting trees on World Cities Day
November 6, 2019	Organization of the workshop in Awaza "Possibilities of reduction of energy consumption at hotels of Awaza Touristic zone"
November 2019	International consultant in energy audit of street lighting systems analyzed the existing technical conditions and studied the possibilities of introducing modern transformers to switch from 6 kV to 10 kV (in settlements newly connected to Ashgabat), and also estimated the potential for GHG reduction
November 2019	Launch of the 1st stage of the information campaign on the collection of plastic waste
December 2019	Organization of a training on working on new laboratory equipment for monitoring air pollution (purchased by the Sustainable Cities project), with participation of a supplier
December 2019	Preparation of brochures and handouts on waste sorting
February 12, 2020	**Third meeting of the Project Board**
June 5, 2020	Planting trees, installing containers and banners for sorting waste, as well as installing bicycle racks with bicycles in the Bagtyyarlyk park in Ashgabat;
	Preparation of information materials and articles for media (including electronic media) dedicated to World Environment Day
July 9, 2020	Participation in the first meeting of the Interinstitutional Working Group on the development of the draft "National Strategy for the Development of Renewable Energy in Turkmenistan until 2030"
July 2020	Organization of a training on working on new laboratory equipment for monitoring water pollution (purchased by the Sustainable Cities project)
July 2020	A list of legal and regulatory I technical documents was officially received from the Ministry of Energy, with a request to UNDP to support their development
August 20, 2020	Purchase of 65 metal mesh containers for plastic waste collection
August 8, 2020	Launch of the 2nd stage of the information campaign on the collection of plastic waste
August 21, 2020	Letter from the Ministry of Foreign Affairs on the appointment of the "Grand Turkmen" hotel in Ashgabat as a pilot facility for an energy audit (In connection with COVID-19 pandemic in the world, Awaza was closed)

August 2020	A pilot section of electrical distribution network has officially agreed with the Ministry of Energy
August 2020	The Ministry of Energy has officially agreed on the specification and technical characteristics for the purchase of new transformers
August 2020	Official agreement with the Ministry of Energy on the pilot site for the implementation of a street lighting system
September 9, 2020	**Fourth meeting of the Project Board** (among others, it was decided to conduct a Strategic Review of the project - in parallel with the MTR)
December 2, 2020	Signing of a Memorandum of Understanding between the UNDP CO and the Ministry of Agriculture and Environmental Protection on cooperation in the field of environmental protection
December 11, 2020	Signing of a Memorandum of Understanding between the UNDP CO and the Ministry of Energy on cooperation in the field of sustainable development of the electric power industry
January 2021	Purchase of equipment for energy audit of the street lighting system at the pilot site
January 2021	Development of a draft "Criteria for classifying hazardous waste as a hazard class for the environment and the degree of harmful impact of hazardous waste on the environment"
January 2021	Organization of a training on working on new laboratory equipment for monitoring soil pollution (purchased by the Sustainable Cities project)
February 2021	Development of a draft "Waste classifier. Waste classification codes in Turkmenistan"
January 15-22, 2021	Purchase of equipment for energy audit of buildings. Training for the Sustainable Cities specialists and the staff of the pilot hotel "Grand Turkmen"
February 2-5, 2021	Energy audit of the pilot section of electricity distribution network (before dismantling old transformers; after the replacement of old transformers, and switching from 6 kV to 10 kV voltage, with the replacement of old overhead power lines)
March 3, 2021	Organization of a webinar "Study of international experience in the development of regulatory technical documents for the development of renewable energy in Turkmenistan"
March 13, 2021	The Law on "Renewable Energy Sources" developed by the Sustainable Cities project, adopted by the Mejlis (Assembly) of Turkmenistan
March 26, 2021	Equipment for energy audit was transferred to the Turkmen State Energy Institute to create an energy audit laboratory
March 2021	Purchase of 60 transformers for the reconstruction of electrical distribution networks in newly connected settlements of Ashgabat
March-June 2021	Mid-term Review of the Sustainable Cities project

April 2021	Development of a drafts: "Procedure for accounting for emissions of air pollutants" and "Procedure for conducting an inventory of emissions of air pollutants"
April 30, 2021	Organization of a webinar "Operation of LED luminaires in a street lighting systems"
May 2021	Development of a draft "Methodology for conducting energy audits in public buildings"
May 2021	Draft report on energy audit of "Grand Turkmen"

Planned milestones for 2021

August 2021	Launching a discussion at the national level on the draft National Waste Management Strategy
September 2021	Determination of the pilot site and installation of the bicycle rack and workshop
October 2021	Implementation of a pilot project at Turkmen State University named after Makhtumkuli on waste sorting
October 2021	Conducting an energy audit of a pilot section of a street lighting system
November 2021	Purchase of equipment and implementation of pilot project in street lighting system (installation of LED lamps and street lighting control networks)
December 2021	Reconstruction of the pilot section of electrical networks in Ashgabat

3.6. Main stakeholders: summary list

According to the Project document, there are three main stakeholders of the Sustainable Cities project:

- City residents of Turkmenistan, especially those in Ashgabat, are the key stakeholders at the broadest level for the Sustainable Cities project
- Hotels and guests of Awaza also have a direct interest in the outcomes of the project, and thus, represent stakeholders
- Stakeholders representing Governmental institutions (The ProDoc refers to "relevant government agencies" without specifying which exactly agencies are meant)

The above list of stakeholders includes neither private companies nor Non-governmental Organisations (NGOs). At the same time, it is stated in Chapter Partnerships, that the Union of Industrialists and Entrepreneurs, a leading association of private sector businesses in Turkmenistan, "has been a key partner in development of project strategy, especially with regard to transport and waste management, where some of its members are already active".

The incompleteness of the list of potential stakeholders have been flagged in the Inception report, according to which, for the elaboration of the Communication Strategy, the Sustainable Cities project needed identification of key stakeholders (stakeholder mapping). Indeed, during the implementation of the Sustainable Cities project, additional stakeholders have been identified. The list of stakeholders is presented in Tab.2.

Table 2: Summary list of stakeholders

Type	Name of Stakeholder	Relevance to Sustainable Cities Project
	City residents of Turkmenistan	
	Hotels	Beneficiaries
Government	Ministry of Agriculture and Environmental Protection (MAEP)	MAEP is an Implementing Partner. It oversees all project activities, chairs the Project Board, and plays a leading role in design and execution of all project components at both national and velayat levels
	Ministry of Energy (MoE)	MoE is responsible for management of the country's electricity sector. The Ministry includes Turkmenenergo, State Electric Energy Corporation, a vertically integrated entity managing all state assets in the sector. Electricity savings is the priority of the MoE, as it will allow to increase Turkmen electricity exports to Afghanistan and Iran. MoE is represented in the Project Board
	Ministry of Construction and Architecture (MCA)	MCA implements the state policy in the construction area. Among others the MCA: - Develops draft legal and regulatory acts; - Provides control over the implementation of design and planning decisions in the cities of Turkmenistan; - Monitors compliance with building codes of Turkmenistan The Ministry is represented in the Project Board
	Ministry of Foreign Affairs	All official communications of UNDP with government agencies go through the Ministry of Foreign Affairs. The ministry also makes sure that all inquiries are considered that questions asked are answered, etc.
	Agency "TurkmenAvtoTransport"	The Ministry of Motor Transport, which was responsible for planning, operating, and maintaining government-run fleets of motor vehicles throughout the country, has been abolished in 2019. Instead, the State Agency TurkmenAvtoTransport was created. The Agency is represented in the Project Board
	State Electric Power Corporation "Turkmenenergo" of the Ministry of Energy	Turkmenenergo includes 8 state power, industrial associations and one company of electric networks; among others, it is responsible for managing urban lighting in Ashgabat
Municipalities	Khyakimlik (Municipality) of Ashgabat	Is represented in the Project Board
	Khyakimlik of Turkmenbashi	Is represented in the Project Board
Academic and Research Institutions	State Energy Institute of Turkmenistan (SEIT) of the Ministry of Energy; Research and Production Centre for Renewable Energy under the State Energy Institute; Institute "Turkmenproekt" of	Are responsible in research and development in the fields of EE and RES

	the Ministry of Construction and Architecture; Turkmen State University named after Makhtumkuli	
Private sector representatives	Dzhepbar, member of the Union of Industrialists and Entrepreneurs	This company is active in recycling of plastic wastes
	Toprak, member of the Union of Industrialists and Entrepreneurs	This company is active in recycling of wastepaper
NGOs	The Union of Industrialists and Entrepreneurs of Turkmenistan (TUIE)	TUIE is a public organization, aimed at support of a small-scale and medium-scale enterprises (SMEs) in Turkmenistan, assistance in the development of a private sector of the national economy, the formation of a modern enterprise infrastructure. The Members of TUIE realize large construction projects in Ashkhabad and regions of the country, participate in the formation of the infrastructure of Awaza
	Nature Conservation Society of Turkmenistan	Jointly with the Sustainable Cities project installed metal containers for collecting plastic waste in Ashgabat and Awaza. In parallel, two rounds of waste collection campaigns were organized in Ashgabat, which covered 30,000 residents in the first round and 45,000 residents in the second one

4. Findings

4.1. Project Strategy

The strategy of the Sustainable Cities project is aimed at shifting the cities of Turkmenistan, primarily Ashgabat and Awaza, towards sustainable, low-emission urban development. This shift is only possible if the barriers ("problems and issues" according to ProDoc) that prevent widespread penetration of green urban practices into urban planning and subsequent implementation of sustainable urban development, are removed. This is a challenging task due to the multifaceted nature of sustainable urban development in general, and the wide variety of results (outcomes, outputs) to be achieved by this Project, in particular. The detailed analysis of the strategy is presented in below chapters 4.1.1 and 4.1.2.

4.1.1. Project Design

The design of the Sustainable Cities project, was developed in the following sequence:

- Based on the situation analysis, the goals (development objective, outcomes, outputs) of the Project were determined;
- Also, the existing "problems and issues" were identified that impede the achievement of those goals;
- Activities were planned to overcome the "problems and issues";
- Indicators and their mid-term and end-of-project quantitative targets were identified to measure the achievement of planned results (outcomes, outputs). A corresponding Monitoring plan and an Evaluation plan were also developed.

The Sustainable Cities project plans to overcome identified "problems and issues" through: (1) improvement of enabling conditions in Ashgabat and Awaza to identify, design, and implement integrated low-carbon and climate-resilient solutions; (2) corresponding capacity development; (3) implementation of pilots; and (4) Knowledge management for replication and scaling-up of results achieved in Ashgabat and Awaza.

Promoting integrated low-carbon urban systems in Ashgabat and Awaza is a laudable goal, especially given that the design covers various sectors of the economy and the related challenges that the Project must respond to. Indeed, the design covers energy, both energy efficiency (public lighting, smart-grid systems) and renewable energy (solar energy), waste (management of municipal solid wastes), transport sector, both motor transport (public busses, private vehicles) and alternative transport (electric cars, bicycles) with appropriate development of infrastructure (bus and bicycle lanes, electric vehicle charging stations) and logistics (mobile applications, e-pass system). And there are a variety of activities proposed for achieving of GHG reductions targets. Among them, activities aimed at:

- Legal and/or regulatory improvements:
    - Development and adoption of national policies and budgets in support of scaled-up urban sustainability practices (Activity 3.1.1)
    - Development and implementation of fuel economy standards and incentives for motor vehicles (Activity 3.2.1)
    - Development of regulations regarding the charging and servicing of hybrid and electric vehicles (Activity 3.2.1)

- Development and implementation/enforcement of regulations for cyclist safety (Activity 1.2.3)
- Development and implementation of green standards for hotels (Activity 2.1.1)

- Studying technical and/or financial feasibility:
  - Technical/financial justification for replication of replacement of spent lamps with LEDs (Activity 1.1.2)

- Conducting surveys:
  - On analysis on transport volumes, choices at inception, midterm, and end of project (Activity 1.2.4)
  - On preferences and habits of citizens, especially regarding transport and waste

- Planning and implementation of public information campaigns:
  - To encourage alternatives to inefficient private motor vehicle transport (Activity 1.2.3)
  - To promote proper tire inflation (Activity 1.2.3)
  - To promote carpooling (Activity 1.2.3)
  - To promote safety for cyclists; To for cyclists, to promote use of available dedicated lanes (Activity 1.2.3)
  - To reduce solid waste (Activity 1.3.1)
  - To promote the green practices in the hotels of Awaza, including annual prizes for individuals and hotels (Activity 2.1.3)

- Implementation of pilot projects:
  - Piloting of EE lighting (TA, investment support) linked with smart-grid feedback and dispatching (Activity 1.1.1)
  - Execution of energy/water audits followed by the implementation of EE measures (Activity 2.1.2)
  - Solar-powered public lighting for walkways and/or streets (Activity 2.2.1)
  - Solar-powered charging stations for electric vehicles (Activity 2.3.1)
  - Design and construction of dedicated bus and bicycle lanes (Activity 1.2.1)
  - Introducing of electronic card-based payment system (Activity 1.2.2)

- Development of sustainability plans for Ashgabat and other cities (Activity 1.4.1)

- Organization of trainings on different subjects for different target groups

The analysis of the above bullets shows that the design covered practically all the aspects of urban development except energy performance of buildings. Indeed, the purpose of energy auditing in Awaza hotels is to identify "conservation opportunities in rooms, kitchens, and other facilities such as saunas and swimming pools; ongoing energy management to ensure optimal performance of energy-using systems and controls; water-conservation audit; installation of low-water toilets and shower fixtures; elimination of daily laundering of sheets and towels", etc., i.e. no need in EE retrofit of the building envelope (exterior walls, foundations, roof, windows and doors) was expected.

Although the budget and duration of this Sustainable Cities project, exceed the ones of similar UNDP / GEF projects in the Region, its management structure, like other projects, also consists of PM, CTA, and Field Assistant (actually acting as an Administrative / Financial Assistant). Therefore, it takes a tremendous amount of effort on the project team to get the activities implemented at the required level, and thereby ensure that all planned results are achieved.

According to the ProDoc, "the project will draw from the experience of other recent UNDP-supported projects funded by the GEF in relevant areas, especially those from Central Asia and the Caspian region,

including the project on sustainable transport in Almaty, on energy-efficient lighting in Kazakhstan and Armenia, and on sustainable tourism in Batumi, Georgia".

- ***City of Almaty Sustainable Transport (GEF ID#4013; PIMS 3757),*** a full-sized project (GEF grant: USD 4.886 million). Its implementation started in June 2011 and completed in December 2017 (the project has got 18-month extension). Project outputs among others included: Output 1.1: Streamlined institutional arrangements for developing and regulating urban transport services, and monitoring transport-related GHG emissions and other air pollutants; Output 1.5: Monitoring system for tracking GHG emission and transport-related air pollutants; Output 2.1: Transport-demand model and strategic master plan for developing sustainable urban transport (SUT); Output 3.2: Feasibility plans for integrated traffic management and retail economic stimulus areas. According to the Terminal Evaluation conducted in October 2017, "the project has successfully addressed the barriers to sustainable urban transport in Almaty city". Achievement of each Outcome was rated as "Satisfactory".

- ***Georgia: Green Cities: Integrated Sustainable Transport for the City of Batumi and the Achara Region*** *(GEF ID #5468; UNDP PIMS #4980).* Start date of this Medium-sized project was September 2015, MTR conducted in October 2017. Project outputs among others included: Development of sustainable urban transport plans; Investment in improved traffic flow (in synchronization of lighting along selected corridors and implementing parking restrictions along the corridor to create more road space for moving vehicles); Investment in improved public transit services (public transit services are competitive with private car usage, and thereby encourage shifts from private cars); Investment in the cycling network (improvements to the existing bicycle network).

  All activities were thoroughly planned; appropriate indicators were determined to assess the achievement of the planned outputs. Among them: Average number of passengers per bus; % increase in average speed of buses; Average number of cars during Year 4 who are parked in park-and-ride lots and switched to public transit; length (km) of bicycle network. The proper design of the project contributed significantly to the successful implementation, and the project was rated "Satisfactory" by the MTR.

- ***Green Urban Lighting, Armenia*** *(GEF ID #4742; UNDP PIMS #4669),* a project (GEF grant: USD 1.6 million), with 4 components: Component 1: Municipal energy audits and technical capacity-building; Component 2: Demonstration projects; Component 3: Replication via municipal lighting programs and associated financial instruments; and Component 4: National policies, codes, and standards on lighting. Project implementation started in November 2013 and completed in November 2018 (the project has got 12-month extension).

In addition, two similar UNDP/GEF projects were under the implementation before the start of this Sustainable Cities project:

- ***Belarus Green Cities: Supporting Green Urban Development in Small and Medium Sized Cities in Belarus,*** a full-sized project with a GEF grant of USD 3.091 million, started in November 2015. Original project end date was February 2021, MTR (conducted in April 2019) recommended extension of duration by 18 months. Project has 3 Outcomes: Outcome 1: Green urban development plans successfully developed and adopted; Outcome 2: Successful pilots on sustainable urban transport completed in cities of Novopolotsk and Polotsk. For this outcome, among others the following indicators were determined: Kilometers of private car travel displaced from modal switches to public transport by EOP; and Average number of

minutes of reduced bus journey time through sustainable urban transport measures in Novopolotsk and Polotsk.

According to MTR "the measures being considered for the SUT demos lacked the needed level of "pull" to public transport by making it more attractive and completely lacked "push" from making private cars less attractive, so that the first two indicators were considered unlikely to be met". The MTR also noted that "The project is making strong progress in the bicycle segment of this work. Its bicycle feasibility study is of high quality and may be used as a model for other similar work".

- ***Sustainable Green Cities - Catalyzing Investment in Sustainable Green Cities in the Republic of Moldova Using a Holistic Integrated Urban Planning Approach,*** a full-sized project with a GEF grant of USD 2,720 million, started in November 2017. Under the second components of the project similar (to the Sustainable Cities projects) activities were planned: implementation of pilot/demonstration projects with related monitoring, reporting and verification of the results in the areas of: (i) integrated and participatory urban land use and mobility planning; (ii) residential building energy efficiency and renewable energy use; (iii) low carbon mobility; and (iv) resource efficient waste management.

  MTR was conducted in November 2020, according to which, 6-12 month no-cost extension of the project might be needed.

The analysis of the results achieved through the implementation of the above-mentioned UNDP/GEF projects (either at the date of MTR or closure) shows that the "greening" of the transport sector is the most challenging task and needs detailed elaboration during the design phase. Two out of five projects were focused exclusively on transport. In designs of those projects, for each planned output detailed activities were planned and clear indicators with quantitative targets determined. This, along with the dedicated Project Team and highly qualified experts and consultants, including International consultants, is a key success factor. Unfortunately, the design of the Sustainable Cities project has shortcomings, mainly related to sustainable transport, which are unlikely to meet the very ambitious targets set for this sector. Main reasons for these shortcomings are as follows:

- ***Economic feasibility of the proposed measures is not studied.*** While the ProDoc says that gasoline prices are extremely low and therefore there is very little incentive for consumers to choose smaller, more fuel efficient vehicles, nothing is stated as to why they should choose alternative transport (carpooling, buses, bicycles) or increase fuel efficiency of their personal cars (by investing sufficient funds in this). Without a simple cost-benefit analysis that shows that the cost of gasoline saved exceeds the cost of a bicycle, it is unlikely that private car owners will buy bicycles only for environmental or health reasons, unless there is traffic congestion and parking is an issue. If fuel efficiency standards are set and strictly enforced, then this can work. But given that the government has already set an age limit for used imported cars and that all cars must pass a mandatory technical inspection every year, it is expected that fuel efficiency will gradually improve (in the baseline scenario) as obsolete old cars will be replaced with relatively new imported cars with better technical characteristics. In the project scenario ("High efficiency scenario" in Annex J), further fuel efficiency improvement is expected, namely by 6% through the introduction of hybrid sedans, but again without comparing the cost of hybrids with the cost of fuel economy, plus penalties due to non-compliance with standards, it will be unclear whether this move to hybrid sedans is feasible. To address this issue, the ProDoc proposes introduction of incentives (probably, financial incentives to the owners of private cars is meant), or in other words, the Government should partly subsidize introduction of hybrid sedans. But in this case, as correctly stated in

the ProDoc, there is a risk that "Political support for policies and investment are insufficient to support the fulfillment of targeted outputs and outcomes, especially if global gas prices remain so low as to reduce state revenues and budgets".

- ***The outcomes and outputs are imbalanced.*** The project's target for direct GHG emissions reductions is 366,500 tCO_2 during the project period, including 294,000 tonnes from vehicle efficiency standards and incentives (Output 3.2); 30,000 tonnes from lighting measures (Output 1.1); 20,000 tonnes from promotion of proper tire inflation (Output 1.2); and 22,500 tonnes from energy management in hotels (Output 2.1). The main part of projected energy savings and avoided emissions from standards and incentives will come from Activity 3.2.1: fuel economy standards and incentives for motor vehicles; the shares of Activity 1.2.3a: Promoting safe bicycling and Activity 1.2.3b: Promoting carpooling, would be well below it. This statement doesn't contradict with the ProDoc, according to which "The predominant share of projected energy savings and avoided emissions from the transport sector will come from Activity 3.2.1 and Activity 1.2.3". Indeed, the cited text refers to activities in the transport sector (which also includes the promotion of proper tire inflation and for which a separate target of 20,000 t CO2 has been set), while we refer to activities related only to standards and incentives. As correctly stated in Annex J, other activities (planning for bike lanes and dedicated bus lanes in Activity 1.2.1; promotion of electric vehicle infrastructure in Awaza in Activity 2.3.1) are expected to have lesser effects because of either later projected time frames for implementation or small market share. The above-mentioned means that 294,000/366,500 = 80.4% of the total emission reductions will come from only one output (Output 3.2) while in total 10 outputs are planned. Then the efficiency of GEF funds will differ sharply by outputs. Indeed, the cost of CO2 emissions reduction per tonne for Component 3 (Outputs 3.1 and 3.2) would be USD 561,830 / 294,000 t CO2 = 1.91 USD/tCO2, while for the Sustainable Cities project as a whole USD 6,160,046 / 366,500 t CO2 = 16.85 USD/t CO2, i.e. 8.8 times higher. In fairness, it should be noted that, GHG targets are not established for some outputs (related to promotion of recycling, urban sustainability planning and policy) as determining the reduction in energy consumption is very complex task. For example, for Output 1.3 (recycling of wastes), it would involve detailed study of manufacturing processes, energy inputs, and material inputs, as well as data on product outputs and sales, and therefore, targets were set for volumes of recycled material, but not for associated energy savings and avoided emissions.
- ***Gender equality and women's empowerment is not adequately addressed.*** The gender rating of the Sustainable Cities project is GEN 1 (Gender partially mainstreamed - Only some of the activities of the output address gender and do so in a limited way). Gender mainstreaming is general in the ProDoc and no specific gender-sensitive activities are planned. notes that there is a risk that the Project activity to promote bicycle use will contribute to gender inequality insofar as Turkmen women commonly wear long dresses that do not easily accommodate bicycle riding. It is expected that this risk will be mitigated through the preparation of outreach materials aimed at creating a public opinion that respects women's independence in the choice of clothing and transport. However, there was no target determined and corresponding activity planned or indicator. Also, the same can be said about the problem of prejudice against women drivers on the part of dishonest traffic inspectors, as a result of which many women were forced to stop driving their private cars.
- ***No details are provided on incentives/penalties for fuel efficiency.*** Activity 3.2.1 planned for achieving Output 3.2 (National incentives and standards adopted for fuel efficiency of imported cars), involves *Development and implementation of fuel economy standards and incentives for motor vehicles.* According to the ProDoc, "The project will conduct analysis and

develop standards and incentives for fuel efficiency of imported cars. The exact form of these standards or regulations (required average efficiency over a whole vendor fleet, or overall limits or tariffs on the worst "gas-guzzlers," or other approaches) will be more closely assessed during the inception period". The nature of the standards and incentives is not further specified in the ProDoc. It is unclear, then, how the target, *Approval of standards and incentives embodying a 6% increase in average fuel efficiency*, was determined. Typically, quantitative targets (e.g. 6% increase in fuel efficiency) are determined based on the analysis of the potential impact of proposed activities. In this case, when indicative standards and/or incentives are not defined (it is unclear what "overall limits or tariffs" refer to), and therefore, their impact cannot be objectively assed, it seems target was defined first, and then, during the project implementation, standards and incentives must be developed, that is, not based on the country's priorities, but simply to ensure that the target is achieved.

- ***Some planned activities are naïve and flawed.*** It is noted in the ProDoc that drivers in Turkmenistan commonly and intentionally keep their tires underinflated, in the hopes of obtaining a smoother ride. It is planned under Activity 1.2.3b that the Sustainable Cities project will promote proper tire inflation via signs, media spots, and other means. It is unlikely that an awareness campaign alone will lead to correct tire inflation. Another issue is that there is no indicator determined, monitoring of tire inflation is not included into the monitoring plan. Therefore, it is unknown how the corresponding emissions reductions can be estimated.

Despite the above-mentioned problems, no issue was flagged and correspondingly, no revision of the LogFrame was requested during the inception phase.

4.1.2. Results Framework

General remarks

In general, the Project Results Framework (LogFrame), does not strictly correspond to the planned Outcomes and Outputs because:

- Indicators are defined for project components but not outcomes. For Component 1 (Sustainable urban development in Ashgabat), four indicators were defined; all of them look appropriate and adequate. But under Component 1, Outcom1.1 involves ***Improved capacities and enabling conditions*** *in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space*. No indicator is related to assess whether the capacities and enabling environment were improved. Indicator, *Number of cities of Turkmenistan (and total population therein) that formally adopt sustainability practices in transport, lighting, and waste management*, cannot be used for the assessment of capacities to design solutions, as without adequate capacities and enabling environment, cities can adopt sustainable but simple solutions with limited impact.
- Indicators and targets are established not for all Outputs. For instance, 4 outputs are considered under Component 2, while only 3 indicators and targets are established.
- GHG targets are established as CO2 emissions reductions achieved via project interventions by end of project. This means that the timing is of the crucial importance. For example, delaying the implementation of the standard and incentives to improve fuel efficiency by one year could result in a decrease of direct project emission reductions by 294,000 (a target that according to the logical framework is expected to be achieved within

years 4-6 of implementation, i.e. over a 3-year period) / 3 = 98,000 t CO2 or 98,000 / 366,000 = 27% of the overall GHG reduction target. This, in turn, will (and actually was) motivate the Project Team to prioritize those activities that will lead to immediate results in terms of reducing GHG emissions, but not those ones that may be more strategic, but require a longer time for implementation.

- LogFrame includes some indicators, baseline of which was unknown at date of the Sustainable Cities project approval, and therefore, the exact quantitative targets are to be adjusted during the project implementation (details are provided in the below text), but this potentially creates problems, as the quantitative targets cannot be reduced without substantial revision of the GEF-funded project.

Review of the LogFrame

Some indicators in the LogFrame are not SMART (Specific, Measurable, Achievable, Relevant and Time-Bound), some others are not strictly related to the Objective and Outcomes, baseline levels of some indicators are determined with high degree of uncertainty. In addition, some indicators and targets include more than one output. Therefore, for making the discussion of different components of LogFrame easy, the MTR Team developed a "disintegrated LogFrame", presented in Tab.3. Main findings of the review are as follows:

- Mid-term target for GHG reductions is established as 80,000 tCO2. But in Annex J, where all the details of calculations of potential energy savings and GHG emissions reductions are presented, no mid-term targets are established for Fuel efficiency standards and incentives (end-of-project target is 294,000 tCO2), promotion of proper tire inflation (end-of-project target - 20,000 tCO2), EE public lighting (end-of-project target - 30,000 tCO2), and Awaza hotels (22,000). This means that the mid-term target, formally, should be zero. On the other hand, in Annex J a mid-term target is established (although not included in LogFrame) for energy savings from public outdoor lighting in Ashgabat (1.5 GWh), and therefore, annual GHG reductions should be 1.5 GWh x 0.63 kgCO2/kWh (power grid emission factor)= 945 tCO2. Similarly, annual GHG reductions could be estimated based on the mid-term target for Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling (by 60 million km), and default values of net calorific value and emission factor of gasoline (34.8 MJ/l and 1.99 kgCO2/l respectively).

Table 3: Disintegrated Project Results Framework (Disintegrated LogFrame)

Component	Outcome	Output	Indicator		Baseline	Mid-term target	End of Project Target	Assumptions
			#	Description				
Project Objective: To promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits			1	Reduction in GHG emissions from transport, public lighting, and hotel management, tCO2	Total estimated GHG emissions from motor vehicles, public lighting, and hotels in Awaza: approximately 4.4 million tonnes of CO2 per year, projected to grow to 5.0 million tonnes per year by 2020	80,000	366,000	
				Including:				
				1.1. Transport	Total stock of private passenger cars in Turkmenistan, including sport utility vehicles (SUVs), is estimated as 717,000 in 2015 (the exact number of private cars is not publicly available). The number of privately-owned cars would grow 2% per year through 2027			**1.** Energy savings and GHG reductions will be achieved through: (i) Increasing the fuel efficiency of private vehicles (via Activity 3.2.1, and to a lesser extent, Activity 1.2.3b) - main measure for GHG reductions; and (ii) Reduction of private vehicle use (via Activity 1.2.1 and 1.2.2)
					No data are available on the average annual vehicle mileage. Baseline scenario: Each passenger car drives an average of 16,000 km per year			**2.** Baseline and project scenarios carry significant uncertainty because of the absence of sufficiently detailed data on the number, type, and energy performance specifications of private cars. Therefore, the project will conduct a comprehensive inventory of cars under Activity 1.2.4
				1.1.1. Fuel efficiency standards, incentives	The average fuel efficiency improves over time even without program intervention (Turkmenistan's maximum age stipulation for imports; periodic technological improvements expected from car manufacturers) from 10.75 km/l in 2015 to 10.76 km/l in 2027 (i.e. remains essentially steady throughout 2015-2027)		*294,000*	**3.** Project will promote: (i) Introduction of hybrid full-size sedans; (ii) Introduction of hybrid small sedans; and (iii) Reduction in the growth of market share of large SUVs. This will be resulted in steady improvement of fuel efficiency by 3% (up to 11.3 km/liter in 2027)
								4. GHG reductions potential from standards and incentives adopted during the project period is estimated at 1.1 million tonnes by 2027: 490,000 tCO2 during the project period through 2023 (direct GHG emissions reductions), and 618,000 tCO2 in 2024-2027[4] (consequential GHG emissions reductions). End-of-project target includes

[4] Consequential emissions reductions of 618,000 t CO2 are not included in the original Logframe

Component	Outcome	Output	Indicator #	Indicator Description	Baseline	Mid-term target	End of Project Target	Assumptions
								60% of the calculated direct GHG emissions potential for the project period
								5. CO_2 emission factor, 2.75 kg of CO2 emissions per liter of gasoline, is taken from the GEF Scientific and Technical Advisory Panel's TEEMP
								6. The rebound effect (the change in the amount of fuel consumed due to the increase in travel resulting from the reduced time/cost of travel) is assumed to be 0 (given the rapid growth of private vehicle ownership as well as the extremely low price of fuel)
				1.1.2. Promotion of proper tire inflation	Drivers in Turkmenistan commonly and intentionally keep their tires underinflated, in the hopes of obtaining a smoother ride		*20,000*	**7.** GHG reduction potential (20,000 tonnes during the project period of 2017-2023) from proper tire inflation (Activity 1.2.3b) has been calculated via the TEEMP spreadsheet for "eco-driving". End-of-project target includes this full amount
				1.2. Lighting	Annual growth of GHG emissions due to coverage of unlighted areas, in Ashgabat at 1.4%, and in Awaza at 1%, for the duration of the project period		*30,000*	**8.** Project scenario: annual growth of GHG emissions in Ashgabat at 0% by the end of the project period (the slow addition of new lighted areas is offset by increasing use of LEDs, solar lighting, and smart dispatching)
					During the project period, GHG emissions will level off gradually at 5% per year in all five velayats (in 2015 the annual increase was from 13% in Ahal velayat, to 33% in Dashoguz velayat), as: (i) coverage of unlit areas continues; and (ii) lamps are gradually replaced by LEDs			**9.** Project scenario: 0% of annual increase (relamping with LEDs will offset the increased lighting loads from the addition of new coverage)
					In Ashgabat, Awaza, and the five velayats together, baseline CO2 emissions are projected to rise from about 82,000 tCO2 in 2015 to about 121,000 tCO2 in 2023, with the annual rate of increase slowing from about 8% in 2013-15 to about 3% in 2021-23			**10.** Project scenario: In Ashgabat, Awaza, and the five velayats together, CO2 emissions are projected to rise from about 82,000 tCO2 in 2015 to about 104,000 tCO2 in 2023, with the annual rate of increase slowing from about 8% in 2013-15 to <1% in 2021-23. Total GHG reduction potential during the project period is calculated at 50,000 tCO2.

Component	Outcome	Output	Indicator		Baseline	Mid-term target	End of Project Target	Assumptions
			#	Description				
								End-of-project target is set at 60% of this potential
								11. The electricity grid emissions factor is 0.63 tCO2/MWh
				1.3. Hotel management	300 kWh/m2 energy consumption in Awaza hotels (24 in total; each hotel: on average, 240 rooms, with a total of 72 square meters of floor area per room, including common areas), most of which is used for electricity for lighting and summer air conditioning	*0*	*22,500*[5]	**12.** No detailed data on energy consumption in the hotels, nor on occupancy, were available during the project preparatory period. Baseline and project GHG emissions were estimated in accordance with "Cornell Hotel Sustainability Benchmarking Index 2016"
								13. Project scenario: to reduce energy consumption by 10% (or by 24 x 240 x 72 x 300 x 10% = about 1.2 GWh)
								14. GHG reductions are calculated as: (i) Annual GHG reductions: 1.2 GWh x 0.63 tCO2/MWh = about 7,500 tCO2/a (ii) GHG reductions during the project period: 7,500 x 3 = 22,500 t CO2 (i.e. it was assumed that EE measures in all hotels in Awaza would be completed 3 years after the Project start)
								15. Energy savings and avoided emissions will be calculated individually for each participating hotel during the project period
			2	Reduction in energy consumption from transport, public lighting, and hotel management, TJ	Total energy consumption from motor vehicles, public lighting, and hotels in Awaza estimated at 75,000 TJ per year, projected to grow to 85,000 TJ by 2020	1,350	6,200	**16.** Based on estimates of potential energy savings
			3	Number of direct individual and institutional participants (including both women and men) in project-led initiatives on alternative transport, pilot waste sorting and reduction, and green hotel management (50% women and girls)	0	5,000	30,000	

[5] 22,000 in total GHG reductions (366,000 = 294,000 + 20,000 + 30,000 + 22,000)

Component	Outcome	Output	Indicator		Baseline	Mid-term target	End of Project Target	Assumptions
			#	Description				
Component 1: Sustainable urban development in Ashgabat	**Outcome 1.1:** Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space **Outcome 1.2:** Reduced GHG emissions and other negative environmental impact through interventions involving public spaces and infrastructure	**Output 1.1:** Energy-efficient public lighting implemented in Ashgabat, with technical justification prepared for replication **Output 1.2:** Sustainable urban transport solutions in Ashgabat developed and applied **Output 1.3:** Waste volumes reduced, and recycling expanded in Ashgabat **Output 1.4:** City-wide sustainability plans developed and approved	4	Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling, %	12.7 billion passenger-km by private motor vehicle per year nationwide	0.50%	3%[6]	**17.** A dynamic growing baseline, consistent with documented trends of increasing private vehicle ownership and use. Verification by traffic studies and participant surveys
				Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling, million passenger/km per year		60	180	
			5	Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan, GWh per year	131 million kWh of annual electricity consumption by street lighting in all of Turkmenistan in 2015, projected to grow to 192 million kWh by 2023; 67 million kWh in Ashgabat in 2015, projected to grow to 75 million by 2023	1.5	8	**18.** Total potential energy savings in Ashgabat are estimated at 2.5 million kWh per year by 2020. Midterm target is set at 60% of this level.
								19. Total potential energy savings in Turkmenistan are estimated at 13.6 million kWh per year by 2023. End-of-project target is set at 60% of this level
			6	Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs / increase in recycling volume, %	Baseline figures not available; to be determined during the first project year	5%	10%	**20.** Determining the reduction in energy consumption due to promotion of recycling (as well as due to the urban sustainability planning and policy) is very complex task. Therefore, targets are set for volumes of recycled material, but not for associated energy savings and avoided emissions
				Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs / increase in use of secondary raw materials, %		10%	25%	**21.** Measurement and evaluation of this indicator will depend on the availability of data from waste collection agencies, recycling facilities and landfills
			7	Number of cities of Turkmenistan (and total population therein) that formally adopt sustainability practices in transport, lighting, and waste management	No cities have adopted formal sustainability practices			**22.** Partial results regarding sustainability plans will be reported
				Ashgabat and Awaza		Yes		

[6] 180 million km corresponds to 1.5% of decrease

Component	Outcome	Output	Indicator		Baseline	Mid-term target	End of Project Target	Assumptions
			#	Description				
				Two other cities in Turkmenistan with total population of at least 175,000		No	Yes	
Component 2: Sustainable Tourism Infrastructure and Management Practices in Avaza	**Outcome 2.1:** Improved capacities and enabling conditions in Avaza for integrated low-carbon and climate-resilient tourism development **Outcome 2.2:** Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Avaza	**Output 2.1:** Practices to reduce energy consumption, water use, and waste implemented by hotels in Avaza **Output 2.2:** Demonstration and replication of solar-powered public lighting **Output 2.3:** Optimally efficient surface transportation implemented in Avaza **Output 2.4:** Managerial and technical capacity of planners, officials, and facility managers in Avaza enhanced via training	**8**	Reduction of energy consumption and water consumption in Awaza hotels, %	Baseline data unavailable. To be obtained by facility audits in first three project years	10%	10%	**23.** Based on estimates of potential for energy savings as well as international benchmarks
				Energy and water audits completed in 24 hotels, with measures identified for cost-effective reduction of energy and water consumption per guest by an average of 10%		Yes		
				Energy/water saving measures implemented, leading to reduction in energy and water consumption per guest by an average of 10%		No	Yes	
			9	Adoption and implementation of green hotel management standards by Awaza hotels	No green hotel management standards; only piecemeal application of some practices by individual hotels			**24.** Individual hotels may establish their own standards that go beyond the standards developed for all of Awaza
				Green hotel management standards developed with participation by major hotels in Awaza		Yes		
				Green hotel management standards adopted and implemented		No	Yes	
			10	Number and capacity of solar-powered charging stations for electric cars	No solar charging stations	1	10 (At 3 different sites)	**25.** Technical specifications of charging stations, including their capacity, will be determined during the design process. **26.** Establishment of charging stations outside Awaza is contingent on the emergence of a market for electric cars elsewhere in the country.
Component 3: Municipal and National Policy	**Outcome 3:** Nationwide replication and scaling-up of results of first two components via information	**Output 3.1:** National policies developed and adopted in support of integrated and scaled-up green urban practices, supported by capacity enhancement for	**11**	Existence and content of fuel economy standards and incentives for passenger vehicles	No national fuel economy standards, except for stipulations on maximum engine capacity (3.5 liters) and age of cars sold in Turkmenistan			**27.** There are no targets set for energy savings and associated GHG reductions specifically attributable to planning and policy

Component	Outcome	Output	Indicator		Baseline	Mid-term target	End of Project Target	Assumptions
			#	Description				
	dissemination, enhancement of capacity of agencies and managers, and adoption of policies and regulation	responsible agencies and individuals **Output 3.2:** National incentives and standards adopted for fuel efficiency of imported cars		Approval of standards and incentives embodying a 6%[7] increase in average fuel efficiency (up to 11.3 km/l based on original estimate, with exact target to be verified after project studies)		Yes		
				Implementation of standards and incentives, and verification of actual increase in fuel efficiency of cars by 6% (up to 11.3 km/l based on original estimate, with exact target to be verified after project studies)		No	Yes	
M&E and Knowledge Management			**12**	Number of citizens reached by public-relations and knowledge-sharing on sustainable urban development (50% women and girls)	No outreach on sustainable urban development in Turkmenistan	100,000	500,000	**28.** Number of citizens reached to be determined in aggregate from mass media circulation data, distribution of materials, etc.

[7] Fuel efficiency is expected to increase from 10.75 km/l to 11.3 km/l, i.e. by 5.1% but not 6%

- Another way to estimate mid-term target for GHG reductions is to source data on annual baseline and project emissions from figures presented in Annex J (Figure J.1 Baseline and High Efficiency Scenarios for CO2 Emissions from Public Outdoor Lighting in Turkmenistan, and Figure J.2. Baseline and Alternative Scenarios for CO2 Emissions from Private Passenger Cars in Turkmenistan, 2017-2027). The MTR Team estimated MTR target for GHG reductions due to improved fuel efficiency.

Table 4: GHG targets due to the implementation of fuel efficiency standards and incentives

	2018	2019	2020	2021	2022	2023
Overall potential						
BE, tCO2	3,227,604	3,330,274	3,436,277	3,438,220	3,514,820	3,590,492
PE, tCO2	3,181,274	3,270,590	3,361,375	3,351,147	3,413,939	3,475,105
ER, tCo2	46,330	59,684	74,902	87,073	100,881	115,387
Target: achievement of 60% of overall potential						
60%	27,798	35,810	44,941	52,244	60,529	69,232
Target			108,550			290,554

The above calculations show that mid-term target for this output only should be about 108,000 tCO2, i.e. above the MTR target set in LogFrame for all outputs (80,000 t CO2). With this inaccurately set medium-term target, the project team had to tackle a very difficult task to achieve it.

- Mid-term target for Reduction in energy consumption from transport, public lighting, and hotel management is established as 1,350 TJ (end-of-project target is 6,200 TJ). Usually, when the target is established for the aggregative effect of more than one activity (transport, public lighting, and hotel management in our case) then the details of estimations should be provided. In Annex J only mid-term target for Reduction in electricity consumption from public outdoor lighting in Ashgabat is presented (1.5 GWh or 5.4 TJ).
- According to the LogFrame, baseline figures are not available for increase in recycling volume; they shall be determined during the first project year. Nevertheless, mid-term and end-of-project targets are established (5% and 10% respectively).
- The situation is even worse with Reduction of energy consumption and water consumption in Awaza hotels; Baseline data will be obtained by facility audits in first three project years.
- Indicator #10 refers to Number and capacity of solar-powered charging stations for electric cars, while the mid-term and end-of-project targets are established for the numbers only. In addition, electric vehicles could be promoted not only by promoting solar-powered infrastructure but also non-solar-powered charging stations as well. Of course, in this case, the GHG reduction will be less.
- Some targets are stablished by multiplying overall potential by the factor, which is 60% for fuel efficiency; 60% for Fuel efficiency standards and incentives; 60% for public outdoor lighting; 100% for Proper tire inflation, without providing rationale for these numbers.
- Target for fuel efficiency is established in accordance with *Manual for Calculating Greenhouse Gas Benefits of Global Environment Facility Transportation Projects*[8]. CO_2 reductions are calculated by using formula:

  *CO_2 reductions for a given fuel = (fuel savings) * (CO_2 emissions factor) – "rebound effect"*

[8] https://www.thegef.org/publications/manual-calculating-ghg-benefits-gef-transportation-projects

In Annex J to the ProDoc, rebound effect, which is the change in the amount of fuel consumed due to the increase in travel resulting from the reduced time/cost of travel, is assumed to be zero, given the rapid growth of private vehicle ownership as well as the extremely low price of fuel in Turkmenistan. But this assumption may lead to the over-estimation of GHG reductions when/if actual rebound effect is positive. It must be noted that the default value for Rebound effect offset in telework model (discussed in the above Manual) is 0.25 (25%).

- No target is established for Output 2.1: Practices to reduce energy consumption, water use, and waste implemented by hotels in Awaza. Note, that Indicator #6 refers to reduction of in landfill waste from Ashgabat and Awaza from recycling and waste reduction programs. Achievement of Output 2.1 cannot be assessed by using this indicator. Indeed, if in hotels waste is reduced, but not recycled, then Output 2.1 will be achieved, while Indicator #6 clearly requires recycling.

- No target is established specially for Output 2.2: Demonstration and replication of solar-powered public lighting. GHG reductions due to the achievement of this output are integrated into the target for Indicator #5 (Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan)

- No indicator/target is established for Output 2.4: Managerial and technical capacity of planners, officials, and facility managers in Awaza enhanced via training

- Target #8 refers to Reduction of energy consumption and water consumption in Awaza hotels, %. It is unclear how the overall reduction (energy + water) can be estimated given the different units for these parameters (MWh, m3).

- Minor issues:
    - Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling (180 million km per year by the Project end) corresponds to 1.5% reduction of the baseline level but not 3%
    - Fuel efficiency is expected to increase from 10,75 km/l to 11.3 km/l, i.e. by 5.1% but not 6% as in LogFrame
    - GHG reductions for hotels in Awaza was estimated as 22,500 tCO2, and therefore, the overall target should be 294,000 + 20,000 + 30,000 + 22,500 = 366,500 but not 366,000

Despite the above-mentioned problems, no issue was flagged and correspondingly, no revision of the logFrame was requested during the inception phase.

4.2. Progress towards Results

4.2.1. Progress towards outcomes analysis

This analysis is conducted based on the review of indicators in the Results Framework against progress made towards the end-of-project targets, i.e. Project's achievement against objective and outcomes; for each outcome all outputs are analysed. For critical outputs indicator-level progress reported in the PIRs (2019, 2020) also were reviewed.

According to Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects, the assessment of progress should be based on data provided in the PIRs, supplemented by data provided in the GEF TTs, the findings of the MTR mission (no MTR mission took place because of COVID-19), and interviews with the project stakeholders. In addition to this the MTR Team used also technical reports of the Project consultants, minutes of PB meetings, relevant materials from internet, etc. Details of Project progress towards results are presented in Table 5.

Table 5: Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Indicator Assessment Key | Green= Achieved | Yellow= On target to be achieved | Red= Not on target to be achieved

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
PROJECT OBJECTIVE: To promote and imple-ment integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits	Reduction in GHG emissions from transport, public lighting, and hotel management, relative to baseline	Total estima-ted GHG emissions from motor vehicles, pu-blic lighting, and hotels in Awaza: approximatel y 4.4 million tonnes of CO_2 per year, projected to grow to 5.0 million tonnes per year by 2020	The Project is still in the initial phase (after long-term registration and changes in the Implementing Agency). The complete Project team to be hired by the end of summer of 2019. Energy audits for street lighting systems to be completed by the beginning of 2020	Savings of 80,000 tonnes of CO_2 emis-sions achieved via project interventions by end of year 3	Savings of 366,000 tonnes of CO_2 emis-sions achieved via project interventions by end of project	The implemented activities were resulted in GHG reductions in amounts of: 35,237 tCO2 – due to rep lacement of old lamps of DNaT type; 17,675 tCO2 – due to rep lacement of old incandescent lamps; 55,135 tCO2 – due to reconstruction of electrical distribution networks, and replacement of transformers In total: 108,047 tCO2 Before the end of the Project, the GHG reduction, due to the already implemented measures, will reach 475,000 tCO2, i.e. end-of-project target will	**Satisfactory S (5)**	GHG reductions were estimated conservatively. All the data used for GHG reductions calculations are evidenced by the official documents. These reductions come from public lighting only, no GHG reductions generated in the transport sector, possible reduction from the waste recycling is not estimated. Nevertheless, the mid-term target has been achieved by 135%. GHG reductions were generated from two types of activities: (i) planned in the ProDoc (replacement of lamps); and (ii) not considered in it (reconstruction of electrical distribution networks, and replacement of transformers). Without the latter, the target would be achieved by 66%. The implemented measures are highly prioritized in the agenda of the Ministry of Energy, and thus, there is a high likelihood that such activities will be continued, that in turn, will lead to the exceeding of the overall target by the project end. Based on the abovementioned the achievement of this target is rated as **Satisfactory**.

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
						be achieved by 130%		
	Reduction in energy consumption from transport, public lighting, and hotel management, relative to baseline	Total energy consumption from motor vehicles, public lighting, and hotels in Awaza estimated at 75,000 TJ per year, projected to grow to 85,000 TJ by 2020	The first reductions in energy consumption will come after pilot projects are implemented, which is expected in the hotel and street lighting sectors by the end of 2020	Energy savings of 1350 TJ across all sectors achieved by the end of year 3	Energy savings of 6200 TJ across all sectors	Energy consumption in Ashgabat has been reduced by 176,349 MWh (635 TJ); in Awaza by 15,252 MWh (55 TJ). In total, energy savings due to the implemented activities amount to 690 TJ	**Moderately Satisfactory MS (4)**	Energy savings were estimated conservatively. The mid-term target has been achieved by 51% (the reason for difference between the achievements of GHG and energy savings' targets are explained below). However, considering that 60 transformers in Ashgabat, were replaced only in May 2021 (annual energy savings potential - 150 TJ) but not at least, a year ago (due to COVID-19 and strict procedures for international procurement, the Project purchased transformers with a significant delay), then the target would be achieved by 61%. Given the strong interest of Ministry of Energy in continuing similar activities, there is a high likelihood that the end-of-project target will be achieved. Based on the abovementioned the achievement of this target is rated as **Moderately Satisfactory**.
	Number of direct individual and institutional participants (including both women and men) in project-led initiatives on alternative transport, pilot waste sorting and reduction, and green hotel management	No initiatives in these areas, therefore no participation	The Project entered into an agreement with one hotel in Awaza and one investor group that is currently designing its waste sorting and incineration facility, to assist them in conducting energy audit (in hotel) or verifying their existing feasibility assessments (of	Confirmed participation by at least 5,000 citizens (2,500 women and girls)	Confirmed participation by at least 30,000 citizens (15,000 women and girls)	Number of participated individuals is estimated as more than 5,000	**Moderately Satisfactory MS (4)**	The first stage of the information campaign for the collection of plastic was launched in the 2nd half of 2019. At the first stage, more than 15 tons of plastic were collected. After a year, the 2nd stage of the campaign was launched, and about 20 tons of plastic collected. Considering the average weight of empty plastic bottles (major part of collected plastic waste), and an average number of wastes collected by one citizen, the number of individuals would be in a range 3,500-5,000. Considering specialists and other individuals engaged in project activities (other than waste collection), the total

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
			waste sorting & incineration facility)					number would be above 5,000. At the same time, the number of participating females is unclear. Therefore, achievement of this indicator is rated as **Moderately Satisfactory.**
COMPONENT 1: Sustainable urban development in Ashgabat **OUTCOME 1.1: Improved capacities and enabling conditions** in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space **OUTCOME 1.2: Reduced GHG emissions** and other negative environmental impact through interventions involving public spaces and infrastructure	Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling	12.7 billion passenger-km by private motor vehicle per year nationwide	No reduction as no activities have been initiated. The Ministry of Transport, which was as a project partner responsible for sharing information with the project on the public transport routes to be optimized, was reorganized 5 months after the Inception Workshop (now it is – Agency "TurkmenAvtoTransport" subordinated to the newly created Ministry of Industry and Communication). The Project is now aiming to establish the new relation with stakeholder for the transport component and will hire a dedicated international consultant to lead research and public transport route optimization work as well as legal initiatives aimed at a structural	Reduction by 0.5 percent (60 million passenger-km per year)	Reduction by 3 percent (180 million passenger-km per year)	Most of the activities are planned but not implemented. Some activities aimed at promoting alternative transport have already been implemented (e.g. bicycles were purchased and bicycle racks installed in school №21 in Ashgabat, and also in the Bagtyyarlyk park in Ashgabat), but their contribution to achieving this target is very limited.	**Moderately Unsatisfactory MU (3)**	The Memorandum of Understanding, which is considered as a trigger for cooperation between the Project and the Agency TurkmenAvtoTransport, has been discussed for a long time. The project activities implemented so far were focused on: (i) justification of the rational of optimization of traffic in Ashgabat; (ii) implementation of awareness raising campaign to promote bicycles; (iii) purchase of bicycles and installation of bicycle racks. It must be noted that some activities planned in the ProDoc, have been implemented, but without assistance from the Sustainable Cities project. Among them: - In May 2021, for two weeks, the highways of Ashgabat were placed at the disposal of cyclists (initiative of the khyakimlik and public organizations) - An electronic payment system has been deployed in public transport Information of bus routes (new, changed) are provided at the website of the Agency TurkmenAvtoTransport (https://awtoulag.gov.tm/en/) It is expected that MoU will be signed between the UNDP and Agency, and planned activities implemented.

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
			change in the private vehicles stock. It's likely that the route optimization envisioned in the ProDoc will be difficult to implement due to unwillingness of the city authorities to grant access to information about operation mode of some of the state-owned organizations. Besides, it was announced recently that TurkmenAvtoTransport had launched its own route-planner application. This means the respective component envisioned in the ProDoc is going to be unnecessary, or it must be reconsidered on other direction together with TurkmenAvtoTransport					Based on the abovementioned, this cell is colored in red (Not on target to be achieved), and the achievement of target is rated as **Moderately Unsatisfactory** (it is expected to achieve its end-of-project targets with major shortcomings)

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
	Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan	131 million kWh of annu-al electricity consumption by street lighting in all of Turkme-nistan in 2015, proje-cted to grow to 192 million kWh by 2023; 67 million kWh in Ashgabat in 2015, projected to grow to 75 million by 2023	The Project is currently in the process of hiring a consultant to lead energy audits to establish the scope of upcoming pilot street lighting installations	Reduction of electricity consumption from public outdoor lighting by 1.5 million kWh per year in Ashgabat, compared with baseline	Reduction of electricity consumption from public outdoor lighting by 1.5 million kWh per year in Ashgabat and 8 million kWh per year in all of Turkmenistan, compared with baseline	Electricity consumption from public outdoor lighting in Ashgabat has been reduced by 578 MWh in 2019; 94,869 MWh (about 95 million kWh) in 2020; and 80,902 MWh in 6 months of 2021.	**Highly Satisfactory HS (6)**	This is the most successfully implemented component of the Project. The target has been exceeded by more than 60 times. The reasons for this unexpectedly high energy savings are: - Very high losses Technological Losses for Transformation and Transportation (TLTT) in the street lighting system in Ashgabat before the reconstruction - In 2020, about 53% of total energy savings in Ashgabat were generated as a result of replacement of transformers and obsolete power lines, that was not considered in the ProDoc Although the estimated energy savings are not derived from the monitored data (electricity consumption after the reconstruction), still there is no doubt that this target has been largely exceeded. Moreover, the end-of-project target is also exceeded. Therefore, the achievement of it is rated as **Highly Satisfactory.**
	Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs	Baseline figures not available; to be determined during the first project year	The Project will postpone the work on this component until the plans for construction of the first private-funded MSW sorting and incineration facility are approved by the office of the mayor (hyakim) of Ashgabat.	Increase in recycling volume by 5 percent Increase in use of secondary raw materials by 10%	Increase in recycling volume by 10 percent Increase in use of secondary raw materials by 25%	In July 2019, MoU was signed with the Nature Conse-rvation Society of Turkmenistan, and soon the info-rmation campaign on collecting plastic wastes, launched. Sustainable Cities project purchased and installed 120 metal containers for collecting	**Moderately Satisfactory MS (4)**	The Project was looking not only for the recycling options for municipal solid wastes within the project implementation period but also to ensure the sustainability of these initiatives. For this purpose: (i) Nature Conservation Society of Turkmenistan was supported in implementation of campaigns for collection of plastic wastes and wastepaper; (ii) sufficient number of containers were installed for collecting recyclable wastes; (iii) private companies got interested in commercial processing of wastes; those companies are ready to co-finance waste collection in the future.

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
						plastic waste. More than 35 tons of plastic waste have been collected and then processed. Collection of wastepaper also started. Works on the development of the National Waste Management Strategy started: The Structure of the National Strategy has been prepared; a report on municipal solid waste prepared to support the development of the Strategy		Similar activities were planned for Awaza as well but were postponed; will be implemented after the opening of the hotel cluster (due to COVID-19, hotels are locked-down in Awaza). Baseline figures are still not available. Therefore, it is difficult to estimate exact level of the increase in recycling volume, but based on the interviews of the relevant stakeholders, the MTR Team has got a unanimous opinion that the level of recycling has been largely increased, but outside the landfill. And this trend will be, at least, continued after the MTR; more likely it will be accelerated. As for the recycling facilities operating at the Ashgabat landfill, no data was provided to the MTR Team. Based on the abovementioned achievement of this target is rated as **Moderately Satisfactory.**
	Number of cities of Turkmenistan (and total population therein) that formally adopt sustainability practices in transport, lighting, and waste management	No cities have adopted formal sustainability practices	The UNDP sent an official letter to the Cabinet of Ministers of Turkmenistan to inform that the Project is willing to commit funds for feasibility studies, project preparation/procurement support for street lighting modernization projects covering all	Ashgabat and Awaza have formally adopted sustainability plans in given areas, and/or an integrated sustainability plan	Two other cities in Turkmenistan with total population of at least 175,000 have formally adopted sustainability plans	Ashgabat and Awaza adopted sustainability practices in lighting Ashgabat adopted sustainability practices in waste management	**Moderately Satisfactory MS (4)**	The Sustainable Cities project promoted the introduction of sustainable lighting practices in both cities, leading to the achievement of the respective targets. In Ashgabat, the practice of collecting recyclable wastes with subsequent processing has been introduced. It is expected that this practice will be continued on a sustainable basis (the interest of the municipality and the participation of highly motivated private companies were secured - critical factors for sustainability). Travel restrictions related to

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
			major cities in Turkmenistan (>10) if the Govt commits to co-finance the retrofits. The Project also agreed with the EBRD that they would co-finance at least one large pilot project.					COVID-19 are the only reason these practices have not been extended to Awaza. Little has been achieved in the transition to sustainable transport (by reducing the use of private cars and using public or non-fuel modes of transport instead). It is likely that the results achieved to date, will be strengthened during the remaining duration of the Project. Based on the abovementioned achievement of this target is rated as **Moderately Satisfactory.**
COMPONENT 2: Sustainable tourism infrastructure and management practices in Awaza **OUTCOME 2.1: Improved capacities and enabling conditions** in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space **OUTCOME 2.2: Reduced GHG emissions** and other negative environmental impact through interventions involving public spaces and infrastructure	Reduction of energy consumption and water consumption in Awaza hotels	Baseline data unavailable. To be obtained by facility audits in first three project years.	The first reductions are expected to come from pilot energy and water efficient equipment installed in the first pilot hotel. The hotel to become the first pilot is identified. The Project is currently hiring a dedicated energy auditor to lead the audit and project scoping work	Energy and water audits completed in 24 hotels, with measures identified for cost-effective reduction of energy and water consumption per guest by an average of 10%	Energy/water audit measures implemented, leading to reduction in energy and water consumption per guest by an average of 10%	Methodology to execute energy audit in hotels developed, necessary equipment purchased Due to COVID-19-related travel restrictions, Awaza hotels were closed, and energy audit was executed in Ashgabat, in hotel Grand Turkmen	**Moderately Unsatisfactory** **MU (3)**	Implementation of measures recommended by the energy audit is not completed yet. However, even after the completion of pilot project in Grand Turkmen, it would be difficult to evaluate the achievement of the target (reduction of energy and water consumption per guest by an average of 10%) because of two reasons: (i) the target was established for relatively newly constructed hotels in Awaza (with lower potential for savings); and (ii) in conditions of low occupancy of hotels due to COVID-19, specific energy and water consumption (per guest) may be relatively high. In addition, due to the existing circumstances, unlikely energy audits will be executing in 24 hotels, as initially planned. However, the replacement of 24 hotels in Avaza by 1 in Ashgabat can be attributed to a force majeure. As far as travel restrictions are released, the Project can implement planned measures in, at least, in some hotels in Awaza, and likely, achieve the end-of-project target with some shortcomings.

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
								Based on the above-mentioned the achievement of this target is rated as **Moderately Unsatisfactory**.
	Adoption and implementation of green hotel management standards by Awaza hotels	No green hotel management standards; only piecemeal application of some practices by individual hotels	The hotel sector is currently undergoing a massive privatizati-on reform. Currently, 95% of room capacity in Awaza is with state-owned hotel enterprises. About 50% of that capacity is scheduled to be auctioned off in the next 12 months. When the transfer to private hands is com-pleted, the private hotels will be moved to a different tariff category. This means the cost of energy, heat and water will rise 100-fold. There-fore, the efficiency gains from a pilot energy/water effici-ency installation (to be commissioned by the Project in the only existing non-state-owned hotel in Awaza as a result of a pending energy audit) will be replicated by at least 13 more hotels	Green hotel management standards developed with participation by major hotels in Awaza	Green hotel management standards adopted and implemented	National consultant studied best international practices and the current practice of using "green" standards in Avaza hotels 5 brochures, 3 information sheets and 1 booklet, on green hotels have been developed and prepared	**Moderately Unsatisfactory MU (3)**	For reasons, mostly beyond the control of the Project, the pilot hotel for the energy audit was not agreed until August 2020. The audit equipment was delivered in January 2021. Consequently, the EE measures at the Grand Turkmen Hotel based on the recommendations of the energy audit are not yet completed. Thus, within the framework of the Project, the discussion of Green hotel management standards has just begun: - A meeting was held with specialists of the Turkmendovlettasslama design institute to discuss the development of new or revision of existing Building Codes (SNT – Abbreviation used in Turkmenistan) related to EE and "green" standards - Regulatory documents and standards to be developed, were identified. Among them: (i) development of a new SNT "energy-saving buildings"; (ii) revision of standards "Residential and public buildings - rating system for assessing the sustainability" and "Conformity assessment - environmental requirements for real estate"; and (iii) development of a "green certificate" Almost all work in this direction will be implemented after the MTR. At the same time, during interviews with relevant stakeholders, the MTR team did not receive any indication that the adoption of such standards would be opposed by any of the parties involved (government, city administration, hotels

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
								themselves). Therefore, the achievement of this target is rated as **Moderately Unsatisfactory**.
	Number and capacity of solar-powered charging stations for electric cars	No solar charging stations	The Project will discuss ways to accomplish the goal with the Agency "TurkmenAvtoTransport" once a responsible officer from Agency is appointed to cooperate with the Project	One solar charging station installed, with performance evaluation initiated	A total of ten solar charging stations installed nationwide at three different sites	No solar-powered charging station installed. Only the ToR was developed for the Consultant for the analysis and assessment of the possibility of using and developing solar-powered charging stations for electric vehicles in Awaza	**Moderately Unsatisfactory MU (3)**	It must be noted that according to information obtained through interviewed stakeholders, as well as publicly available data, there are practically no private electric vehicles in Turkmenistan. Main reasons are low fuel price in the country, and relatively high costs of electric cars (compared even with hybrid vehicles). Consequently, there is no urgent need for an appropriate infrastructure for their maintenance, including the installation of charging stations. Further, the installation of only one solar-power charging (mid-term target) station unlikely will motivate the drivers to switch to electric cars. The Sustainable Cities project tried to cooperate with the Agency Turkmenavtoulaglary and install charging stations for 2 busses purchased by the Agency in recent years, which were not put into operation due to the absence of charging stations. ToR for the consultant for preparing specifications was developed. Unfortunately, these attempts have not yet brought tangible results, but in case of the interest of the Agency, the Sustainable Cities project is ready to install charging stations for electric vehicles. Therefore, the achievement of this result is still possible, and thus, it is rated as **Moderately Unsatisfactory**. At the same time, it should be noted that even achieving this target will have little impact on the overall success of the Sustainable Cities project.

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
COMPONENT 3: Municipal and National Policy **<u>OUTCOME 3</u>: Nationwide replication and scaling-up of results of first two components** via information dissemination, enhancement of capacity of agencies and managers, and adoption of policies and regulation	Existence and content of fuel economy standards and incentives for passenger vehicles	No national fuel economy standards, except for stipulations on maximum engine capacity (3.5 liters) and age of cars sold in Turkmenistan	These policies will be designed once Agency "TurkmenAvto-Transport" appoints a coordinator from the ranks of the Agency to discuss the incentives structure	Approval of standards and incentives embodying a 6 percent increase in average fuel efficiency (up to 11.3 km/l based on original estimate, with exact target to be verified after project studies)	Implementation of standards and incentives, and verification of actual increase in fuel efficiency of cars by 6 percent (up to 11.3 km/l based on original estimate, with exact target to be verified after project studies)	[redacted]	**Unsatisfactory U (2)**	A draft MoU is under the discussion for more than a year due to lack of readiness of the Agency for cooperation. Although in official communication the Agency is interested in the development of standards for fuel efficiency, (and other activities as well considered in the MoU, no practical steps were undertaken by it to start the cooperation. Inclusion of the representative of Agency into the Project Board shows the big interest of the Sustainable Cities project in such cooperation. In this regard, it must be noted that the representative of the Agency played a passive role in PB meetings (according to the Minutes of PB meetings, he didn't make any presentations, didn't participate in discussions). As already mentioned, the Agency has implemented some of the activities that were foreseen in the ProDoc, without receiving any assistance from the Project. This means that the development of the transport sector in a "green", that is, a sustainable way, is one of the priorities of the Agency, and if the Project finds ways to establish cooperation, the situation will change for the better. Based on the above-mentioned the achievement of this target is rated as **Unsatisfactory.**
<u>M&E and Knowledge Management</u>	Number of citizens reached by public-relations and knowledge-sharing on sustainable	No outreach on sustainable urban development in Turkmenistan		100,000 citizens reached (50,000 women and girls)	500,000 citizens reached (250,000 women and girls)	Thousands of people have gained access to information on sustainable urban development through articles in newspaper Neut-	**Satisfactory S (5)**	The UNDP web-site's awareness opportunities have been fully utilized. Full list of articles in newspapers / web portals is presented in PIR-2020. Among them: - "New free bike renting opened in Ashgabat" - "Green" activities for hotels in Awaza"

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
	urban development					ral Turkmenistan (in Russian) and on the websites of local news agencies (in English, Russian and Turkmen). The project acti-vely used also social networks (FB, Instagram) to widespread the knowledge and results achieved Project organised events dedicated to the World Environment Day, with a focus on sustainable urban development. Dozens of awareness raising materials have been prepared (publications, banners, press releases for the media, etc.) The Project staff members took part in dozens of international and national workshops and conferences, and		- "Energy audits will be conducted in Ashgabat and Awaza" - "Energy-saving is task for present" - "Plastic collection activities continue" - "Waste management strategy is being discussed" - "Sustainable Cities in Turkmenistan Project aimed at ecological stability" - "Atmospheric monitoring – ensuring the environmental safety of Ashgabat" Articles on UNDP Turkmenistan's web site: - "Who recycles what in Turkmenistan" - "UNDP and the Ministry of Agriculture and Environmental Protection of Turkmenistan held a working meeting to develop a draft National Strategy for Waste Management" - "Plastic Waste Management - First Step Towards Integrated Urban Development" In 2021, the following information has been disseminated through the electronic media: Project news regarding the **Planting trees:** - https://sng.today/ashkhabad/17275-v-preddverii-vsemirnogo-dnja-okruzhajuschej-sredy-stranovaja-komanda-oon-v-strane-provela-jeko-akciju.html - https://turkmenportal.com/blog/37073/stranovaya-komanda-oon-v-turkmenistane-provela-ekoakciyu - https://turkmenistan.un.org/ru/129797-obschestvennaya-kampaniya-oon-po-sluchayu-vsemirnogo-dnya-okruzhayuschey-sredy

Project Strategy	Indicator	Base-line Level	Level in 1st PIR (self-reported)	Midterm Target	End-of-project Target	Midterm Level & Assessment	Achieve-ment Rating	Justification for Rating
						presented the achieved results and future plans Tens of thousands of people were approached by a waste collection campaign		- https://centralasia.news/9868-podrazdelenija-oon-v-turkmenistane-proveli-jekoakciju.html - https://ashgabat.in/2021/06/01/akciya-oon-v-turkmenistane-po-posadke-derevev/ News regarding the activity with young SDG Ambassadors: - https://turkmenportal.com/blog/37126/v-detskom-lagere-v-gokdere-provedena-obrazovatelnaya-sessiya-po-ekologii - https://turkmenistan.un.org/ru/129789-oon-povyshaet-osvedomlennost-detey-ob-okhrane-okruzhayuschey-sredy - https://www.tm.undp.org/content/turkmenistan/en/home/presscenter/pressreleases/2021/UNDP-reaches-out-to-children-in-summer-camp-to-raise-ecological-awareness.html News regarding the installation of bike racks and procurement bicycles at the pilot site: - https://www.tm.undp.org/content/turkmenistan/en/home/presscenter/pressreleases/2021/undp-promotes-the-use-of-green-transport.html - https://turkmenportal.com/blog/37193/v-ashhabade-provedeny-meropriyatiya-ekologicheskoi-napravlennosti - https://orient.tm/ru/post/33048/ekoakcii-ot-proon-dlya-ashhabadskih-shkolnikov Based on the abovementioned the achievement of this target is rated as **Satisfactory.**
Overall progress towards achievements is Moderately Satisfactory (MS)								

Indicator Assessment Key | Green= Achieved | Yellow= On target to be achieved | Red= Not on target to be achieved

Notes:

1. LogFrame doesn't include indicators, baseline levels and end-of-project targets for outputs. Therefore, outputs are not presented in this table
2. Achievement of Outcomes is rated based on: (i) precise evaluation of mid-term level of indicators; and (ii) their comparison with the mid-term targets

Below, additional justification of the ratings, presented in Table 5, are presented.

Objective: To promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits

> ***Indicator 1:*** *Reduction in GHG emissions from transport, public lighting, and hotel management, relative to baseline*
>
> ***Mid-term Target 1:*** *Savings of 80,000 tonnes of CO2 emissions achieved via project interventions by end of year 3*

First of all, it must be noted that in the LogFrame, the mid-term targe has been established without a convincing justification (see above Chapter 4.1.2 for details). GHG reductions due to the implemented project activities by the mid-term could occur in the following sectors: (i) public lighting (improving EE),(ii) hotels in Awaza (reducing energy and water consumption; reducing waste); and (iii) transport (fuel efficiency standards and incentives; proper tire inflation). The Sustainable Cities project made great efforts in the first sector, while the activities in the second sector were suspended due to the restrictions related to COVID-19, introduced in Turkmenistan in the spring of 2020 and remain in force until now, and the implementation of activities in the transport sector has practically not started yet. The Project hired an International consultant in energy audit of street lighting systems, and development smart grids, who started looking for options for energy savings in public lighting in Ashgabat and Awaza. Under his leadership the following studies were conducted:

- Possibilities of introducing energy-saving measures and smart grids for lighting systems (study included a cost-benefit analysis). Based on the study of experience of replacement of old lamps of DNaT type (capacity of each lamp - 400 W) by LED lamps (210 W)in street lighting system, and also of replacement of old 100 W incandescent lamps, by modern 12 W LED lamps, the consultant developed the baseline scenario (number of lamps replaced in 2019-2021 in the absence of assistance from the Sustainable Cities project), as well as proposed EE measures including smart grids in street lighting.
- Express audit of medium voltage distribution substations in the city of Ashgabat in order to identify promising areas of modernization of systems;
- Potential for the implementation of measures to replace power transformers and transfer power networks from 6 kV to 10 kV in the power supply system of the city of Ashgabat. Based on the outcomes of the above studies a large number of old lumps were replaced as a result of cooperation of the Sustainable Cities project with the Ministry of Energy and Ashgabadenergo. The associated energy savings and corresponding emissions reductions are presented in Tab. 6.

It is MTR Team opinion that emission reductions were conservatively estimated because:

- Estimations of energy savings due to the implemented measures to lower TLTT, prepared by the Sustainable Cities project, were approved by the Chief Engineer of the State Electric Power Corporation "Turkmenenergo" of the Ministry of Energy.
- Replacement of old lamps, planned by Turkmenenergo for 2019-2021, were accounted to the baseline scenario. GHG reductions were estimated only for only for lamps in excess of the planned amount.
- GHG reductions were estimated by using conservative value of the power grid emission factor, namely, 0.564 tCO2/MWh. It must be noted that in the ProDoc, higher value, 0.630 tCO2/MWh was used.

Table 6: Achieved energy savings and GHG reductions due to the implemented activities

#	Activity	Number		Dates	Implemented activities		Annual electricity consumption (incl. losses), MWh		Annual energy savings, MWh	GHG reductions, tCO2					
		Baseline	Project		UNDP	Ministry of Energy	Before	After		Annual	2019	2020	2021	By MTR	End-of-project
	In Ashgabat														
1	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system	6,000	24,000	Aug-Dec 2019	Initiation; Feasibility Study (FS), technical advice; Quality Control (QC)	Purchase of LED luminaires, dismantling of old and installation of new luminaires.	48,479	17,984	30,495	17,197	0	17,197	8,598	*25,795*	*77,385*
		10,000	15,108	Apr-Jun 2020			13,757	5,104	8,654	4,880	0	2,440	2,440	*4,880*	*19,520*
		5,000	5,378	Jul-Sep 2020			1,018	378	640	361	0	90	181	*271*	*1,354*
		5,000	6,224	Oct-Dec 2020			3,297	1,223	2,074	1,169	0	0	585	*585*	*4,093*
		7,500	18,413	Jan-Mar 2021			29,392	10,903	18,488	10,426	0	0	2,606	*2,606*	*33,884*
		7,500	8,147	Apr-May 2021			1,743	646	1,096	618	0	0	52	*52*	*1,906*
2	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places	5,500	22,000	Aug-Nov 2019	Initiation; FS, technical advice; QC	Purchase of LED luminaires, dismantling of old and installation of new luminaires	7,884	946	6,938	3,913	326	3,913	1,956	*6,195*	*17,933*
		1,000	6,325	Jan-Mar 2020			2,544	305	2,239	1,263	0	947	631	*1,578*	*5,367*
		1,000	4,856	Apr-Jun 2020			1,843	221	1,621	914	0	457	457	*914*	*3,657*
		1,000	5,927	Jul-Sep 2020			2,354	283	2,072	1,168	0	292	584	*876*	*4,381*
		1,000	8,639	Oct-Dec 2020			3,650	438	3,212	1,811	0	0	906	*906*	*6,340*
		2,000	12,318	Jan-Mar 2021			4,930	592	4,339	2,447	0	0	612	*612*	*7,952*
		2,000	6,349	Apr-May 2021			2,078	249	1,829	1,031	0	0	86	*86*	*3,180*
3	For the newly connected settlements of Ashgabat: Reconstruction of electrical distribution	0	106	01.12.2019-06.05.2020[9]	Initiation; FS, technical advice; QC	Purchase of transformers; dismantling of old and installation of new transformers	94,052	8,440	85,612	48,278	0	28,162	24,139	*52,302*	*197,137*

[9] The Ministry of Energy DOE started the first phase prior to the UNDP pilot project as it procured transformers in accordance with applicable national procurement rules, a process that took much less time than procurement under UNDP rules

#	Activity	Number		Dates	Implemented activities		Annual electricity consumption (incl. losses), MWh		Annual energy savings, MWh	GHG reductions, tCO2					
		Baseline	Project		UNDP	Ministry of Energy	Before	After		Annual	2019	2020	2021	By MTR	End-of-project
	networks, with the replacement of old transformers with modern new ones, with a transfer to a new voltage level from 6 kV to 10 kV; and with the replacement of old overhead power lines with new modern cable ones with a voltage of 0.4 kV	0	60	01.03.2021-20.05.2021	Execution of energy audit before and after reconstruction; FS; Purchase of transformers; Installation supervision; Commissioning; High-voltage testing; QC	Purchase of transformers; dismantling of old and installation of new transformers	41,821	3,753	38,069	21,468	0	0	1,789	***1,789***	***66,192***
	In Awaza														
5	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system	1,683 (75% of total)	2,244	01.09.2019-05.12.2019	Initiation; FS, technical advice; QC	Purchase of LED luminaires, dismantling of old and installation of new luminaires	1,511	336	1,175	662	55	662	331	***1,049***	***3,036***
6	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places	16,668 (75% of total)	22,224	01.09.2019-05.12.2019	Initiation; FS, technical advice; QC	Purchase of LED luminaires, dismantling of old and installation of new luminaires	10,620	3,331	7,289	4,110	343	4,110	2,055	***6,508***	***18,839***

#	Activity	Number		Dates	Implemented activities		Annual electricity consumption (incl. losses), MWh		Annual energy savings, MWh	GHG reductions, tCO2					
		Baseline	Project		UNDP	Ministry of Energy	Before	After		Annual	2019	2020	2021	By MTR	End-of-project
7	Reconstruction of electrical distribution networks, with the replacement of old transformers with modern new ones, with a transfer to a new voltage level from 6 kV to 10 kV; and with the replacement of old overhead power lines with new modern cable ones with a voltage of 0.4 kV	0	11	01.01.2020-25.03.2020	Initiation; FS; technical advice; QC	Purchase of transformers; dismantling of old and installation of new transformers	14,104	12,623	1,481	835	0	626	418	*1,044*	*3,549*
	Sub-total in Ashgabat						***207,378***				***326***	***53,498***	***45,622***	*99,446*	*450,281*
	Sub-total in Awaza						*9,944*				*398*	*5,399*	*2,804*	*8,601*	*25,424*
	Total						217,323				724	58,897	48,426	108,047	475,705
	Energy Savings, TJ														
	Sub-total in Ashgabat													*635*	*2,501*
	Sub-total in Awaza													*55*	*144*
	Total													690	2,646

At the same time, calculations are based not on monitored data but the estimated levels of energy losses; this may lead to the over-estimation of energy savings and corresponding GHG reductions.

As it is clear from Tab.6, mid-term targets for GHG reductions has been exceeded (108,047 t CO2 vs. 80,000 t CO2, i.e. target achieved by 135%); end-of-project reductions will reach 475,000 tCO2, i.e. 130% of the target (36,000 tCO2). **Therefore, achievement of this indicator is rated as Satisfactory (S).**

> ***Indicator 2:*** *Reduction in energy consumption from transport, public lighting, and hotel management, relative to baseline*
>
> ***Mid-term Target 2:*** *Energy savings of 1,350 TJ across all sectors achieved by end of year 3*

Energy savings were estimated similarly to GHG reductions. Annual energy reductions were multiplied by the number of months after implementation of measures between January 2019 and June 2021. The overall energy savings were 191,000 MWh or 690 TJ, i.e. the mid-term target (1,350 TJ) was achieved at 51%. The end-of-project target (6,200 TJ) will be achieved by 43%.

At first glance, it seems illogical that the target for GHG reductions has been achieved by 135%, and energy savings - by only 51%. This is because the energy savings and corresponding emission reductions are the result of electricity and fuel savings, and emission factors for these differ significantly. As mentioned above, the emission factor of the power system of Turkmenistan is 0.564 tCO2/MWh, while Gasoline's emission factor is almost twice lower, namely 2.75 kgCO2/l or 2.75 kgCO2/34.8MJ = 2.75 x 3.6 / 34.8 tCO2/MWh = 0.284 tCO2/MWh. According to the ProDoc, the main energy savings are expected in the transport sector. The "average emission factor" by the project mid-term, calculated as an overall GHG target (80,000 tCO2) divided by the target for overall energy savings (1,350 TJ or 375,000 MWh), is 0.213 tCO2/MWh. In fact, fuel savings have not yet occurred. Thus, to calculate GHG reductions, overall energy savings (so far only electricity savings) were multiplied not by the "average emission factor", but by the emission factor for electricity, which is 2.6 times higher than the "average". This explains the "illogicality" of achieving targets.

Through the stakeholders interviews the MTR Team has got a clear indication that the above practices will be continued, i.e. the energy savings will be achieved not only due to already implemented projects, but also due to additional ones implemented until June 2024. This, along with certain progress in transport-related activities, likely will ensure the achievement of the end-of-project target for this indicator.

Therefore, **achievement of this indicator is rated as Moderately Satisfactory (MS).**

> ***Indicator 3:*** *Number of direct individual and institutional participants (including both women and men) in project-led initiatives on alternative transport, pilot waste sorting and reduction, and green hotel management*
>
> ***Mid-term Target 3:*** *Confirmed participation by at least 5,000 citizens (2,500 women and girls)*

The citizens of Ashgabat collected 35 t of plastic waste. The first stage of the information campaign for the collection of plastic was launched in the 2nd half of 2019. With the help of social networks, volunteers and Internet resources, it became possible to disseminate information about the collection of plastic waste as well as incentives (seedlings were given to enthusiasts who were collecting plastic). At the first stage, more than 15 tons of plastic were collected. After a year, the 2nd stage of the campaign was launched. Glass and paper were added to the collection and sorting of plastic. Many

large foreign and local construction companies, administrative and medical institutions, and schools have joined in sorting and collecting.

By the end of 2020 about 20 tons of plastic were collected additionally (35 tons in total). Given that mostly empty plastic bottles were collected, the average weight of which could be in a range 30-60 g, and if assume that a motivated citizen (to get seedling) could collect on average, 150-250 bottles for 1.5 years, then the number of individuals would be in a range 3,500-5,000. Given that respective specialists of Turkmenenergo, Ashgabadenergo, Ministry of Energy, were engaged in replacement of more than 160,000 lamps, 177 transformers and more than 770 km old electricity transmission lines, as well as scientists and engineers of academic institutions involved in execution of energy audits, the total number would be above 5,000, i.e. targets most likely, has been achieved. However, it is unclear, whether equal participation of females (women and girls) was ensured, and thus, achievement of target (2,500 women and girls) cannot be assessed.

If the activities are continued in the same manner, it is likely that the end-of-project target will also be achieved. Therefore, **achievement of this indicator is rated as Moderately Satisfactory (MS)**.

In summary, achievement of two out of three targets for Objective were rated as MS, and one target as S. **Therefore, the achievement of the Objective is rated as Moderately Satisfactory (MS)**.

Component 1: Sustainable urban development in Ashgabat

Outcome 1.1: Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space

Outcome 1.2: Reduced GHG emissions and other negative environmental impact through interventions involving public spaces and infrastructure

> ***Indicator 4:*** *Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling.* Achieving the target for this indicator will ensure the achievement of Output 1.2: Sustainable urban transport solutions in Ashgabat developed and applied
>
> ***Mid-term Target 4:*** *Reduction by 0.5 percent (60 million passenger-km per year)*

Not much has been achieved before the MTR in promoting alternative travel (switching from private cars to public busses, company's shuttles, bicycles, etc.). The main reason is that the Sustainable Cities project couldn't succeed in establishing close cooperation with the Agency TurkmenAvtoTransport. This, probably, was not an issue during the inception phase, given that nothing is provided on this matter in the Inception report, and therefore, the Annual Work Plan (AWP) was developed accordingly; it included the following activities and actions:

- Activity 1.2.1. Design and construction of dedicated bus and bicycle lanes.

  1.2.1.1. Hiring the project team leader on sustainable transport

  1.2.1.2. Analysis and evaluation of motor transport condition in Ashgabat

  1.2.1.3. Assisting in conducting technical analysis, site selection and potential designing for creation of dedicated lines for bus and special bus stops

  1.2.1.4. Working out of the technical recommendations for possibility of creating bicycle lanes

However, soon it become obvious that the Agency was not willing to cooperate; It launched its own route-planner application without asking the Sustainable Cities project on any assistance. As stated in PIR-2019, "In absence of traffic congestion dedicated bus routes may be unnecessary and costly to implement. In light of improved predictability of the public transport, cycling paths may stay unused. The Project will therefore focus its attention on achieving CO2 emissions reductions directly from a change in the composition of private vehicles". Nonetheless, CTA studied the best world experience in optimizing traffic flows in cities and prepared a report on possible options. Among them:

- The backbone of the street network – implies a decrease in delays and stops on the main streets and an increase in traffic speed by means of improved traffic light regulation.
- Development of a network of main streets based on the master plan of the city - includes optimization of the existing structure of streets through the construction of new sections and reconstruction of existing ones.
- Improving the efficiency of urban transport hubs (railway station, bus station) - promoting railway and intercity buses.
- Developing a unified proposal plan for large enterprises to improve urban mobility - educating employees about alternative modes of transport (cycling, walking, public transport), identifying infrastructure options to facilitate the use of alternative modes of transport, and encouraging employees to change the way they get to work.
- Unfortunately, these options weren't further developed due to lack of cooperation with the Turkmenavtulaglary Agency. From interviews with relevant stakeholders, including the Agency representative (who is also a PB member), it became clear that the only reason for not cooperating was that UNDP and Agency haven't signed a MoU; cooperation can start only after signing it.

In the Draft MoU between the UNDP and Agency Turkmenavtoulaglary, prepared by the Project, fields of cooperation were identified, and among them:

- Cooperation in the development of a state strategy aimed at: (i) introduction and wider distribution of "green" types of vehicles; (ii) ensuring the stable functioning of public transport, cargo transportation; (iii) development of international road transport
- Support the advancement of innovations and digital solutions in the development of sustainable transport to reduce GHG emissions, including expanding business opportunities for small and medium-sized enterprises and accelerating sustainable urban development
- Development of a feasibility study for the introduction of electric vehicles and hybrid vehicles; implementation of a pilot subproject with the introduction of electric vehicles and electric charging stations (including setting up solar-powered charging stations for 2 electric buses purchased by the Agency but not put in operation due to absence of charging stations); possible dissemination of the positive experience gained to other cities of Turkmenistan
- Cooperation in the development of the regulatory framework for the promotion and development of the use of electric and hybrid vehicles
- Cooperation in introducing principles of the digitalisation in the road transport sector including mobile applications for public transport passengers.
- Cooperation in the direction of reducing the number of cars on the road; improving efficiency of fuel consumption

- Collaboration on the development and implementation of public awareness campaigns on sustainable transport.

During the MTR process, the Sustainable Cities project re-submitted the draft MOU to the Agency. Unfortunately, in the revised version sent back by the Agency, items related to electric vehicles, were excluded from the scope of cooperation. But the Agency is still interested in optimization of urban transport (e.g. increase in number of passengers without corresponding increase in number of busses) in Ashgabat and other cities based on the best international experience. However, by mid-June 2021, the Memorandum of Understanding has not yet been signed.

Some activities that didn't require the Agency's participation have been implemented. bicycles were purchased and bicycle racks installed in school №21 in Ashgabat, as well as in Bagtyyarlyk Park in Ashgabat, but their contribution to the popularization of bicycles throughout the country is very limited.

It must be noted that some activities planned in the have become parts of the Business-as-Usual scenario, and they were implemented (or will be implemented in the nearest future) even without assistance from the Sustainable Cities project. Among them:

- An electronic payment system has been deployed in public transport[10]
- Information of bus routes (new, changed) are provided at the website of the Agency TurkmenAvtoTransport[11]
- From 10 to 25 May 2021, the highways of Ashgabat were placed at the disposal of cyclists (initiative of the khyakimlik and public organizations)
- Turkmenistan will purchase buses and taxis with a cashless payment system and GPS[12]
- Modern bus stations are under construction in the Balkan, Dashoguz, Lebap and Mary velayats.

The aforementioned activities, along with the environmental campaigns carried out in the country, contribute to the reduction of the use of vehicles and switch to alternative green transport. If the Sustainable Cities project will be able to facilitate this process, it is likely that the end-of-project target can be achieved, but with shortcomings (either major or significant).

> ***Indicator 5:*** *Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan.* Achievement of this indicator will ensure the achievement of Output 1.1: Energy-efficient public lighting implemented in Ashgabat, with technical justification prepared for replication
>
> ***Mid-term Target 5:*** *Reduction of electricity consumption from public outdoor lighting by 1.5 million kWh per year in Ashgabat, compared with baseline*

The Sustainable Cities project applied a systematic and holistic approach to improving the efficiency of street lighting in Ashgabat (and then in Awaza) and thus reducing electricity consumption

- At the first stage, CTA initiated and the International consultant (in energy audit of street lighting systems and development smart grids) continued analysing the existing technical state of the street lighting system in Ashgabat and Awaza. International consultant supported by the national

[10] https://awtoulag.gov.tm/en/item/a/index?category_id=8
[11] https://awtoulag.gov.tm/en/
[12] https://turkmenportal.com/en/blog/34150/turkmenistan-will-purchase-buses-and-taxis-with-a-cashless-payment-system-and-gps--glonass

experts: (i) reviewed the existing regulatory and technical documentation related to the power sector, as well as regulatory documents for the construction, operation and repair of the street lighting system; (ii) selected pilot sections; (iii) together with the specialists of the Ministry of Energy and Ashgabadenergo, carried out instrumental measurements of the technical indicators of the sections of street lighting system, proposed for piloting.

- In parallel, the training in energy audits were carried out (14 training sessions in 2019). As a result, within the high-voltage testing laboratory of Ashgabadenergo, a group of energy auditors in street lighting systems, electrical networks and transformers has been created; the aged measurement equipment of Ashgabadenergo was renewed (in 2020 the Project has purchased new equipment).
- The findings of the aforesaid, served as a basis for pre-feasibility studies for installing LED lamps in street lighting systems in Ashgabat, and also reconstruction of electrical networks aimed at reduction of technical losses.
- Preliminary results of the pre-feasibility studies were discussed with the Ministry of Energy.
- By the end of 2019, the Ministry of Energy made a decision on the economic feasibility of both, installing LED lamps in street lighting systems in Ashgabat and Awaza, and reconstruction of electrical networks supplying street lighting with the replacement of transformers in the newly connected districts of Ashgabat and the transfer of electrical networks to a new voltage level from 6 kV to 10 kV. The reason for this was as follows:
    - In 2013, the Government of Turkmenistan adopted the Concept for the Development of the Power Industry of Turkmenistan for 2013-2020, within the framework of which works were carried out to reconstruct the power networks of Ashgabat: New substations and electricity distribution networks were built; power supply of transformer substations was switched from 6 kV to 10 kV. As of 2019, the reconstruction of Ashgabat's distribution networks was completed. However, as part of the work carried out to expand the territories of the capital, the country's Parliament decided to include the settlements around the city of Ashgabat into the city. The newly connected settlements were supplied by the Akhalenergo power system, which has not yet been reconstructed. Due to the significant overload, and frequent emergency shutdowns, the level of Technological Losses for Transformation and Transportation (TLTT) in Akhalenergo networks is very high, namely 37.89%. Sustainable Cities, through the above study, provided rationale (based on the cost-benefit analysis) for switching these consumers to the Ashgabadenergo energy system, with much lower TLTT. As a result of negotiations between the UNDP and the Ministry of Energy, the ministry decided to reconstruct 246 transformer substations (360 transformers).
- ToR was developed and tender announced (in April 2021) for procurement and installation of lighting systems and smart management (will increase the service life of the luminaires from 6 to 8 years) for the pilot site.
- It was planned to install solar panels to supply power to the pilot section of the street lighting system at Awaza (15 pieces of LED lamps with solar panels as a pilot).
- PB approved reconstruction of electrical networks with the purchase of transformers (60 sets).
- 60 transformers were installed and commissioned.
- Street lighting project at the pilot section in Ashgabat will be finalized in 2023.

In parallel, the Sustainable Cities project provided TA to the Ministry of Energy, Turkmenenergo and Ashgabadenergo in implementation of similar projects implemented in Ashgabat and Awaza financed

from the state budget. TA provided by the Sustainable Cities project included feasibility assessment, consultancy on technical matters, and assistance in monitoring and evaluation (M&E).

The analysis of the monitoring data on lighting lines in Ashgabat before reconstruction showed that the actual losses in the supply lines and the Technological Losses for Transformation and Transportation (TLTT) in the electromagnetic actuators of the 400 W lamp luminaires reached 55%, while the typical value is 10%. In Awaza the pre-reconstruction situation was better, TLTT decreased from 18.3% in 2019 to 7.8% in 2020.

The above demonstrates that all activities were carefully planned, capacity building was an important part of the process, the cost-effectiveness of the proposed technical solutions was studied, energy savings were estimated ex-ante, and post-implementation monitoring was implemented (currently not all monitoring data have been analyzed). All of this is likely to ensure sustainability of the implemented measures as well as high replication potential.

> ***Indicator 6:*** *Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs.* Achieving the target for this indicator will ensure the achievement of Output 1.3: Waste volumes reduced, and recycling expanded in Ashgabat
>
> ***Mid-term Target 6:*** *Increase in recycling volume by 5 percent; Increase in use of secondary raw materials by 10%*

In July 2019, MoU was signed with the Nature Conservation Society of Turkmenistan, and soon the information campaign on collecting plastic wastes, launched. The Sustainable Cities project purchased and installed 120 metal containers for collecting plastic waste. More than 35 tons of plastic waste have been collected. The key for success was that the Sustainable Cities project was able to provide incentives to the residents to collect plastic wastes. As stated above, Nature Conservation Society was "compensating" the enthusiasts by granting seedlings for the collected waste. But the Society, as a public organization, had very limited funds for that, and the Project was buying seedlings and granting them to the Society.

In parallel, the project was searching for partners for the processing of recyclable materials including plastic. As a result, private company Dzhepbar recycled all the collected plastic waste using pyrolysis technology. As this is considered as a promising business direction for the company, Dzhepbar can guarantee the purchase of all collected plastic waste.

The project assisted the Toprak Company, which manufactures corrugated paper packaging containers from recycled wastepaper (up to 11 tons per year), to establish a relationship with the Nature Conservation Society, and a campaign for the collection of wastepaper started. In the future, the company is going to co-finance cost of containers (up to 50%). Alternatively, they plan to buy wastepaper in Afghanistan, China.

One of the positive results of the above measures is that the Ashgabat city administration began to look at this problem in a new way and even thought about resuming the work of the waste recycling facility, which is now inactive.

Baseline study to determine volumes of recycling hasn't been conducted.

> ***Indicator 7:*** *Number of cities of Turkmenistan (and total population therein) that formally adopt sustainability practices in transport, lighting, and waste management.* Achieving the

target for this indicator will ensure the achievement of Output 1.4: City-wide sustainability plans developed and approved

Mid-term Target 7: *Ashgabat and Awaza have formally adopted sustainability plans in given areas, and/or an integrated sustainability plan*

No additional justification of rating is needed for this target.

In summary, achievement of two targets for Outcomes under Component 1 were rated as MS, one target as HS, and one target as MU. **Therefore, the achievement of the Outcomes under Component 1 is rated as Moderately Satisfactory (MS).**

Component 2: Sustainable tourism infrastructure and management practices in Awaza

Outcome 2.1: Improved capacities and enabling conditions in Awaza for integrated low-carbon and climate resilient tourism development

Outcome 2.2: Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Awaza

The implementation of activities under this component was seriously affected by the restrictions introduced in the country in connection with the COVID-19 pandemic. Although not a single case of COVID-19 has been reported in Turkmenistan, a ban on issuing visas to foreign visitors was introduced (still in force), in-country travel of Turkmen residents was also limited/restricted, hotels in Avaza were closed, etc. Thus, the targets could not be objectively achieved, given that there was a short period for implementation before the restrictions were introduced (starting from March 2020).

Indicator 8: *Reduction of energy consumption and water consumption in Awaza hotels.* Achieving the target for this indicator will ensure the achievement of Output 2.1: Practices to reduce energy consumption, water use, and waste implemented by hotels in Awaza

Mid-term Target 8: *Energy and water audits completed in 24 hotels, with measures identified for cost-effective reduction of energy and water consumption per guest by an average of 10%*

As a first step, it was planned to conduct an energy audit in Awaza hotels, for this, the following activities were implemented:

- Collecting data on Awaza hotels
- Development of Methodologies (by an international consultant): to execute energy audit in hotels; to develop buildings' energy efficiency certificate
- A list of specifications of the required equipment for the energy audit has been compiled. The equipment was delivered in January 2021

Initially, the Dayanch sanatorium in Awaza was chosen for the energy audit. An agreement was reached with its director, but with his dismissal, the new director refused to conduct an energy audit. The reason may be low electricity and gas tariffs, which means that energy efficiency measures are not cost-effective. In mid-March 2020, a meeting was organized with the khyakim (governor) of the Balkan velayat, and the Balkan hotel in Awaza was selected as an alternative candidate for the energy audit. In accordance with official procedures, UNDP, through the Ministry of Foreign Affairs, applied to the khyakimlik of the Balkan velayat with a request to approve the indicated hotel as a pilot facility for conducting an energy audit. But then, due to COVID-19, travel restrictions were introduced in

Turkmenistan, later the Awaza tourist zone was completely closed. On August 21, 2020, UNDP received a letter from the Ministry of Foreign Affairs with a proposal to conduct an energy audit in Ashgabat at the Grand Turkmen Hotel. We provide these details to demonstrate that energy auditing of Awaza hotels, to a certain extent, was beyond the control of the Sustainable Cities project.

Grand Turkmen was built in 1994. Until 2019, the hotel belonged to the Ministry of Tourism. It is currently owned by the Ashgabat khyakimlik, who pays electricity and gas bills. That is, hotel employees do not control their own expenses, which certainly reduces the efficiency of energy management. The privatization of the hotel is underway, and this will certainly be an incentive to save energy.

By the end of April 2021, the instrumental audit had been completed (by local experts under the online guidance of an international consultant). The consultant prepared reports: (i) information about the facility, information on pumps, changes in outdoor air temperature during the billing period (ii) methods for determining the consumption of heat and equivalent fuel for heating for the hotel (iii) monthly analysis of electricity consumption, (iv) analysis 15 -minute consumption of electricity received from the memory of the meter (v) analysis of the hourly change in outdoor air. (vi) analysis of heat energy consumption, (vii) calculation of heat consumption for heating, (viii) analysis of air quality in kitchens. It is expected that the implementation of recommended measures (will not include insulation of wells, but replacement of energy-intensive equipment) will take about 6 months, with total costs of about $ 70,000 shared between the Project (purchase of equipment) and the hotel (installation of equipment). However, even after the completion of pilot project in Grand Turkmen, it would be difficult to evaluate the achievement of the target (reduction of energy and water consumption per guest by an average of 10%) because of two reasons: (i) the target was established for relatively newly constructed hotels in Awaza (with lower potential for savings); and (ii) in conditions of low occupancy of hotels due to COVID-19, specific energy and water consumption (per guest) may be relatively high.

Baseline study to determine energy and water consumption in Awaza hotels hasn't been conducted.

> ***Indicator 9:*** *Adoption and implementation of green hotel management standards by Awaza hotels.* Achieving the target for this indicator will ensure the achievement of the same Output 2.1
>
> ***Mid-term Target 9:*** *Energy and water audits completed in 24 hotels, with measures identified for cost-effective reduction of energy and water consumption per guest by an average of 10%*

No additional justification of rating is needed for this target.

> ***Indicator 10:*** *Number and capacity of solar-powered charging stations for electric cars.* Achieving the target for this indicator will ensure the achievement of Output 2.3: Optimally efficient surface transportation implemented in Awaza (in the ProDoc, Activity 2.3.1 was planned to pilot solar-powered charging stations for electric vehicles)
>
> ***Mid-term Target 10:*** *One solar charging station installed, with performance evaluation initiated*

No additional justification of rating is needed for this target.

In summary, achievement of all three targets for Outcomes under Component 2 were rated as MU, and thus, **the achievement of the Outcomes under Component 1 is rated as Moderately Unsatisfactory (MU)**.

Component 3: Municipal and National Policy

Outcome 3: Nationwide replication and scaling-up of results of first two components via information dissemination, enhancement of capacity of agencies and managers, and adoption of policies and regulation

M&E and Knowledge Management (This is neither outcome nor output, but included into the LogFrame)

> ***Indicator 11:*** *Existence and content of fuel economy standards and incentives for passenger vehicles.* Achieving the target for this indicator will ensure the achievement of two outputs, Output 2.1: Practices to reduce energy consumption, water use, and waste implemented by hotels in Awaza; and Output 2.2: National incentives and standards adopted for fuel efficiency of imported cars
>
> ***Mid-term Target 11:*** *Approval of standards and incentives embodying a 6 percent increase in average fuel efficiency (up to 11.3 km/l based on original estimate, with exact target to be verified after project studies)*

After the completion of the inception phase, it was become obvious that the main challenges to be responded were related to the implementation of planned activities in transport sector. The Ministry of Motor Transport has been, which was as a designated project partner responsible for sharing information with the project on the public transport routes to be optimized (as per the), was reorganized in January 2019 into the Agency TurkmenAvtoTransport subordinated to the newly created Ministry of Industry and Communication. In February 2020 TurkmenAvtoTransport was reorganized as a separate Agency. These changes affected the readiness as well of the Agency to be actively involved in the planning and implementation of sustainable transport related activities, practically from the first days of its creation. Lowering the status from Ministry level to Agency level, also didn't contribute to the prompt decision making by the Agency.

Already during the inception phase, it became obvious that the main problems that needed to be addressed were related to the implementation of the planned activities in the transport sector. The Ministry of Motor Transport, which was the designated project partner responsible for sharing information with the project on optimizing public transport routes (according to the ProDoc, was reorganized in January 2019 into the TurkmenAutoTransport Agency, subordinate to the newly created Ministry of Industry and Communications. In February 2020, "TurkmenAvtoTransport" was once again reorganized, now into a separate agency. Naturally, these changes influenced the Agency's readiness to actively participate in the planning and implementation of sustainable transport-related activities practically from the very first days of its creation. Downgrading the status from the ministry to the agency level also did not contribute to the agency's prompt decision-making.

Realizing the problem, the Sustainable Cities project began to look for alternative ways to achieve the planned results. Based on the recommendations provided by the CTA, as well as the request from the Ministry of Agriculture and Environmental Protection (MAEP) for the provision of laboratory equipment for the MAEP Environmental Monitoring Service (there was an official letter from MAEP to UNDP), the following strategic decision was made:

I. To postpone the development and adoption of fuel efficiency standards and incentives pending the signing of a Memorandum of Understanding with the Agency; and

II. To promote the implementation of already adopted standards

The rationale behind this decision was as follows:

- New standards should not favour the import of inefficient vehicles. But, according to the current rules, cars cannot be imported into Turkmenistan if their model year is more than three years earlier than the date of purchase. As correctly noted in the ProDoc, these age restrictions ensure that most vehicles are relatively young and therefore reflect the latest advances in fuel efficiency. Consequently, fuel efficiency is expected to improve with an increase in the share of hybrid and electric vehicles, as well as a decrease in the share of SUVs. But there are problems that hinder the penetration of hybrid and electric vehicles into the Turkmen market: (i) low fuel prices; and (ii) higher hybrid prices. The latter is perhaps even more important given the observed decline in real incomes (in foreign currency) of Turkmen citizens in recent years. Another problem is that reliable data on the vehicle fleet and its growth dynamics by vehicle type, fuel consumption by vehicle type, and annual mileage can only be obtained through the Agency or may not be available at all. Therefore, the implementation strategy must be carefully elaborated, and what is very critical, in cooperation with the Agency.
- In contrary, there are already adopted standards related to the proper operation of engines and exhaust emission control devices. To control the compliance with the standards the traffic police regularly carry out technical checks of cars. lately, experts from Environmental Monitoring Service have been involved in inspections. As noted by many of the stakeholders interviewed, the country has very strict regulations regarding faulty engines. In the first case of detection of a malfunction, the drivers are fined, and in subsequent cases, the cars are taken to a special (penalty) parking lot.

  Based on the above, it is very important to have adequate equipment to detect engine malfunction.

Regarding the development of standards for proper tire inflation, on newer vehicles, the recommended tire pressure is most often indicated on a sticker inside the driver's door. During the MTR, there was no evidence that the idea of enforced proper tire inflation would be supported.

In accordance with the decisions taken, laboratory equipment was purchased to monitor the air quality, as well as the pollution of water resources and soil in Ashgabat and Turkmenbashi. This equipment, according to representatives of the ministry, not only improved the quality of monitoring, but is constantly used in express inspections of the levels of pollutants in the exhaust gases of cars.

The cost effectiveness of this support from the Project can be assessed only after analyzing the data (for example, the dynamics of fines) before and after using the new equipment.

In addition, upon request of the Government of Turkmenistan, the Sustainable Cities project has developed the following legal/policy documents:

- Law on Renewable Energy Sources (adopted in March 2021)
- National Renewable Energy Strategy (a draft has been developed)
- Law on Energy Efficiency (under the discussion in the Parliament)
- National Waste Management Strategy (a draft has been developed)

Indicator 12: *Number of citizens reached by public-relations and knowledge-sharing on sustainable urban development.* This indicator is established for **M&E and Knowledge Management.** Achieving the target will facilitate the achievement of all outputs

Mid-term Target 12: *100,000 citizens reached (50,000 women and girls)*

No additional justification of rating is needed for this target.

In summary, achievement of two targets for Outcomes under Component 3 were rated as U and S. **The achievement of the Outcomes under Component 3 is rated as Moderately Satisfactory (MS).**

Overall rating for Achievement of Targets

Overall rating was calculated as an average of ratings of:

I. ratings of 12 targets

Average = (5 (for indicator 1) + 4 (for indicator 2) + ... + 5 (for indicator 12))/12 = 46/12 = 3.83 ≈ 4.

II. ratings of Objective and Components

Average = (4 (for Objective) + 4 (for Component 1) + 3 (for Component 2) + 4 (for Component 3)) / /4 = 15/4 = 3.75 ≈ 4.

In both cases, the average rating is 4. **Therefore, the overall rating for achieving of targets is Moderately Satisfactory**

4.2.2. Remaining barriers to achieving the project objective

Despite the progress observed in Project implementation, there are still existing barriers ("issues" as per the ProDoc) hampering the achievement of the planned outcomes. As of June 1st, 2021, the status of barriers are as follows:

- ***Lack of incentives and regulations on fuel efficiency*** – this issue (can be considered as a Financial Barrier) is not resolved yet due to the objective (low fuel prices) and subjective (no fruitful cooperation is established with the Agency TurkmenAvtoTransport) reasons. Addressing the objective reason (project risk) is beyond the control of the Sustainable Cities project, but this risk can be managed through an adequate risk mitigation strategy. As for the subjective reason (project issue), it can be resolved by signing MoU and starting cooperation with the Agency
- ***Lack of required specific infrastructure*** (related to Smart-grid technologies in urban lighting, municipal waste sorting and recycling) – The ProDoc proposes conducting a technical and financial feasibility assessment, as well as capacity development to introduce these new types of infrastructure in Turkmenistan. The Sustainable Cities project has worked to remove this Technology barrier. Advanced technologies have been introduced, including smart street lighting control, (potentially) sustainable collection and recycling methods for specific waste (plastic, paper, glass), and, very importantly, the economic and financial attractiveness of these methods to government agencies and private companies have been demonstrated through studies and projects implemented. Monitoring and evaluation (M&E) of the

implemented projects continue; however, it can already be concluded that this technological barrier has been largely removed.

- ***Lack of data and technical and financial justification for public investment in sustainable urban development*** - for energy-efficient lighting and waste recycling the necessary data were obtained (including through hiring of an expert in national statistics); in sustainable tourism in Awaza – the necessary data were obtained for energy efficient lighting and waste recycling (including through the hiring of an expert on national statistics); in sustainable tourism in Avaza - activities aimed at removing this barrier have been suspended due to the closure of Avaza hotels (as part of the restrictions imposed to address the problem related to COVID-19). Instead, cost-effective measures have been identified for the Grand Turkmen Hotel in Ashgabat. Little has been done in the transport sector and the barrier remains active.
- ***Relative lack of attention to sustainable development solutions in other cities of Turkmenistan*** – achieved results in reducing of energy consumption in public lighting, as well as collecting plastic wasted for further recycling, easily could be replicated in other cities after the releasing COVID-related restrictions. As for the sustainable transport, it will be promoted mainly at the national level rather than the municipal level.
- ***Lack of systematic planning of resilience in Ashgabat and Awaza; Lack of technical capacity in planning and design to ensure the sustainability of cities*** - these barriers still exist
- ***Lack of public awareness of behavioural change to ensure sustainability*** – this barrier is partially removed, given that behavioural changes of the residents towards the switch from private cars to public transport is not assessed on the basis of actual monitoring; in other sectors, this barrier has been removed. Improvements in bus routes and the introduction of cashless payments have certainly increased the attractiveness of public buses, but how this affected the willingness of citizens to use public transport instead of private cars remains to be explored.

4.3. Project Implementation and Adaptive Management

Overall rating for Project Implementation and Adaptive Management is "Moderately Satisfactory", i.e. implementation of its seven components (management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation systems, stakeholder engagement, reporting, and communications) is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action. The reasons for this MS rating is provided in the below chapters 4.3.1-4.3.7.

4.3.1. Management Arrangements

As mentioned in Chapter 3.4 above the Project is being implemented under the UNDP National Implementation Modality (NIM). UNDP is providing execution support (project staff and project consultants are hired by the UNDP; project budget is managed by UNDP; UNDP is organizing high-level meetings with energy and environment authorities, co-chairing PB). UNDP is timely providing needed technical support and thereby ensuring adequate responsiveness to implementation issues (except in transport sector). Full-time Project Manager (PM) is responsible for the day-to-day management and decision-making for the Project, work planning, reporting, supervision of the work of the Project experts and other Project staff. Full-time Field Assistant (FA) is supporting the PM on administrative and financial issues.

International Chief Technical Adviser (CTA) plays a critical role in planning and implementing project activities. As per the contract, he should spend up to 120 days annually, of which about 40 working days in Turkmenistan (since March 2020 he is working online). Among others, the CTA prepared Inception report. He participated in 10 workshops and conferences (including 9 online) on EE, RES and urban development.

The Sustainable Cities project has also established three task groups in: (i) public lighting; (ii) hotel energy management; and (iii) waste management. For each task group national lead expert has been selected; for first two tasks national experts are supported by the international consultants.

The Project Board, co-chaired by the authorised representatives of UNDP and Ministry of Agriculture and Environmental Protection, is responsible for making management recommendations for the Project when guidance is required by the Project Manager. Four meetings of the Project Board have been organised in 2018-2020. The fifth PB meeting will be organized after the completion of the MTR.

The National Project Coordinator (NPC) usually plays a critical role in the successful implementation of UNDP/GEF projects in Turkmenistan (this conclusion is based on the experience of the MTR team leader in the country). But for this very complex project with the participation of various state bodies as the key stakeholders (Ministry of Agriculture and Environmental Protection, Ministry of Energy, Ministry of Foreign Affairs, Mejlis, Agency "TurkmenAvtoTransport"), which should be involved not only through membership in the Project Board, but also active participation in the planning and implementation of project activities, this is a challenging task. In some cases (e.g. wishing to establish effective working relationship with the Agency TurkmenAvtoTransport based on a similar understanding of the problems related to the sustainable transport, and a similar vision of potential measures in this sector), despite the efforts of UNDP with the support of the NPC, the expected progress has not been achieved.

It must be noted that the Sustainable Cities project is responsible for the implementation of some other UN projects in Turkmenistan. In particular:

- UNDP is supporting countries in the development of draft Nationally Determined Contributions (NDCs). Through the Istanbul Regional Hub (IRH), UNDP Turkmenistan received funds under the global Climate Promise programme to support the development of the NDC, and the Sustainable Cities project has been identified as the coordinator of this activity
- UNEP entered into an Agreement with UNDP on the implementation through the current UNDP projects (Sustainable Cities project has been identified) the development of the 4th National Communication of Turkmenistan to the UNFCCC
- Sustainable Cities project is also responsible for the implementation of another UNEP project to ratify the Kigali Amendment

Based on the desk review of the materials and documents, and interviews of stakeholders the MTR, the management arrangements are evaluated as follows:

Overall effectiveness of project management – in general, project management is as described in the ProDoc. The responsibilities of the PM, FA, CTA are clearly defined and in most cases are effectively carried out. As already mentioned, established mid-term targets for the Objective were largely achieved, including GHG target, which has been achieved by 135%. This was due to the fact that the potential GHG reductions were continually assessed/re-assessed, and corrective actions were taken as needed (by adding additional activities/actions).

One of the critical success factors, in terms of GHG reductions, was the disconnection of settlements newly connected to Ashgabat from the power system of Akhalenergo (with high electricity losses - up to 38%) and connection to the Ashgabadenergo power system (3.4% losses). This made it possible to

reduce GHG emissions by 54,091 tCO2 (67.6% of the mid-term target); emission reductions at the end of the project are estimated at 263,329 tCO2 or 71.9% of the overall GHG reduction target (366,000 tCO2). This is the best example of adaptive management.

Another example of the effectively applied adaptive management is the creation of a sustainable triangular scheme "Citizens - Nature Conservation Society - company Dzhepbar" for the recycling of plastic waste, where all parties were incentivized including financially (citizens received seedlings free of charge from the Nature Conservation Society, which in turn, received them from the Sustainable Cities project; Dzhepbar received free and, more importantly, continuously recyclable plastic). Sustainability of recycling after the completion of the Sustainable Cities project will be ensured as Dzhepbar is is willing to pay for the collected plastic waste.

Executing the energy audit at the Grand Turkmen hotel in Ashgabat is also an example of adaptive management, but its effectiveness cannot be assessed at the moment, since the measures recommended by the audit have not yet implemented, and thus its impact on reducing energy and water consumption in hotels in Awaza also defies assessment.

As for the PB (and, to some extent, the NPC), he could provide clearer recommendations for addressing the issues related to the lack of cooperation with the Agency TurkmenAvtoTransport, selection of hotels in Awaza for executing energy audit, restrictions due to COVID-19. In this regard, it should be noted that according to the Minutes of PB meetings, Sustainable Cities project never encountered any problems. Indeed, the Minutes list implemented activities and future plans (some activities are also discussed), but there is no information that something is going wrong in the project, or some partnership cannot be established. An exception is the fourth PB meeting (held on September 30, 2020), when the CTA proposed to revise some of the project activities (the Minutes does not indicate which activities). The followed discussion on this matter focused only how these changes might be formalized. The PB decided to request the CTA, during the MTR (information on the MTR was included into the Agenda) to develop a draft revised implementation strategy - this is the right decision. But again, along with the above, no problems were noted regarding the lack of progress in sustainable transport component. This looks illogical given that PB-4 has drawn attention to those aspects of the project that are not of high importance to the achievement of the project outcomes (the PB-4 among others decided: To appreciate the works to support the improvement of the MAEP's laboratory facilities; To support the development of a program to improve the environmental monitoring and control system). Moreover, they were not planned in the Prodoc.

4.3.2. Work planning

Work planning is being carried out in a manner which is consistent with the UNDP common practice. The planning is conducted based on annual work plans (AWPs), which are reviewed and approved by the PB. The planning is based on the principle of resource and Results Based Management. All AWPs are very detailed; new activities (in addition to those ones presented in the ProDoc) are identified; each activity consist of number of actions with clear designation of responsible legal and/or physical persons, and corresponding budget; AWPs are revised as needed. A below table demonstrates that the activities were carefully planned even for that component, which didn't work well. Most of the planned actions are appropriate.

Many events planned for 2020 have been suspended due to COVID-related restrictions. The project was able to revise them in such a way as to make them potentially feasible even under the current circumstances.

Table 7: Planned activities to promote sustainable transport

Planned Activity	Planned Action		
	2019	2020	2021
1.2.1. Design and construction of dedicated bus and bicycle lanes	Hire Sustainable Transport Project Working Group Leader	Hire a Sustainable Transport Project Specialist	Development of drafts of legal and regulatory documents in the field of sustainable transport
	Analysis/assessment of the state of vehicles in Ashgabat	Analysis/assessment of the state of vehicles in Ashgabat	
	Assistance in technical analysis, site selection and possibly, design for the creation of dedicated bus lanes	Development of drafts of legal and regulatory documents in the field of sustainable transport	
	Development of technical recommendations for the possible creation of cycle paths	Assistance in the analysis and preparation of for the creation of dedicated bus lanes	
1.2.2. Design of e-passes, map updates, and a mobile app for riders	Assistance in the implementation of new developments to improve the system of e- ticketing, update passenger cards	Collection and analysis of information for the possible implementation of new developments for updating passenger cards	Analysis of the situation, preparation of recommendations for improving mobile applications for passengers
	Design of mobile applications for passengers	Analysis of the situation, preparation of recommendations for improving mobile applications for passengers	
	Promotion campaign for the widespread of mobile applications		
1.2.3. Behavioural-choice programs and outreach on sustainable transport	Development and launch a public awareness campaign on sustainable transport	Development and launch a public awareness campaign on sustainable transport	Development and launch a public awareness campaign on sustainable transport
	Support events dedicated to World Environment Day	Support events and actions on environmental protection for sustainable development	Support events and actions on environmental protection for sustainable development
1.2.4. Data collection and analysis on transport volumes, choices, and preferences	Detailed analysis of data on passenger and cargo transportation	Detailed analysis of data on the volume of passenger traffic in Ashgabat	Detailed analysis of data on the volume of passenger traffic in Ashgabat
1.2.5. Development of a roadmap for the use of electric and hybrid vehicles and installation of charging stations for electric vehicles in Ashgabat and Awaza	Purchase of a hybrid vehicle for the Project	Promotion of initiatives followed by the activities to promote electric and hybrid vehicles	Promotion of initiatives followed by the activities to promote electric and hybrid vehicles
	Development and promotion of a roadmap for the promotion of electric and hybrid vehicles		
1.2.6. Promotion "green" transport (bicycles, gyro scooters, scooters) in Ashgabat and Awaza based on international experience	TA to the implementation of the Global Cycling Initiative (Support in Cycling Day; installation of pilot bike racks)	Assistance in the implementation of the global cycling initiative	Assistance in the implementation of the global cycling initiative
			Identification of a pilot site and installation of a workshop for bicycles
3.2.1. Development and implementation of fuel economy standards and incentives for motor vehicles	Analyzing the current situation and developing incentives for imported vehicles with improved fuel efficiency	Analyzing the current situation and developing incentives for imported vehicles with improved fuel efficiency	Analyzing the current situation and developing incentives for imported vehicles with improved fuel efficiency
	Organize a workshop to discuss recommended incentives for imported vehicles	Organize a workshop to discuss recommended incentives for imported vehicles	Organize a workshop to discuss recommended incentives for imported vehicles

Gender issues - No significant gender concerns were considered in the ProDoc. The Project is aimed at achieving gender equality and women empowerment of women through the full participation of females in all project activities. Task leader for waste management, project experts in environmental monitoring, statistics, are women; one out of three international consultants is a woman.

A significant problem in work planning is the large difference in official and unofficial exchange rates. All national experts are hired under the Individual Contracts and paid in TKM at the official USD/TKM exchange rate (3.5 USD/TKM), while prices in the country are in many cases driven by the unofficial exchange rate, which is about 5 times higher. This means that the cost of national experts is much higher than budgeted for the Project. It should be noted that this is a common problem for all UNDP projects in Turkmenistan, which naturally leads to a decrease in the involvement of local specialists (in man-months).

4.3.3. Finance and co-finance

Project expenditures as of June 1, 2021 are presented in Tab. 8

Table 8: Cumulative Project Finance

Component	Budget, USD		Expenditures as of June 1, 2021, USD	Delivery rate against the budget for years 1-3, %
	Total	For years 1-3		
Component 1	3,586,533	2,732,913	1,504,852	55%
Component 2	1,415,080	1,123,170	523,300	47%
Component 3	561,830	296,320	126,094	43%
M&E and knowledge management	208,030	89,650	35,502	40%
Project Management	388,573	197,883	210,136	106%
Total	6,160,046	4,439,936	2,399,884	54%

The MTR Team has received evidence of strong financial controls being in place.

Low delivery rate (54%) are conditioned by two main reasons: (i) slow-down of some activities due to the COVID-related restrictions; and (ii) No progress in sustainable transport-related component. As mentioned above, activities under this component were planned every year but not implemented (formal reason for that: MoU is not signed). However, the Sustainable Cities project, to show at least, some delivery, spent certain funds from Component 3. These funds were used for fees (PM, FA), publications, organisation of workshops and trainings, etc.

The co-financing as of June 14, 2021 is presented in Tab. 9

Table 9: Project co-financing

Sources of Co-financing	Name of Co-financer	Type of Co-financing	Co-financing amount confirmed at CEO Endorsement, USD	Actual Amount Contributed at stage of Midterm Review, USD	Actual % of Expected Amount
Government	Ministry of Energy	In-cash	57,100,000	45,674,664[13]	80.9%
Total Co-financing			57,100,000	45,674,664	80.9%
		TOTAL	**57,100,000**	**45,674,664**	**80.9%**

It must be noted that recently the Ministry signed a contract on supply of purchase of 415 transformers (10 / 0.4 kV), 11 transformers (35 / 0.4 kV) and 10 transformers (10 / 0.4 kV); 323 Outdoor Transformer Substations set, as well as 0.4 kV, 10 kV and 35 kV cables for the reconstruction

[13] See details in Annex 6

of electrical distribution networks. Contract amount is USD 14,659,659; installation works are estimated at USD 2,747,680. In total USD 17,407,339. The contractual works are not completed yet, thus this amount is not included in Tab. 9.

4.3.4. Project-level monitoring and evaluation systems

In the ProDoc, the monitoring & evaluation plan was developed in compliance with UNDP requirements. Responsibilities of Project Manager, Project Board, UNDP Country Office, Project Implementing Partner were clearly defined.

Project Manager, who is responsible for regular monitoring of project results and risks, according to the Prodoc, should:

1. Ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results – actually, PM did all this
2. Inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted – PM was regularly informing on delays; as for the difficulties, PM informed on COVID-related problems, problems in selection of pilot hotel in Awaza (before COVID-related restrictions), but PB wasn't informed (at least nothing is provided in Minutes of Board meetings) on no progress in transport component, as well as in development of sustainable plans for Ashgabat (to achieve Output 1.4: City-wide sustainability plans developed and approved)
3. develop Annual Work Plans based on the multi-year work plan included in Annex A of the ProDoc, including annual output targets to support the efficient implementation of the project – AWPs were developed based on the multi-year work plan; for each output indicators were determined. At the same time, Corrective Actions in case of non-achievement of targets, were not always planned and then implemented. For example, the problem in selection of pilot hotel for energy audit has been flagged and then resolved, while no progress in achieving Target 4: Reduction in number of passenger-km of private car travel by 3 % (180 million passenger-km per year), was included in the Annual Project Progress Report (APPR) for 2020, as well as the reason for that (the Agency TurkmenAvtoTransport "is not engaged with the Project despite numerous open channels of engagement and communication"), corresponding risk also was identified (see below), however, this wasn't reported to the PB.

According to the ProDoc, Project Board should:

4. take Corrective Action as needed to ensure the project achieves the desired results – not always (see above)
5. hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year – yes, PB did this

The original Monitoring & Evaluation plan, presented in the ProDoc, included:

6. Inception workshop and report – The inception report should be prepared by the PM no later than one month after the inception workshop. Actually, the CTA prepared the report in April 2019 while the Inception workshop was held on September 25-26, 2018. No discussion of the delay in preparing Inception report was discussed at the Board Meeting held on January 17, 2019; Inception repot was not approved by the next PB meeting held on February 12, 2020.

7. Project Implementation Report (PIR) – two PIRs were prepared before the MTR, PIR-2019 and PIR-2020.

In addition, the risks were regularly monitored – The risks entered into the Atlas, are valid to December 31, 2021. "Regulatory risk" related to the transport sector was identifies in July 2019, at present the risk level is "Substantial"; "Other risk" related to COVID-19 was identifies in March 2020, at present the risk level is "Substantial". In PIR-2020 only one critical risk (regulatory risk) is presented without "describe the risk identified and explain the management approach agreed between the RTA and Country Office on managing/mitigating the risk" (required by PIR). The above shows that the Project was monitoring risks, they were identified without delays, but risks were not always adequately reported (and managed as well).

Finally, the Green Cities project has developed midterm Core Indicators.

4.3.5. Stakeholder engagement

From the very beginning, the Project tried to establish partnerships with all key stakeholders by inviting them to PB. However, the level of effectiveness of their cooperation is not always high enough.

During the MTR interviews, all stakeholders expressed their full support for the Project, its objectives and implementation strategy. However, it is not always supported by the real cooperation e.g. aimed at setting standards for fuel efficiency, development of alternative transport, development of sustainable urban planning.

Usually, the main problem in complex projects with multi-sectoral components, implemented in countries with an underdeveloped / premature private sector, is to engage stakeholders representing the private sector rather than public authorities. In this Sustainable Cities project, the situation is rather the opposite. Within this project, it was possible to establish fruitful cooperation with NGOs (Nature Conservation Society), private companies (Dzhepbar, Toprak), which, despite the relatively weak financial status, not only demonstrated enthusiasm for recycling waste (plastic, waste paper), but see recycling as one of the main directions in the future.

As for the Governmental bodies, the state of their engagement is as follows:

- Ministry of Agriculture and Environmental Protection (Implementing Partner) – is fully engaged, but the effectiveness and efficiency of its engagement are not always as high as could be. Indeed, MAEP has a limited influence (if any) over the Agency TurkmenAvtoTransport. The communication through the Ministry of Foreign Affairs has not yet brought tangible results (low effectiveness). MAEP has promoted the provision of financial support (procurement of laboratory equipment for environmental monitoring) to its subordinated bodies, which in principle contributes to the achievement of project outcomes, but this contribution is relatively small (low efficiency).
- Ministry of Energy – the Sustainable Cities project has an excellent cooperation with it. The Ministry has accepted all proposals from the Project, aimed at improving the efficiency of the street lighting system, and what is important, provided co-financing on time and in the required amount.
- Agency TurkmenAvtoTransport – formally the Agency stands for cooperation, but this is not supported by real actions. The true reason for their non-willingness to cooperate is unknown (at least the MTR team has no convincing explanation for this).

One of the reasons for the insufficient participation of state bodies, as well as the Ashgabat municipality, may be the fact that these structures are not represented in the Project Board by senior management (for example, a Deputy Minister, a Deputy Head). Because of this, PB members may not always have the authority to make PB decisions, which, for example, will criticize another government agency or will require some measures to be taken by their own body).

4.3.6. Social and Environmental Standards (Safeguards)

In accordance with the UND Social and Environmental Screening Procedure (SESP), Social and Environmental Screening was conducted during the design stage of the Sustainable Cities project. SESP wasn't revised during the project implementation.

The following social and environmental risks were identified in the SESP:

1. Construction of new bicycle and bus lanes could lead to new problems of traffic congestion, disruption of utility services, safety concerns for workers or users, and environmental damage. Impact (I) =3; Probability (P) =2; Significance (S) = Moderate
2. Creation of a new recycling program creates occupational safety concerns, as well as issues of consumer protection for products made with recycled materials, especially when waste streams are not sufficiently uniform or when they contain hazardous wastes.
   I=2; P=2; S = Moderate
3. Project activity to promote bicycle use will expose citizens to increased risks of serious injury, given safety concerns with motor vehicles on the streets of Ashgabat.
   I=2; P=2; S = Low
4. Project activity to promote increased carpooling exposes citizens to increased risks of crime, with particular risks for women.
   I=1; P=1; S = Low
5. Project activity to promote bicycle use will contribute to gender inequality insofar as Turkmen women commonly wear long dresses that do not easily accommodate bicycle riding.
6. I=1; P=1; S = Low

Most of the above risks are related to the transport sector, where the Sustainable Cities project has not produced tangible results to date. Thus, these risks could not be mitigated due to the implemented measures. However, the TurkmenAvtoTransport agency built several new bus lanes that did not have the negative impact described in risk 1. The recycling of plastic waste showed that there were no safety problems. Consequently, the ratings of some of the risks presented in the SESP will be downgraded, while the ratings of some others will remain at the same level.

The Sustainable Cities project made a notable progress in the implementation of the project's social and environmental management measures as outlined in the SESP. Implemented pilot projects (reduction of electricity losses, EE lighting) led to the significant energy savings and associated GHG reductions. The project promoted not only technical and policy solutions, but also it ensured engagement of citizens as stakeholders and participants in collection of plastic waste.

4.3.7. Reporting

The Project prepares annual progress reports as well as PIRs. PIRs follow the standard UNDP/GEF format and provide general ratings and comments on Project progress from the Project Manager,

UNDP Country Office Programme Officer and the Regional Technical Advisor. The reports are well-structured and provide information on planned and implemented activities.

4.3.8. Communications

The internal communications between the Project and its stakeholders is regular through e-mail, phone, formal meetings (including meetings of UNDP CO Management with the Ministers), PB meetings. None of the key stakeholders is left out of communication. The MTR Team can confirm that all the stakeholders interviewed are aware on the objectives and strategy of the Project as well as its current status and future plans.

To date, the external communication was mostly ensured through the UNDP CO website, mass media, dissemination of prepared publications, organized events during the World Environmental Day,World Cities Day, etc. Links to the external communication products, media articles, etc. are presented in PIRs.

4.4. Sustainability

In the ProDoc, the risks have been identified and potential mitigation measures discussed. Since the ProDoc was not based on the comprehensive barrier analysis, not all the risks were identified and first of all, financial risks related to low energy and fuel prices.

Overall rating for sustainability is Moderately Likely (ML), i.e. moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review

4.4.1. Financial risks to sustainability

Question[14]: What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Answer: As mentioned, over 80% of the total co-financing has already been provided by the Ministry of Energy and it is expected that it will continue to fund EE activities in the field of public lighting as the project has demonstrated and the Ministry has accepted the results of (i) an economic analysis; and (ii) the technical feasibility of the implemented pilot activities. On the other hand, the transition from conventional vehicles to low emission ones has not yet taken place, because the financial risks associated with low fuel prices and high costs of electric and hybrid vehicles still exist.

Rating: **Moderately likely**

4.4.2. Socio-economic to sustainability

Question: Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?

[14] Questions are from the ToR

Answer: No such social and/or political risk has been identified. The political risk: Project activities are not viewed as top priorities by the government, is rated as "Low"

Question: Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long-term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Answer: Yes, the stakeholders are interested in the successful implementation of the Project (perhaps with some reservations regarding the TurkmenAutoTransport Agency), because either they will benefit from this, or at least it will be in line with the stated priorities of the sectoral policies.

Rating: Likely

4.4.3. Institutional framework and governance risks to sustainability

Question: Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place

Answer: Coordination of the activities of the various institutions supporting sustainable urban development is very important, and such coordination has already been observed in the street lighting and waste management components of the Project. But the regulatory framework and the corresponding institutional mechanisms for its implementation have yet to be created to improve fuel efficiency.

Rating: Moderately Likely

4.4.4. Environmental risks to sustainability

Question: Are there any environmental risks that may jeopardize sustainability of project outcomes?

Answer: No. **Rating: Likely**

5. Conclusions and Recommendations

5.1. Conclusions

1. The Sustainable Cities project is poorly designed. The design doesn't include barrier analysis; it covers practically all the aspects of urban development. Design flaws (mainly related to sustainable transport) stem from the following: (i) the economic feasibility of some of the proposed measures has not been studied; (ii) Project outputs are unbalanced. The predominant share of avoided emissions was expected to be achieved through the achievement of only one outcome (Output 3.2: National incentives and standards adopted for the fuel efficiency of imported cars) out of 10 in total. In addition, it is assumed that the adoption of standards will automatically lead to their implementation; (iii) Targets for some indicators are set without knowledge of baselines (they must be determined during implementation). However, the Sustainable Cities project is still important and relevant.
2. There was no activity planned in the ProDoc that specifically and directly aimed to tackle gender inequality as a primary focus, the project sought equal engagement and equal benefits in all implemented activities.
3. Design flaws were not adequately addressed during the inception phase (for example, no problem was noted in this regard in the inception report) or during the implementation phases (no baseline studies were carried out to set/revise targets).
4. Although no COVID-19 cases have been reported in Turkmenistan, the implementation of the Sustainable Cities project has been seriously affected by restrictions imposed in the country in response to the global pandemic: Progress on energy audits in Awaza has been slow and somewhat problematic; equipment (purchased through international tenders) was delivered with a significant delay; the transition to online mode also led to a delay in the provision of technical assistance to beneficiaries, as this technical assistance was provided through close cooperation of international consultants and local experts (almost daily communication was required).
5. 3 out of 12 targets have been achieved (coloured in green in Tab. 5), 6 are on target to be achieved (coloured in yellow), and 3 targets related to sustainable transport, are not on target to be achieved (coloured in red).
6. End-of-Project co-financing target has been achieved by 80%, and GHG reduction mid-term target by 135% (end-of-project target will be achieved by 130%), as adaptive management was applied to a large extent (innovative technical solutions were proposed; economic attractiveness of the proposed solutions demonstrated; full support of the Ministry of Energy secured), resulting in a sharp decrease in energy losses in street lighting in Ashgabat.
7. The rating for project implementation and adaptive management is Moderately Satisfactory (MS). The achievements of the project can be made even more effective by following the steps outlined in chapter 5.2: Guidelines.
8. The current project team will need to be strengthened to handle the workload required to achieve the project outcomes, given that no progress has been made in the middle of implementation in promoting sustainable transport and sustainable urban planning.
9. The project failed to establish effective collaboration with key stakeholders in the area of sustainable transport as well as sustainable urban planning. As a result, their capacities and potential co-financing were not used.

10. The overall progress towards results at the Project Objective level is rated as Moderately Satisfactory (MS).

5.2. Recommendations

Project Objective and Outcomes are expected to be achieved subject to following recommendations:

Recommendation 1: Strengthen the Project Team

Almost 3 years of the implementation showed that in principle, the Sustainable Cities project is well staffed. The PIU (PM, FA and CTA) plays a critical role in implementation; International consultants carry out their duties and responsibilities as required; local task leaders and experts demonstrate not only the necessary technical capabilities and skills, but also effective teamwork and networking. However, the following is recommended to strengthen the team:

a. Renew/extent the existing contract with the CTA. If the travel restrictions are released, the CTA has to spend about 50% of his time in the country.

b. Contract with the international consultant in integrated energy audit of buildings has been expired. Considering that: (i) energy audit will be executed in hotel Grand Turkmen in Ashgabat while the ProDoc considered in 24 hotels in Awaza; (ii) there is a delay in implementation of this component, it is recommended to hire additionally a national consultant to in energy audit of hotels.

c. In the sustainable transport numerous activities will be implemented to follow recommendations 5.c, 5.e and 5.f. (see below). For coordinating these activities, a national consultant will be hired, who depending on the potential for scaling up / progress in the implementation, will play a role of a task leader. As an option, the representative of TurkmenAvtoTransport could participate in the evaluation of the candidates (as an observer).

d. Hire a consultant in sustainable urban planning (international or national based on consultations with the Khyakimlik of Ashgabat, and recommendations of CTA). The preference should be given to the candidate with the relevant experience in the CA region. For example, development of Sustainable Energy Action Plan (SEAP) for signatories of Covenant of Mayors (CoM).

e. Hire a consultant in GHG reductions calculations. The consultant (international, or local – a preferable option if there are highly qualified experts in this field) shall have proven experience in the application of Clean Development Mechanism's (CDM) baseline and monitoring methodologies. His/her duties among others will included development of monitoring plans for pilot projects, as well as user manuals for the implementation of monitoring plans.

Recommendation 2: Increase the effectiveness of the Project Board

There is a need to accelerate work on the individual components of the Sustainable Cities project. The main reasons for the lack of progress in these components are: (i) lack of communication with government bodies; and (ii) lack of mechanisms to ensure implementation of PB decisions. The following is recommended to correct this situation:

a. Increase the frequency of PB meetings (twice a year, at least until full participation of all key stakeholders is ensured)

b. The project manager performs the functions of the PB secretary, including:

I. The PM will prepare and communicate to the PB members a list of critical issues (quarterly or monthly, depending on urgency). This, in turn, will help the PB to communicate the issue at a higher political level as well as carefully develop the necessary guidance.

II. At PB meetings, the PM will present not only achievements and success stories, but also problems, delays, needs for revisions, etc.

III. In its decisions, PB will appoint responsible persons (members of the PB, MP, etc.) for implementation. The PM will periodically (bi-weekly, monthly) check the status and inform UNDP CO and National Project Coordinator. It will also improve the project-level monitoring & evaluation system.

Recommendation 3: Provide targeted trainings to the relevant staff of Governmental Agencies, representatives of private companies and public organizations, in best practices to identify, design and implement projects in the fields of sustainable urban planning, street lighting, waste recycling, sustainable transport.

Training programme will consist of general (similar to each category of trainees) and specific parts. For example, training program for governmental representatives may include elements of economic analysis (including consideration of environmental and social benefits), international practices of urban planning; for public sector: overview of advanced technologies, elements of financial (cost-benefit) analysis, etc.

Recommendation 4: Intensify studies to determine the baselines, and adjust targets for those indicators baseline levels of which were not available before the start of the Sustainable Cities project

According to Annex J to the ProDoc, "the project will conduct a comprehensive inventory of cars in service in Turkmenistan at the beginning of the project under Activity 1.2.4. This inventory will be used to update both the baseline and alternative scenarios" - This has not been done yet.

Recommendation 5: Re-design the implementation strategy for transport-related activities

The implementation strategy for the transport-related component, will be revised in the following way:

a. Proper tire inflation – no activity will be implemented except the information materials (on fuel saving and corresponding financial and environmental effect) disseminated in press, and electronic media.

b. Construction of new bus lanes – no activity to be implemented given, since the Agency TurkmenAvtoTransport is engaged in this.

c. Construction of new bicycle lanes – (i) integration of bicycle lanes in large urban projects under the development (e.g. "Ashgabat-City", new capital of Akhal province); (ii) development of a concept of municipal bicycling programme (proposal on the necessary infrastructure has already developed by the CTA) when the bicycles and electric scooters owned by the municipality, will be available for rent. To increase the interest of the Ashgabat khyakimlik (municipality) in cooperation, and then to ensure fruitful

cooperation with UNDP, the Sustainable Cities project may consider expanding the scope of cooperation and thus increasing the scale of the potential benefits (see Recommendation 9 for details).

d. Design of e-passes, map updates, and a mobile app for riders - no activity to be implemented (mostly already implemented).

e. Development of standards and incentives – considering that this activity will have the strongest impact on achievement of targets in the transport sector, as well as the difficulties in establishing cooperation with the Agency TurkmenAvtoTranspot, it is recommended to conduct an analysis of baseline and future opportunities in sustainable transport and/ or e-mobility for Turkmenistan. For this purpose, a consultant (an individual or, preferably, a company) will be hired, the scope of work of which may include:

   e.1. Development of a baseline scenario for sustainable transport and/or e-mobility (Policy, legal and regulatory framework, future of the fuel-based transport considering projected fuel prices, preparedness of the community members, etc.)

   e.2. What is needed to move towards in terms of sustainable transport and/or e-mobility by transport categories (public transport; government, municipal and other public fleets; personal vehicles including electric vehicles; micro-mobility, etc).

   e.3. Recommendations on policy and legislation development (e.g. low carbon transport strategy)

   e.4. Assessment of non-motorized mobility (bikes, scooters, etc.) potential in Turkmenistan and development of promotional strategies.

   e.5. Best international practice to promote e-mobility in the Region, in countries with similar to Turkmenistan circumstances; existing mechanisms (global/regional/national e-mobility programmes, etc.)

   As an example, Georgia experience can be presented: the below information is downloaded from https://www.myauto.ge/en/calculator , which provides calculator for payments for customs clearing of imported car by age, type, engine, etc. Total payment for a conventional car (gasoline engine of 1.5 liter; manufactured in 2018) is GEL 2,468 (USD 786); for hybrid with the same engine volume and age GEL 1,208 (USD 385), and for electric cars GEL 282 (USD 90). The details are presented in the below figures.

   A brief overview of the international experience in incentives can be prepared even in case if the Agency TurkmenAvtoTransport refuses to cooperate with the Sustainable Cities project. The overview, along with the estimates of: (i) environmental benefits; (ii) financial benefits of the owners of electric and hybrid cars due to no fuel costs and low (or zero at all) customs costs, will be presented to the PB (PB will be asked for a guidance regarding the next steps).

Excise amount equals the product of the excise rate by the car engine volume

Up to 1 year:	1.5
1 year old:	1.5
2 year(s) old:	1.5
3 year(s) old:	1.4
4 year(s) old:	1.2
5 year(s) old:	1.0
6 year(s) old:	0.8
7 year(s) old:	0.8
8 year(s) old:	0.8
9 year(s) old:	0.9
10 year(s) old:	1.1
11 year(s) old:	1.3
12 year(s) old:	1.5
13 year(s) old:	1.8
14 year(s) old:	2.1
More than 14 year(s):	2.4

Right-hand drive:	
Hybrid:	
Electric:	
Prod. year:	2018
Engine volume:	1.5
Car registration:	Single
Number of transit days:	10

The customs fee, which is fixed and amounts to 150 GEL, and import tax are added to the received amount (customs fee also includes filling in the declaration - you don't pay additional amount for this service).
In order to calculate import tax amount we need to multiply the cubic volume of car engine by 0.05 and add the product of car age, cubic volume of engine by 0.0025 to the received number. So, the import tax amount = (cubature*0.05)+ (cubature*age*0.0025).

Excise:	2100 ₾
Customs tax amount:	150 ₾
Import tax amount:	86 ₾
Expert assessment:	20 ₾
Customs declaration:	30 ₾
Total:	2468 ₾
Internal transit cost:	1 day - 1 ₾

Excise:	840 ₾
Customs tax amount:	150 ₾
Import tax amount:	86 ₾
Expert assessment:	20 ₾
Customs declaration:	30 ₾
Total:	1208 ₾
Internal transit cost:	1 day - 1 ₾

Excise:	0 ₾
Customs tax amount:	150 ₾
Import tax amount:	0 ₾
Expert assessment:	20 ₾
Customs declaration:	30 ₾
Total:	282 ₾
Internal transit cost:	1 day - 1 ₾

e.6. Identification of possible pilot activities, with high scaling up potential, to be implemented by

the Green Cities project in transport sector.

f. Solar-power charging stations for electric cars – As a first step, the dynamics of the growth of the number of electric vehicles on the Turkmen market will be studied. Then, the impact of providing infrastructure including sufficient number of charging stations to incentivize drivers to switch to electric vehicles, will be assessed. The above can be a part of the scope of work of Consultant mentioned in Recommendation 3.e. If the study shows the potential of e-mobility in Turkmenistan, at least one charging station (preferably solar-powered) will be installed for electric busses already purchased by the Agency TurkmenAvtoTransport. Installation of other charging stations (10 as per the P:roDoc) is recommended only if the study shows the sharp growth (in number) of electric cars, otherwise there would be very modest impact of installation of them (especially if those charging stations are installed not in one, but in 3 cities).

g. Promoting electric cars – Although the Project was not successful in discussing this issue with TurkmenAvtoTransport, further discuss providing assistance (including sharing of costs for charging station for 2 electric busses).

Recommendation 6: Conduct economic and financial analysis (cost-benefit analysis) for typical waste recycling projects.

The study will be based on the experience of already implemented pilot projects and include economic attractiveness of recycling of municipal solid wastes (plastic, paper, glass, organics). The outreach materials will be prepared for policy makers, businesses, general public. For particular waste categories, in cooperation with the private companies, business model will be developed, marketing campaign will be planned (and possibly implemented).

Recommendation 7: Continue providing technical assistance in development of policy/strategy documents.

It is recommended to provide assistance in the development of policy/strategy documents upon the request of the Government. The list of such documents inter alia may include:

c. Adoption of a Law on Energy Efficiency.
d. Development of National strategy on Waste Management.
e. Development of NDC.
f. Development of National Renewable Energy Action Plan.
g. Development of National Energy Efficiency/Energy Savings Action Plan.

Recommendation 8: Revise the LogFrame.

As mentioned in Chapter 4.1.2, indicators and corresponding targets are established not for all Outputs. Baseline levels of some indicators should be updated during the implementation. Therefore, the revision of the Project Results Framework (LogFrame) is recommended as follows:

e. Add an Indicator: Number of institutions, covered by capacity building activities to identify and design and implement integrated low-carbon and climate-resilient solutions in cities. Corresponding end-of-project target: At least 3 institutions (Ministry of Environment, Ministry of Energy, Agency TurkmenAvtoTransport) and at least 4 cities (municipal utilities/services

dealing with public lighting, waste management, public transport): Ashgabat, Awaza and two other cities.

f. Re-determine targets for those indicators, baseline levels of which were not available before the start of the Sustainable Cities project but were determined during the implementation of the Project. Hire an expert with experience in UNFCC CO2 emissions baseline accounting.

g. Establish an indicator and target for Output 2.2: Demonstration and replication of solar-powered public lighting (in Awaza).

h. Establish an indicator and target for Output 2.4: Managerial and technical capacity of planners, officials, and facility managers in Awaza enhanced via training.

Recommendation 9: Consider assistance to the Khyakimlik of Ashgabat in application energy and water saving technologies in construction of new city parks.

Tens of millions of seedlings were planted in the country under the National Forestry Program of Turkmenistan (2013-2020), including 25 million in 2020. According to the Decree signed by the President of Turkmenistan in February 2021, a total of 30 million seedlings of deciduous, coniferous, fruit trees and grapes are to be planted in Turkmenistan in 2021[15]. This practice is likely to continue after 2021. Tentatively, over 120 million trees will be planted by the government before the completion of the Sustainable Cities project. These activities require efficient use of water and energy. The water currently used to irrigate over 50 million trees comes from Karakum Canal, which is Ashgabat's main drinking water source. The ongoing UNDP / GEF project "Energy Efficiency and Renewable Energy for Sustainable Water Management in Turkmenistan" has already tested water and energy saving technologies that can be applied in newly built city parks in Ashgabat.

Given that "the development and implementation of integrated water resource management strategies to mitigate climate change and ensure resilience to climate change" is a priority area for GEF-6, it is recommended that assistance be provided to the Ashgabat Hyakimlik to improve existing water and energy practices. As a first step, water and energy conservation measures will be identified and a cost-benefit analysis carried out. Based on the results of the analysis, a pilot project can be planned and implemented. This project could be funded by averted costs due to (i) cancellation of measures aimed at proper tire inflation (see Recommendation 5a); (ii) installing fewer solar-powered charging stations for electric vehicles (see Recommendation 5.f).

Recommendation 10: Extend the duration by 12-18 months.

If the duration of the project is extended without increasing the budget (no-cost extension), then it is highly likely that all the project outcomes and outputs will be achieved, including those ones, that are not on track to be achieved. Indeed, no problems are expected with an energy audit followed by the implementation of energy- and water-saving measures in Awaza hotels, if the experience at the Grand Turkmen hotel in Ashgabat demonstrates the feasibility of such measures. The situation is more difficult with sustainable transport. The targets (at least the most important ones in terms of GHG reduction), can only be achieved if Recommendation 4 is followed. Therefore, the extension of the duration will be implemented subject to (i) acceptance (in full) of Recommendation 4; and (ii) available budget.

[15] https://turkmenpetroleum.com/en/2021/03/21/nationwide-tree-planting-campaign-launched-in-turkmenistan/

6. Annexes

Annex 1: Terms of Reference (without annexes)

International Consultant for Project Midterm Review

Location:	Ashgabat, TURKMENISTAN
Additional Category:	Climate & Disaster Resilience
Type of Contract:	Individual Contract
Post Level:	International Consultant
Languages Required:	English Russian

Background

A. **Project Title:** "Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Avaza"

B. **Project Description**

This is the Terms of Reference for the UNDP-GEF Midterm Review (MTR) of the full-sized project titled "Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Avaza" (PIMS 5452) implemented through the UNDP Turkmenistan/Ministry of Agriculture and Environment Protection, which is to be undertaken in 2021. The project started on the 2018 and is in its third year of implementation. This ToR sets out the expectations for this MTR. The MTR process must follow the guidance outlined in the document *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* (http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf).

The project was designed to:

The objective of the project is to promote and implement integrated low-carbon urban systems in Ashgabat and Avaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits. Part of the first Project Component covers the activities that are related to the implementation of energy-efficient public lighting in Ashgabat, with technical justification prepared for replication. Moreover, the same component covers the development and application of sustainable urban transport solutions in Ashgabat and reduction of waste volumes and expansion of recycling in Ashgabat. Finally, Project Component 1 touches upon such activities as development and approval of city-wide sustainability plans. The second component concentrates on practices to reduce energy consumption, water use, and waste implemented by hotels in Avaza. Furthermore, it focuses on demonstration and replication of solar-powered public lighting, and implementation of optimally efficient surface transportation in Avaza. Besides, Component 2 underlines the importance of organizing enhanced trainings for managerial and technical capacity of planners, officials, and facility managers in Avaza. The third and final Component highlights the development and adoption of national policies in support of integrated and scaled-up green urban practices, supported by capacity enhancement for responsible agencies and individuals. In addition, it underscores the adoption of national incentives and standards for fuel efficiency of imported cars. The timeframe for the project is 2018-2024. Total budget of the project is 6,060,046 USD (GEF) and 100,000 USD (UNDP). Main national partner is Ministry of Agriculture and Environment Protection of Turkmenistan. General national partners are Ministry of Energy, Ministry of Construction and Architecture, "Turkmen Motor Transport" Agency, Municipality of Ashgabat, Municipality of Turkmenbashi.

Duties and Responsibilities

MTR Purpose

The MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document, and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy and its risks to sustainability.

The project will also look for options to adjust the project strategy as an adaptive management approach as suggested by the UNDP NCE management, given to the conditions caused by the COVID19 pandemic. For this, the project will appoint a Strategy Revision Consultant who is expected to work in close collaboration with the MTR team to identify the current bottlenecks, opportunities and design new approaches within the overall objective of the project; presented as an updated Results Framework for the project. MTR team is expected to work with Strategy Revision Consultant in the identification of project progress and limitations as well as opportunities and reflect the findings of strategy revision suggestions in the MTR report. UNDP seeks for a full coherency of all consultants with separated and clear terms of references and deliveries.

DUTIES AND RESPONSIBILITIES

D. MTR Approach & Methodology

The MTR report must provide evidence-based information that is credible, reliable and useful.

The MTR team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure (SESP)), the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review. The MTR team will review the baseline GEF focal area Core Indicators/Tracking Tools submitted to the GEF at CEO endorsement, and the midterm GEF focal area Core Indicators/Tracking Tools that must be completed before the MTR field mission begins.

The MTR team is expected to follow a collaborative and participatory approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), the Nature, Climate and Energy (NCE) Regional Technical Advisor, direct beneficiaries, and other key stakeholders.

Engagement of stakeholders is vital to a successful MTR. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to Ministry of Agriculture and Environment Protection, Ministry of Construction and Architecture, Ministry of Energy, "Turkmen Motor Transport" Agency, Municipality of Ashgabat, Municipality of Turkmenbashi, Union of Industrialists and Entrepreneurs of Turkmenistan, Private Sector and NGO; executing agencies, senior officials and task team/ component leaders, key experts and consultants in the subject area, Project Board, project stakeholders, academia, local government and CSOs, etc. Additionally, the MTR team is expected to conduct field missions Ashgabat depending on the situation of the global COVID19 pandemic and the travel restrictions in Turkmenistan and the country of the consultant. In case a field trip is not possible, virtual evaluation methods will be adopted as described in relevant UNDP and GEF guidance.

The specific design and methodology for the MTR should emerge from consultations between the MTR team and the above-mentioned parties regarding what is appropriate and feasible for meeting the MTR purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The MTR team must, however, use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the MTR report. MTR will work in close collaboration with Strategy Revision Consultant and incorporate results from that work into Results Framework.

The final methodological approach including interview schedule, field visits and data to be used in the MTR should be clearly outlined in the Inception Report and be fully discussed and agreed between UNDP, stakeholders and the MTR team.

(Note: The TOR should retain enough flexibility for the MTR team to determine the best methods and tools for collecting and analysing data. For example, the TOR might suggest using questionnaires, field visits and interviews, but the evaluation team should be able to revise the approach in consultation with the evaluation manager and key stakeholders. These changes in approach should be agreed and reflected clearly in MTR Inception Report)

The final MTR report must describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

E. Detailed Scope of the MTR

The MTR team will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

1. Project Strategy

Project Design:

- Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.
- Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?
- Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?
- Review decision-making processes: were perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process, taken into account during project design processes?
- Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.
    - Were relevant gender issues (e.g. the impact of the project on gender equality in the programme country, involvement of women's groups, engaging women in project activities) raised in the Project Document?
- If there are major areas of concern, recommend areas for

Results Framework/Logframe:

- Undertake a critical analysis of the project's logframe indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.

- Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?
- Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.
- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART 'development' indicators, including sex-disaggregated indicators and indicators that capture development benefits. Work in close collaboration with Strategy Revision Consultant and incorporate results from that work into Results Framework.

2. **Progress Towards Results**

- Review the logframe indicators against progress made towards the end-of-project targets; populate the Progress Towards Results Matrix, as described in the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*; colour code progress in a "traffic light system" based on the level of progress achieved; assign a rating on progress for the project objective and each outcome; make recommendations from the areas marked as "not on target to be achieved" (red).
- Compare and analyse the GEF Tracking Tool/Core Indicators at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

3. **Project Implementation and Adaptive Management**

Management Arrangements

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the GEF Partner Agency (UNDP) and recommend areas for improvement.
- Do the Executing Agency/Implementing Partner and/or UNDP and other partners have the capacity to deliver benefits to or involve women? If yes, how?
- What is the gender balance of project staff? What steps have been taken to ensure gender balance in project staff?
- What is the gender balance of the Project Board? What steps have been taken to ensure gender balance in the Project Board?

Work Planning

- Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.

Finance and co-finance

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.
- Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.
- Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?
- Informed by the co-financing monitoring table to be filled out by the Commissioning Unit and project team, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?

Sources of Co-financing	**Name of Co-financer**	**Type of Co-financing**	**Co-financing amount confirmed at CEO Endorsement (US$)**	**Actual Amount Contributed at stage of Midterm Review (US$)**	**Actual % of Expected Amount**
		TOTAL			

- Include the separate GEF Co-Financing template (filled out by the Commissioning Unit and project team) which categorizes co-financing amounts by source as 'investment mobilized' or 'recurrent expenditures'. (This template will be annexed as a separate file.

Project-level monitoring and evaluation systems

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?

- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?
- Review the extent to which relevant gender issues were incorporated in monitoring systems. See Annex 9 of *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for further guidelines.

Stakeholder Engagement

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?
- How does the project engage women and girls? Is the project likely to have the same positive and/or negative effects on women and men, girls and boys? Identify, if possible, legal, cultural, or religious constraints on women's participation in the project. What can the project do to enhance its gender benefits?

Social and Environmental Standards (Safeguards)

- Validate the risks identified in the project's most current SESP, and those risks' ratings; are any revisions needed?
- Summarize and assess the revisions made since CEO Endorsement/Approval (if any) to:
    - The project's overall safeguards risk categorization.
    - The identified types of risks [3] (in the SESP).
    - The individual risk ratings (in the SESP).
- Describe and assess progress made in the implementation of the project's social and environmental management measures as outlined in the SESP submitted at CEO Endorsement/Approval (and prepared during implementation, if any), including any revisions to those measures. Such management measures might include Environmental and Social Management Plans (ESMPs) or other management plans, though can also include aspects of a project's design; refer to Question 6 in the SESP template for a summary of the identified management measures.

A given project should be assessed against the version of UNDP's safeguards policy that was in effect at the time of the project's approval.

Reporting

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)

- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications & Knowledge Management

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.
- List knowledge activities/products developed (based on knowledge management approach approved at CEO Endorsement/Approval).

4. **Sustainability**

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Register are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long-term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the

required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

5. Conclusions & Recommendations

The MTR consultant/team will include a section in the MTR report for evidence-based **conclusions**, in light of the findings.

Additionally, the MTR consultant/team is expected to make **recommendations** to the Project Team. Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. The MTR consultant/team should make no more than 15 recommendations total.

Ratings

The MTR team will include its ratings of the project's results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report. See the TOR Annexes for the Rating Table and ratings scales.

F. Expected Outputs and Deliverables

The MTR team shall prepare and submit:

- MTR Inception Report: MTR team clarifies objectives and methods of the Midterm Review no later than 2 weeks before the MTR mission. To be sent to the Commissioning Unit and project management. Completion date: 8 February 2021
- Presentation: MTR team presents initial findings to project management and the Commissioning Unit at the end of the MTR mission. Completion date: 28 February 2021
- Draft MTR Report: MTR team submits the draft full report with annexes within 3 weeks of the MTR mission. Completion date: 20 March 2021
- Final Report*: MTR team submits the revised report with annexed and completed Audit Trail detailing how all received comments have (and have not) been addressed in the final MTR report. To be sent to the Commissioning Unit within 1 week of receiving UNDP comments on draft. Completion date: 31 March 2021

*The final MTR report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

G. Institutional Arrangements

The principal responsibility for managing this MTR resides with the Commissioning Unit. The Commissioning Unit for this project's MTR is UNDP Turkmenistan Country Office.

The Commissioning Unit will contract the consultants and ensure the timely provision of per diems and travel arrangements within the Turkmenistan for the MTR team. The Project Team will be responsible

for liaising with the MTR team to provide all relevant documents, set up stakeholder interviews, and arrange field visits.

H. Duration of the Work

The total duration of the MTR will be approximately 35 of days over a period of 9 of weeks starting on 12 January 2021, and shall not exceed five months from when the consultant(s) are hired. The tentative MTR timeframe is as follows:

- 12 January 2021: Application closes
- 30 January 2021: Selection of MTR Team
- 3 February 2021: Prep the MTR Team (handover of project documents)
- 10 February 2021: Starting date of MTR
- 14 February 2021, 4 days *(recommended 2-4):* Document review and preparing MTR Inception Report
- 15 March 2021, 15 days *(r: 7-15):* MTR mission: stakeholder meetings, interviews, field visits
- 5 April 2021, 7 *days (r: 5-10):* Preparing draft report
- 7 April 2021, 2 *days (r: 1-2):* Incorporating audit trail on draft report/Finalization of MTR report (note: accommodate time delay in dates for circulation and review of the draft report)
- 10 April 2021: Preparation & Issue of Management Response
- *(date):* (optional) Concluding Stakeholder Workshop (not mandatory for MTR team)
- 15 April 2021: Expected date of full MTR completion

The date start of contract is 10 February 2021.

I. Duty Station

The MTR International Consultant's duty station/location for the contract duration shall be home-based as it's not expected that COVID-19-related ban on international visa issuance will be lifted any time during the planned timeline of the MTR.

Travel:

- International travel might be required to Turkmenistan during the MTR mission only in case COVID-19-related ban in country on international visa issuance is lifted;
- The BSAFE training course must be successfully completed prior to commencement of travel; Herewith is the link to access this training: https://training.dss.un.org/courses/login/index.php . These training modules at this secure internet site is accessible to Consultants, which allows for registration with private email.
- Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director.
- Consultants are required to comply with the UN security directives set forth under https://dss.un.org/dssweb/
- All related travel expenses will be covered and will be reimbursed as per UNDP rules and regulations upon submission of an F-10 claim form and supporting documents.

For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results, 05 Nov 2013.

For more stakeholder engagement in the M&E process, see the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 3, pg. 93.

Risks are to be labeled with both the UNDP SES Principles and Standards, and the GEF's "types of risks and potential impacts": Climate Change and Disaster; Disadvantaged or Vulnerable Individuals or Groups; Disability Inclusion; Adverse Gender-Related impact, including Gender-based Violence and Sexual Exploitation; Biodiversity Conservation and the Sustainable Management of Living Natural Resources; Restrictions on Land Use and Involuntary Resettlement; Indigenous Peoples; Cultural Heritage; Resource Efficiency and Pollution Prevention; Labor and Working Conditions; Community Health, Safety and Security.

Competencies

A team of two independent consultants will conduct the MTR - one team leader (International Consultant, with experience and exposure to projects and evaluations in other regions globally) and one team expert (National Consultant, usually from the country of the project).

This procurement announcement is made for the purpose of collecting offers from those bidders that are intending to become Team leader (International Consultant) on the MTR assignment.

The bidders cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

The selection of the Team leader/International Consultant will be aimed at maximizing the overall "team" qualities in the following areas:

Education

- A Master's degree in Energy, Environment, Sustainable Development, Energy-efficiency, or other closely related field

Experience

- Recent experience with result-based management evaluation methodologies;
- Experience applying SMART targets and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to Climate change;
- Experience in evaluating projects;
- Experience working in CIS countries;
- Experience in relevant technical areas for at least 10 years;
- Demonstrated understanding of issues related to gender and Climate change; experience in gender sensitive evaluation and analysis;
- Excellent communication skills;
- Demonstrable analytical skills;
- Project evaluation/review experiences within United Nations system will be considered an asset.

Language

- Fluency in written and spoken English. Knowledge of Russian is an asset.

K. Ethics

The MTR team will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This MTR will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The MTR team must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The MTR team must also ensure security of collected information before and after the MTR and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information,

knowledge and data gathered in the MTR process must also be solely used for the MTR and not for other uses without the express authorization of UNDP and partners.

Required Skills and Experience

Schedule of Payments

- 20% payment upon satisfactory delivery of the final MTR Inception Report and approval by the Commissioning Unit
- 40% payment upon satisfactory delivery of the draft MTR report to the Commissioning Unit
- 40% payment upon satisfactory delivery of the final MTR report and approval by the Commissioning Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

Criteria for issuing the final payment of 40%

- The final MTR report includes all requirements outlined in the MTR TOR and is in accordance with the MTR guidance.
- The final MTR report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other MTR reports).
- The Audit Trail includes responses to and justification for each comment listed.

APPLICATION PROCESS

M. Recommended Presentation of Offer

1. **Letter of Confirmation of Interest and Availability** using the template provided by UNDP;
2. **CV** and a **Personal History Form** (P11 form);
3. **Brief description of approach to work/technical proposal** of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment; (max 1 page)
4. **Financial Proposal** that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

All application materials should be submitted electronically at the email **registry.tm@undp** indicating the following reference "Consultant for "Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Avaza" project Midterm Review". Incomplete applications will be excluded from further consideration.

N. Criteria for Selection of the Best Offer

Only those applications which are responsive and compliant will be evaluated. Offers will be evaluated according to the Combined Scoring method – where the educational background and experience on similar assignments will be weighted at 70% and the price proposal will weigh as 30% of the total

scoring. The applicant receiving the Highest Combined Score that has also accepted UNDP's General Terms and Conditions will be awarded the contract.

O. Annexes to the MTR ToR

Share ToR Annexes directly with short-listed candidates. Include *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* and other existing literature or documents that will help candidates gain a better understanding of the project situation and the work required.

Annexes include: (reference ToR Annexes in Annex 3 of *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects*)

- List of documents to be reviewed by the MTR Team
- Guidelines on Contents for the Midterm Review Report
- Midterm Review Evaluative Matrix Template
- UNEG Code of Conduct for Evaluators/Midterm Review Consultants
- MTR Required Ratings Table and Ratings Scales
- MTR Report Clearance Form
- Audit Trail Template
- Progress Towards Results Matrix)
- GEF Co-Financing Template (in Word)

Annexes to Midterm Review Terms of Reference

For Standard Template 2

- **ToR ANNEX A: List of Documents to be reviewed by the MTR Team**
- **ToR ANNEX B: Guidelines on Contents for the Midterm Review Report**
- **ToR ANNEX C: Midterm Review Evaluative Matrix Template**
- **ToR ANNEX D: UNEG Code of Conduct for Evaluators/Midterm Review Consultants**
- **ToR ANNEX E: MTR Ratings and Achievements Summary Table and Rating Scales**
- **ToR ANNEX F: MTR Report Clearance Form**
- **ToR ANNEX G: Audit Trail Template**
- **ToR ANNEX H: Progress Towards Results Matrix**
- **ToR ANNEX I: GEF Co-Financing Template (provided as a separate file)**

Annex 2: MTR evaluative matrix

Evaluative Questions	Indicators	Sources	Methodology
Project strategy: To what extent is the project strategy relevant to country priorities, country ownership, and the best route towards expected results?			
Are the problems and underlying assumptions addressed by the project still relevant?	• Validity and completeness/gaps in problem analysis, barriers analysis and assumptions in ProDoc	• Project Documents • Studies and Analyses • Stakeholders interviewed	• Desk Review • Analysis
Were lessons from other relevant projects properly incorporated into the project design?	• Barriers analysis and assumptions in ProDoc • Alignment with past similar work	• Project Documents • Studies and Analyses	• Desk Review • Analysis
Is the project concept in line with national priorities?	• Alignment with national policies, strategies	• ProDoc • Strategy documents	• Desk Review
Were key stakeholders & decision makers consulted during design and their perspectives addressed?	• Stakeholder consultations during PPG and of actual consultations	• ProDoc • PPG Report • Key stakeholders	• Desk Review
How were relevant gender issues considered during the project design?	• Coverage of gender issues in the project strategy • Gender disaggregated indicators and baseline data in the Results Framework	• ProDoc • PPG • SESP • LogFrame	• Desk Review
Are there any major areas of concern or areas for improvement regarding the original project design?	• Concerns raised to UNDP • Overall assessment of the project based on analysis of the progress towards results, project implementation and adaptive management and sustainability.	• Progress Reports • Key Stakeholders • MTR Findings	• Desk Review • Analysis and synthesis of MTR findings
Results Framework/LogFrame			
Is the Project Results Framework logical comprehensive and realistic and are the indicators and targets SMART and relevant to planned outcomes with complete baselines?	• Completeness and coherence of LogFrame • Alignment of LogFrame with Project Strategy narrative	• ProDoc • Progress Reports/PIRs • Other project reports • Project Team	• Desk Review • Analysis
Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?	• Potential of achievement of targets • Progress reports	• ProDoc • Progress reports/PIRs • UNDP CO • NPC	• Desk Review
Progress towards results: To what extent have the expected outcomes and objectives of the project been achieved thus far?			

Evaluative Questions	Indicators	Sources	Methodology
What has been the progress towards planned targets for the outcome and objective indicators in the Results Framework?	• Achievement vs. milestones and targets (mid-term and end-of-project).	• LogFrame • Progress Reports/PIRs • Other monitoring reports • Tracking tools	• Assessment using Progress Towards Results Matrixand following UNDP-GEF Guidance for MTRs
What changes have taken place since the start of the project in relation to the project components?	• Current status compared to baseline	• Progress Reports/PIRs • Monitoring reports	• Desk review
What are the main barriers affecting the project's ability to achieve its intended results (outcomes)?	• MTR findings • Obstacles identified by key stakeholders	• Progress reports/PIRs • Project Team • NPC	• Desk review • Analysis
What are the main successes and achievements of the project, and how can the project further expand these benefits?	• Results, which are on or above target • Unplanned benefits/results as reported by key stakeholders and/or in project progress reports and reasons for these	• Progress reports/pirs • Project Team • UNDP CO • NPC	• Desk review • Interviews
Project implementation and adaptive management: Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation? To what extent has progress been made in the implementation of social and environmental management measures? Have there been changes to the overall project risk rating and/or the identified types of risks as outlined at the CEO Endorsement stage?			
Management Arrangements			
How effective and efficient has project management and execution been: Has the project met its annual work plan, related procurement, and expense disbursement targets?	• Clarity, transparency, and timeliness of decision-making and reporting processes • Realism in reporting and focus on risks and mitigation in reporting. • Level of execution of project budget	• Progress reports/PIRs • Project Board meeting minutes • Other monitoring reports • Project Team • UNDP CO	• Desk review • Interviews
How effective has UNDP been at providing support and guidance?	• Nature and frequency of UNDP oversight. • Responsiveness to requests from Project Team (funds disbursement, technical support, political support to overcome challenges, etc.)	• Project Reports • Meeting Minutes • Project Team • UNDP CO • NPC	• Desk Review • Interviews
What is the gender balance of the project staff?	• Allocation of staff by gender.	• Project Reports • Meeting Minutes	• Desk Review
Work Planning			
Has implementation been timely?	• Delays in start-up and implementation • Reason for any delays • Rate of progress towards	• ProDoc • Annual workplans and budgets	• Desk Review • Interviews

Evaluative Questions	Indicators	Sources	Methodology
	planned targets	• Progress reports/PIRs • Project Board Meeting Minutes • Project Team	
Are work-planning processes results-based?	• Annual workplans that are clearly linked to outcomes	• Annual workplans and budgets	• Desk Review
Is the LogFrame used as an effective management tool?	• Number and nature of LogFrame • Alignment between the Logframe and AWPs	• ProDoc • AWPs • Project Team	• Desk Review • Interviews
Finance and Co-finance			
Are project activities implemented in a cost-effective manner?	• Use of implementing partners and stakeholders' own resources and capacities • Strategic use of co-financing • Appropriateness of budget allocations to different planned outputs	• AWPs • Progress reports/PIRs • Project Board Meeting minutes • Project Team • UNDP CO	• Desk Review • Interviews
Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?	• Variance between planned and actual expenditure explained satisfactorily • Budget revisions are appropriate and relevant	• AWPs • Project Team • UNDP CO	• Desk Review • Interviews
Is co-financing being used strategically to help the objectives of the project?	• Co-financing complements/contributes to existing plans and priorities of the partners • Alignment and effective use of co-financing ensured through annual work planning and budgeting processes	• Financial statements • AWPs • Progress reports/PIRs • Project Team • NPC	• Desk Review • Interviews • Analysis of co-financing table
Project-level monitoring and evaluation systems			
Is the monitoring system appropriate, effective, and participatory?	• Nature and quality of monitoring processes • Alignment of monitoring systems with good practice and national systems • Types, quality and use of monitoring data to inform project implementation & management	• Monitoring processes & tracking tools • Progress reports/PIRs • Baseline information • Project Team • UNDP CO	• Desk Review • Analysis
Stakeholder Engagement			
Has the project developed and leveraged the necessary and appropriate partnerships	• All stakeholders are actively engaging with the project and support of project	• Progress reports/PIRs • Project Team	• Desk Review • Interviews

Evaluative Questions	Indicators	Sources	Methodology
with direct & tangential stakeholders	objectives • Extent of public participation and awareness about the project.	• UNDP CO • NPC • Stakeholders	
Do stakeholders support the objectives of the project and do they continue to have an active role in project decision-making that supports efficient and effective project implementation?	• Stakeholders are actively engaging with the project and support of project objectives • Number of partnerships/collaborations with private companies, NGOs on relevant issues • Extent of public participation and awareness about the project	• Progress reports/PIRs • Project Team • Stakeholders	• Desk Review • Interviews
To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?	• Stakeholder and public consultations implementation	• Progress reports/PIRs • Project Team • Stakeholders	• Desk Review • Interviews
Social and Environmental Standards (Safeguard)			
Are the project risks still valid or do any rating need revision?	• Validity and completeness/gaps in risk analysis and assumptions in ProDoc	• Project Documents • Studies and Analyses	• Desk Review
What revisions have been made since CEO Endorsement/Approval to: • The project's overall safeguards risk categorization. • Types and ratings of risks.	• Changes in risk factors since CEO approval.	• CEO Endorsement • Project Documents	• Desk Review
Reporting			
Is project reporting sufficient, appropriate, and adding value to project delivery?	• Adaptive management changes reported to the Project Board (major ones presented to Board for approval) • Quality of PIR and other progress reporting • Documentation, internalization andsharing of project lessons	• Progress reports/PIRs • Project Board meeting minutes • NPC	• Desk Review • Interviews
Communications and Knowledge Management			
Is there effective communication with internal and external project communication	• Communication strategy • Frequency and clarity of communication with different stakeholder groups	• ProDoc • Progress reports/PIRs • Project Board	• Desk Review • Interviews

Evaluative Questions	Indicators	Sources	Methodology
with different stakeholder groups?	• Mechanisms of external communication public outreach and awareness generation and their effectiveness	meeting minutes • Communication materials	
Sustainability: To what extent are there financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?			
Does the project have a satisfactory risk assessment and management system in place?	• Relevance and significance of risks recorded in Project Document, UNDP SESP and the UNDP Risk Management Module • Gaps in identified risks particularly over subsidies and financial resources. • Appropriateness of risk mitigation and management measures and effectiveness of implementation.	• ProDoc • PIRs • Risk log from ATLAS Risk Management Module	• Desk Review • Interviews
Financial Risks to Sustainability			
How will project results including systems and processes put in place by the project be sustained financially after the end of the project and scaled up and replicated?	• Potential sources of government finance to sustain and further build on project results.	• Progress reports/PIRs • ATLAS Risk Log • Project Team	• Desk Review • Interviews
Socio-economic Risks to Sustainability			
Are there any social or political risks that may jeopardize sustainability of project outcomes?	• Degree of key stakeholder ownership of project objective and outcomes	• Progress reports/PIRs • ATLAS Risk Log • Project Team • Stakeholders	• Desk Review • Interviews
Institutional Framework and Governance Risks to Sustainability			
Do the legal frameworks, policies, governance structures and processes support post-project continuation of the results achieved, processes initiated, and systems put in place by the project?	• Supportiveness of the legal framework • Appropriateness and supportiveness of governance structures and processes • Status of institutional capacity by the end of the project • Potential for developing influential project champions • Potential for mainstreaming project activities/project strategies into government planning processes	• Progress reports/PIRs • ATLAS Risk Log • Project Team • Stakeholders	• Desk Review • Interviews
Environmental Risks to Sustainability			
Are there any environmental factors	• Likelihood of air, water, soil pollution	• Progress reports/PIRs	• Desk Review • Interviews

Evaluative Questions	Indicators	Sources	Methodology
that could undermine and reverse the project's outcomes and results, including factors that have been identified by project stakeholders?	• Climate change impacts	• ATLAS Risk Log • Project technical reports	

Annex 3: Example Questionnaire or Interview Guide used for data collection

Interviews with the Project Team, Project Experts and Consultants, key stakeholders were focused on well-prepared questions presented in the MTR ToR; all these questions are appropriate and thus the MTR Team used them.

The following questions were asked to the interviewed stakeholders:

MTR questions to the stakeholders

Questions
Introduction
What is your position?
What is your relationship to the project and for how long have you been involved?
1. Were you involved in the design of the project or were you consulted prior to project design?
a. Please describe the project conceptualization process to the best of your knowledge
b. Who are the key project stakeholders/beneficiaries? Describe how stakeholders were involved in the design process
c. Were lessons from other relevant projects properly incorporated into the project design?
1. Project strategy
1.1 Project Design
1.1.1 How important is the problem addressed by the project?
1.1.1 Have the assumptions made during project design proven relevant? Have they evolved? How?
1.1.2 How effective is the selected strategy to achieve intended results? (Were lessons from previous projects integrated into project design?)
1.1.3 To what extent is the project responding to the national priorities? Has this changed since project design?
1.1.4 Are there any major areas of concern or areas for improvement regarding the original project design?
1.1.5 To what extent were gender issues taken into account during project design? (Were any activities undertaken to assess gender-related needs for the project during project design?)
1.2 Project Results Framework/ Logframe
1..2.1 Could you please, explain in your own words the objectives of the project, its targets and their related timeframes? (for consultants: focus only on those related to their involvement in the project)
1.2.1 How realistic are they?
1.2.2 Are there effects on development or on the environment that are not measured by current indicators?
2. Progress towards results
2.1 To what extent have the expected outputs, outcomes and objectives of the project been achieved so far? (provide list, as needed)
2.2 Briefly describe the main successes of the project and what can be done to expand or scale the benefits?
2.2 What are the main barriers to address to achieve expected results? What are the main opportunities?
3. Project implementation and adaptive management
3.1 Management arrangements
3.1.1 Are the roles and responsibilities of the PMU, UNDP, Project Partner, PSC and other partners clearly established?
3.1.1 In your opinion, is decision-making timely and transparent? How responsive are partners to changing needs of the project?

3.1.2 How would you describe the quality of management responses to project team members' inquiries and needs?				
3.1.2 On a scale of 1 to 5, how would you rate the quality of execution by UNDP? Why?				
1	2	3	4.	5
Very Ineffective	Somewhat Ineffective	Neutral	Somewhat Effective.	Very Effective
3.1.2 On a scale of 1 to 5, how would you rate the quality of execution by the Project Partner? Why?				
1	2	3	4.	5
Very Ineffective	Somewhat Ineffective	Neutral	Somewhat Effective.	Very Effective
3.1.3 On a scale of 1 to 5, how would you rate the quality of support by UNDP? Why?				
1	2	3	4.	5
Very Ineffective	Somewhat Ineffective	Neutral	Somewhat Effective.	Very Effective
How can it be improved?				
3.1.4 Do the Project Partner and/or UNDP and other partners have the capacity to deliver benefits to or involve women? If yes, how?				
3.1.5 What is the gender balance of project staff? What steps have been taken to ensure gender balance in project staff?				
3.1.6. What is the gender balance of the Project Board? What steps have been taken to ensure gender balance in the Project Board?				
3.2 Work Planning				
3.2.1 Have there been any delays in implementation? If so, could you describe their cause and how many months of delay occurred?				
3.2.3 How often do you use the project's logframe for management and/or M&E? How do you use it?				
3.3 Finance and co-finance?				
3.3.1 Is the project being implemented in a cost-effective manner? If not, why?				
3.3.2 Have there been any variations between planned and actual expenditures? If yes, which ones and why?				
3.3.3 Are you familiar with the project's financial controls? If yes, do they allow management to make informed decisions about the budget and flow of funds? How often do you see financial reports?				
3.3.4 What (and how much) co-financing is the project leveraging? How has this evolved since project design?				
3.4 Project-level M&E systems				
3.4.1 Is the M&E system operational and effective?				
3.5 Stakeholder Engagement				
3.5.1. Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?				
3.5.2 How do national and local government stakeholders support the project and how are the active in the decision-making process and implementation?				
3.5.2 Please comment on the overall strengths and weaknesses of the approach adopted by the project regarding stakeholder participation and implementation.				
3.5.3 How effective has stakeholder participation and public awareness contributed to achieving project objectives?				
1	2	3	4.	5
Very Ineffective	Somewhat. Ineffective	Neutral	Somewhat Effective.	Very Effective

Why do you rate it that way?
3.5.4 How does the project engage with women and girls and is it likely to have the same effects on all persons?
3.5.4. What barriers exist to women participating in the project and what can be done to enhance gender benefits?
3.6 Reporting
3.6.1 How are lessons from adaptive management processes were shared with the Project Board? How many have been shared?
3.6.2. How has the project team addressed poorly rated PIRs?
3.6.3 Did you receive any documentation about lessons drawn from adaptive management processes undertaken by the project?
3.6.3 Could you provide examples where these lessons were used by your organization?
3.7 Communication and Knowledge Management
3.7.1 Are internal communications from the project to stakeholders regular and effective? Why do you say that?
3.7.1 Are all stakeholders included? If not, who is left out and why?
3.7.1 How is this communication used? Was it useful?
3.7.2 How is the project using external communications and which channels are being used?
3.7.4 What knowledge activities and/or products has the project developed and how are they being used?
4. Sustainability
4.1 Have the risks assessed during project design proven relevant? Have they evolved? How?
4.2 Which activities would require continued financial support after the end of the project for project outcomes to be maintained?
4.2 Which outcomes should normally be maintained without additional resources?
4.3 What social and/or political conditions could affect the sustainability of project outcomes? How?
4.4 What frameworks/policies/governance structures/processes could potentially affect the sustainability of project benefits? How?
4.4 What frameworks/policies/governance structures/processes are lacking to ensure the sustainability of project benefits? Why?
4.5 Are there any biophysical that could affect the sustainability of project outcomes? How?

Annex 4: Ratings Scales

Ratings for Progress Towards Results: (one rating for each outcome and for the objective)		
6	Highly Satisfactory (HS)	The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/ outcome can be presented as "good practice".
5	Satisfactory (S)	The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
4	Moderately Satisfactory (MS)	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
3	Moderately Un-satisfactory (HU)	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.
2	Unsatisfactory (U)	The objective/outcome is expected not to achieve most of its end-of-project targets.
1	Highly Unsatis-factory (HU)	The objective/outcome has failed to achieve its midterm targets, and is not expected to achieve any of its end-of-project targets.

Ratings for Project Implementation & Adaptive Management: (one overall rating)		
6	Highly Satisfactory (HS)	Implementation of all seven components – management arrangements, work planning, finance and co-finance, project-level monitoring and evaluation sys-tems, stakeholder engagement, reporting, and communications – is leading to efficient and effective project implementation and adaptive management. The project can be presented as "good practice".
5	Satisfactory (S)	Implementation of most of the seven components is leading to efficient and effective project implementation and adaptive management except for only few that are subject to remedial action.
4	Moderately Satisfactory (MS)	Implementation of some of the seven components is leading to efficient and effective project implementation and adaptive management, with some components requiring remedial action.
3	Moderately Unsatisfactory (MU)	Implementation of some of the seven components is not leading to efficient and effective project implementation and adaptive, with most components requiring remedial action.
2	Unsatisfactory (U)	Implementation of most of the seven components is not leading to efficient and effective project implementation and adaptive management.
1	Highly Unsatisfactory (HU)	Implementation of none of the seven components is leading to efficient and effective project implementation and adaptive management.

Ratings for Sustainability: (one overall rating)		
4	Likely (L)	Negligible risks to sustainability, with key outcomes on track to be achieved by the project's closure and expected to continue into the foreseeable future
3	Moderately Likely (ML)	Moderate risks, but expectations that at least some outcomes will be sustained due to the progress towards results on outcomes at the Midterm Review
2	Moderately Unlikely (MU)	Significant risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on
1	Unlikely (U)	Severe risks that project outcomes as well as key outputs will not be sustained

Annex 5: List of persons interviewed

#	Organization	Representative
	Governmental Organizations and Agencies	
1	Ministry of Agriculture and Environmental Protection	Berdi Berdiyev, National Project Coordinator, Head of the Department for Coordination of International Environmental Cooperation and Projects, Member of the Project Board
		Murat Khudayarov, Head of Laboratory, Ecological Control Service
		Jumamurat Saparmuradov, Head of the Main Department of Environmental Protection and Hydrometeorology
2	Ministry of Energy	Sokhbetmukhammet Saryev, Member of the Project Board
3	Ministry of Construction and Architecture	Bayram Nazarov, Member of the Project Board
4	State Electric Power Corporation "Turkmenenergo" of the Ministry of Energy	Shirmyrat Nuryev, Deputy Chief Engineer for Distribution Networks and Urban Lighting
5	Production Association "Ashgabadenergo" of the Ministry of Energy	Serdar Rejepov, Head of the High-Voltage Testing and Overvoltage Protection Service
6	State Committee on Statistics	Jennet Ovezova, Head of Department
7	Mejlis of Turkmenistan (Parliament)	Nerche Ovlyaguliev, Committee for Environmental Protection and Agro-Industrial Complex
8	Khyakimlik of Ashgabat (Municipality)	Arslan Amangeldiev, Member of the Project Board
9	Agency "Turkmenaototransport"	Takhir Nepesov, Member of the Project Board
	Academic and Research Institutions	
10	State Energy Institute of Turkmenistan (SEIT) of the Ministry of Energy	Aganiyaz Dzhumaev, Vice-Rector for Research
11	Research and Production Centre for Renewable Energy under the State Energy Institute	Kakageldi Saryev, Director of the Scientific and Production Centre for Renewable Energy
12	Turkmen State University named after Makhtumkuli	Sheker Ashirmuradova, Head of the Department of Ecology
13	Institute "Turkmenproekt" of the Ministry of Construction and Architecture	Head of the division

	International and regional organizations	
14	UNIDO	Myakhri Saparaova, Project Officer (Ozone Centre)
15	GIZ	Venera Shaikhulina, Head of the "Green Central Asia" program
16	Regional Environmental Centre for Central Asian (CAREC)	Irana Bagirova, Head of CAREC office in Turkmenistan
	Private sector	
17	IE "Dzhepbar" – a company in recycling of plastic wastes	Vladislav Rodionov, Manager
18	"Toprak" – a company in recycling of wastepaper	Irina Antonova, General Director
19	IE "Degerli gurlushyk"	Ruben Arustamyan, Director
20	Hotel "Grand Turkmen" (pilot facility for energy audit of buildings)	Leili Khalmuradova, Senior administrator
	NGOs	
21	Nature Conservation Society of Turkmenistan - Jointly with the Project installed metal containers for collecting plastic waste in Ashgabat and Avaza	Merdan Arazmedov, Head of division
	Media	
22	Newspaper "Neutral Turkmenistan"	Elena Dolgova, Correspondent
	UNDP	
	IRH	Bahtiyar Kurt, RTA
	Country Office in Turkmenistan	Rovshen Nurmuhamedov, Assistant Resident Representative
		Farhat Orunov, Program Analyst on Environment and Energy
	UNDP Project "Support for Climate Resilient Economic Livelihoods of Agricultural Communities in the Dry Regions of Turkmenistan" (SCRL)	Amangul Ovezberdyyeva, Project Manager
	Fourth National Communication of Turkmenistan to the UNFCCC	Gurbangeldi Allaberdiyev, Team Leader
	Project staff	Batyr Ballyyev, Project Manager
		Alexei Zakharov, Chief Technical Advisor
		Bashim Geldimuradov, Field Assistant

		Valery Afanasiev, International consultant on energy audit of street lighting systems, and development smart grids
		Elena Zhuchenko, International consultant in RES
		Vladimir Usievich, International consultant for integrated energy audit of buildings
		Atamukhamet Saryev, Energy Efficiency Project Specialist
		Jemal Durdykova, Waste Management Project Specialist
		Arslanmurat Zomov, Expert in Awaza Sustainable Development and Innovation
		Victoria Akopova, Environmental Monitoring Specialist
		Raisa Mageramova, Expert in environmental Statistics

Annex 6: List of documents reviewed

- Project-related documents:
  - Project Identification Form (PIF)
  - Social and Environmental Screening
  - Minutes of LPAC Meeting
  - Project Document
  - Project Inception report
  - Annual Work Plans (AWPs) for 2019, 2020 and 2021
  - Project Implementation Reviews (PIRs) for 2019 and 2020
  - Minutes of Project Board Meetings (2018-2020, 4 in total)
  - Environmental and Social Management Plan (ESMP), 2019
  - Memorandum of Understanding (MoU) Between the United Nations Development Program (Country Office in Turkmenistan) and the Ministry of Energy on Cooperation in Sustainable Energy Development
  - Draft MoU Between the United Nations Development Program (Country Office in Turkmenistan) and the Agency "Turkmenavtoulaglary" (TurkmenAvtoTransport) on Cooperation in Sustainable Transport Development
  - Annual Progress Report (APR) for 2020
  - Monitoring logs, Risk logs, Issue logs
- Legal and regulatory documents:
  - Law on Renewable Energy Sources
  - Draft Law on Energy Efficiency (Prepared by the Sustainable Cities project)
- Key strategic and planning documents:
  - Draft National Strategy of Turkmenistan for the development of renewable energy
  - Very first draft of National Strategy of Turkmenistan for the Waste Management
- Selected Technical Reports of the Project consultants (CTA, International Consultants, National Consultants)
  - Reports of CTA:
    - ✓ Deliverable 8: Assistance in developing proposals for the Sustainable Development Plan of the city of Ashgabat aimed at reduction of harmful environmental impact from road transport
    - ✓ Roadmap to Investment into Solar Powered Charging Stations
    - ✓ Deliverable 1: Assistance in developing proposals for the Strategy for the Waste Management in Turkmenistan
    - ✓ Deliverable 13: Assistance in developing proposals for the Strategy for the Development of Renewable Energy in Turkmenistan
    - ✓ Deliverable 9: Assistance in developing proposals for the management of Municipal solid waste (MSW) for the National Strategy of Turkmenistan on Waste Management
  - V. Usievich, International consultant for integrated energy audit of buildings. User manual for conducting of energy audit in public buildings
  - V. Afanasiev, International consultant on energy audit of street lighting systems, and development smart grids. On the impact of implementing measures to replace power

transformers and transfer power networks from 6 kV to 10 kV in the power supply system of the city of Ashgabat

- V. Afanasiev. Results of an express audit of medium voltage distribution substations in the city of Ashgabat in order to identify promising areas for modernization of systems, energy saving and the creation of intelligent energy consumption systems
- I. Zhuchenko, International Consultant in RES. Presentation: Significance of the "National Strategy for the Development of Renewable Energy in Turkmenistan until 2030" for the achievement of the Sustainable Development Goals
- A.Zomow, Expert in Awaza Sustainable Development and Innovation. Conducting Energy Audit and Possibility of Using Renewable Energy Sources in the Pilot Hotel Grand Turkmen
- A.Zomov. Brief Report on Existing Hotels in Awaza

Annex 7: Co-financing of measures in public lighting in Ashgabat and Awaza

#	Activity		Number	Dates (start, end)	Co-financing, USD			
					UNDP	Ministry of Energy		
						Purchase	Installation	Total
Ashgabat								
1	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		24,000	Aug-Dec 2019	4,500	9,551,822	1,396,398	10,948,220
2	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		22,000	Aug-Nov 2019	3,800	198,000	94,286	292,286
3	Reconstruction of electrical distribution networks, with the replacement of old transformers with modern new ones, with a transfer to a new voltage level from 6 kV to 10 kV; and with the replacement of old overhead power lines with new modern cable ones with a voltage of 0.4 kV		106	01.12.2019-06.05.2020	5,250	1,372,612	649,718	2,022,330
	Dismantled	Installed						
	1600 kVA – 2 units	2000 kVA – 2 units						
	1250 kVA – 4 units	1600 kVA – 4 units						
	1000 kVA –2 units	1250 kVA – 2 units						
	630 kVA – 10 units	1000 kVA – 10 units						
	400 kVA – 33 units	630 kVA – 33 units						
	250 kVA – 32 units	400 kVA – 32 units						
	160 kVA – 8 units	250 kVA – 8 units						
	100 kVA – 9 units	160 kVA – 9 units						
	100 kVA – 6 units	100 kVA – 6 units						
	In total – 106 units							
4	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		12,230	Jan-Mar 2020	2,400	4,867,540	712,835	5,580,375
5	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		6,325	Jan-Mar 2020	1,200	56,925	27,108	84,033
6	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		15,108	Apr-Jun 2020	3,650	6,012,984	880,581	6,893,565
7	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		4,856	Apr-Jun 2020	850	43,704	20,812	64,516
8	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		5,378	Jul-Sep 2020	1,250	2,140,444	313,461	2,453,905
9	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		5,927	Jul-Sep 2020	900	53,343	25,402	78,745
10	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		6,224	Oct-Dec 2020	1,500	2,477,152	362,771	2,839,923
11	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		8,639	Oct-Dec 2020	650	77,751	37,025	114,776
12	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		18,413	Jan-Mar 2021	3,600	7,328,374	1,073,215	8,401,589
13	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		12,318	Jan-Mar 2021	550	110,862	52,792	163,654
14	Reconstruction of electrical distribution networks, with the replacement of old transformers with modern new ones, with a transfer to a new voltage level from 6 kV to 10 kV; and with the replacement of old overhead power		60	01.03.2021-20.05.2021	507,400	0	367,662	367,662

	lines with new modern cable ones with a voltage of 0.4 kV							
	Dismantled	Installed						
	400 кVA – 20 units	630 кVA – 6 units						
	250 кVA – 40 units	400 кVA – 5 units						
15	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		8,147	Apr-May 2021	1,800	3,242,506	474,854	3,717,360
16	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		6,349	Apr-May 2021	400	57,141	27,210	84,351
Awaza								
	Replacement of old lamps of DNaT (400 W) by LED lamps (210 W) in street lighting system		2,244	01.09.2019-05.12.2019	3,200	893,112	130,794	1,023,906
	Replacement of old 100 W incandescent lamps, by modern 12 W LED lamps in floor lamps in parks and public places		22,224	01.09.2019-05.12.2019	1,100	200,016	95,246	295,262
	Reconstruction of electrical distribution networks, with the replacement of old transformers with modern new ones, with a transfer to a new voltage level from 6 kV to 10 kV; and with the replacement of old overhead power lines with new modern cable ones with a voltage of 0.4 kV		11	01.01.2020-25.03.2020	300	137,516	110,690	248,206
	Dismantled	Installed						
	400 кVA – 6 units	630 кVA – 6 units						
	250 кVA – 5 units	400 кVA – 5 units						
	Sub-total for Ashgabat				***539,700***	*37,591,160*	*6,516,130*	***44,107,290***
	Sub-total for Awaza				***4,600***	*1,230,644*	*336,730*	***1,567,374***
	TOTAL				**544,300**	***38,821,804***	***6,852,860***	**45,674,664**

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Annex 9: Signed MTR final report clearance form

Midterm Review Report Reviewed and Cleared By:

Commissioning Unit (M&E Focal Point)

Name: Ogulshirin Yazlyyeva

Signature: _____ Date: 29/09/2021

Regional Technical Advisor (Nature, Climate and Energy)

Name: Bahtiyar Kurt

Signature: _____ Date:

Annexed in a separate file: Audit trail from received comments on draft MTR report

Annexed in a separate file: Midterm Core Indicators

Annexed in a separate file: GEF Co-financing template