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United Nations Development Programme
Project Document

Project title: Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza		
Country: Turkmenistan	Implementing Partner: State Committee for Environmental Protection and Land Resources of Turkmenistan	Management Arrangements: National Implementation Modality (NIM)
UNDAF/Country Programme Outcome: Outcome 2.2: <i>Environmentally sustainable use of natural resources contributes to effectiveness of economic processes and increased quality of life</i>		
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Brief project description: Population growth and economic development have led to rapid expansion of cities in Turkmenistan over the past two decades, most notably in the capital city of Ashgabat and the resort zone of Awaza on the Caspian Sea. This growth has had an increasing negative environmental impact – resource consumption, waste, local air and water pollution, and emissions of greenhouse gases (GHG). Ashgabat and Awaza have already embraced some measures to manage this impact. But there remains much untapped technical potential to decrease the volume and impact of private vehicle traffic in all cities, further expand efficient street lighting, reduce waste and increase recycling, and introduce “green” practices to hotels.		

<p>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. To this end, the project will provide technical assistance, institutional and policy support, organization and development of programs, and promotion of behavioral change, all in conjunction with national priorities and specific needs articulated by the Government. Measures introduced in Ashgabat and Awaza will yield significant GHG emissions reductions and social benefits in themselves, while also creating a basis for replication elsewhere in Turkmenistan.</p>		
Financing Plan		
GEF Trust Fund	USD 6,060,046	
UNDP TRAC resources	USD 100,000	
(1) Total Budget administered by UNDP	USD 6,160,046	
PARALLEL CO-FINANCING (all other co-financing that is not cash co-financing administered by UNDP)		
Government	USD 57,000,000	
(2) Total co-financing	USD 57,000,000	
(3) Grand-Total Project Financing (1)+(2)	USD 63,160,046	
Signatures		
Signature: print name below	Agreed by State Committee for Environmental Protection and Land Resources	Date/Month/Year:
Signature: print name below	Agreed by UNDP	Date/Month/Year:

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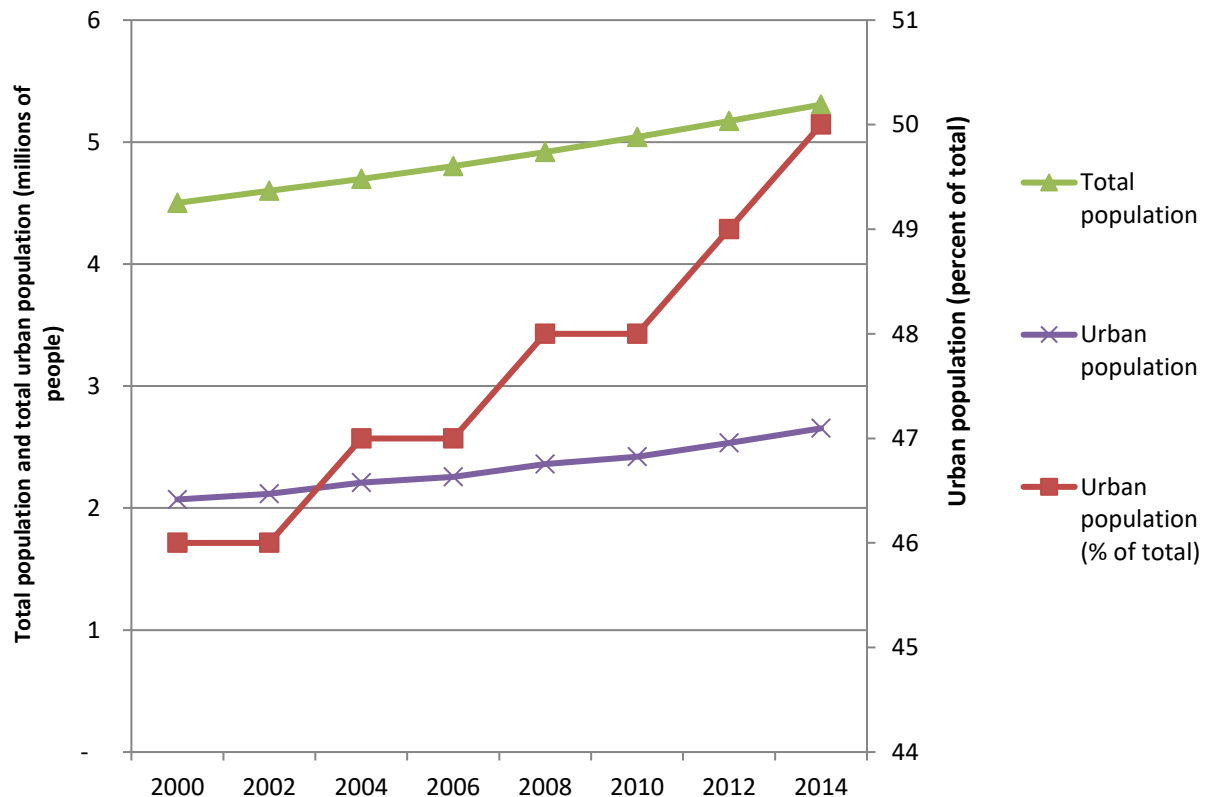
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II. DEVELOPMENT CHALLENGE

A nation of approximately 5.3 million citizens, Turkmenistan is in southwestern Central Asia, between the Caspian Sea and the Amu-Darya River. Turkmenistan is bordered by Kazakhstan to the north, Uzbekistan to the northeast and east, Afghanistan to the southwest, and Iran to the south.

The population of Turkmenistan is growing by approximately one percent per year. The country is also undergoing a steady shift toward greater urbanization, with an increasing proportion of citizens living in cities. Figure 1 shows the increase in total population and urban population of the country between 2000 and 2014.

Figure 1. Total Population Growth and Urban Population Growth in Turkmenistan, 2000-2014



The most notable recent urban growth in Turkmenistan has taken place in two distinct locales – the capital city of Ashgabat and the new resort zone of Awaza on the Caspian Sea. Ashgabat’s population has increased by about 70 percent in the last 15 years, from about 524,000 in the year 2000 to more than 900,000 in 2014. This population growth has triggered the creation of several new developed areas, many major new public and residential building projects, and expansion of associated infrastructure. Notably, the city is currently creating facilities and upgrading infrastructure in preparation for hosting the 5th Asian Indoor and Martial Arts Games in September 2017.

Just eight years ago, Awaza was a modest beach town with minimal infrastructure or services beyond rest and recreation for local residents. Then, President Gurbanguly Berdimuhamedow articulated his vision for creation of a world-class tourist resort at Awaza. Since being designated in 2007 as a national tourist zone, Awaza has undergone rapid development, with the construction of more than 30 hotels and other lodging facilities, parks, recreation facilities, and accompanying infrastructure, including 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. Awaza is also being promoted as a potential spot for headquarters for corporations seeking to establish economic bases on the eastern shore of the Caspian.

Ashgabat and Awaza occupy a special place in Turkmenistan's development, not only for their sheer scale, but also for their representation to Turkmen citizens and the whole world of the country's pride, ambitions, and potential. To date, development of these two cities has emphasized a grandeur consistent with the nation's rapid rise to prosperity and its high aspirations for future growth. But the Government also recognizes that these two showcase cities could win the respect and good will of the international community (as well as tourism revenue and investment) by demonstrating Turkmenistan's responsible citizenship in the global community of nations, as well as its readiness to implement smart, technically sound best practices in urban planning and management.

Sustainable urban development in Turkmenistan

In Turkmenistan as in all countries worldwide, the development of cities has led to increased negative environmental impact – resource consumption, waste, local air and water pollution, and emissions of GHGs. The sources of these impacts are varied, including rising use of private motor vehicles, expansion of public lighting, and consumption of resources and generation of waste by increasing numbers of increasingly affluent residents and tourists.

Ashgabat and Awaza have already embraced some measures aligned with world best practices to manage this impact, such as replacement of all spent street lamps with light-emitting diodes (LEDs) in Ashgabat and limitation of private car traffic in Awaza. But there remains much untapped technical potential to decrease the volume and impact of private vehicle traffic in all cities, further expand efficient street lighting, reduce waste and increase recycling, and introduce “green” practices to hotels. Meanwhile, other cities in Turkmenistan, which do not have the special status and investment priority of Ashgabat and Awaza, have arguably greater need for sustainable urban planning, practices, and infrastructure in all these areas.

Fulfilling this potential – thereby measurably reducing the impacts of urban growth in Turkmenistan while also advancing social and economic development goals – is the development challenge of the project. To this end, the project foresees several integrated activities in planning, investment, data collection and analysis, and promotion of behavioral change among citizens, starting in Ashgabat and Awaza and extending across all the major cities of Turkmenistan.

III. STRATEGY

The problems and issues underlying the project's development challenge arise from various causes.

Immediate causes

- **Lack of incentives and regulations for fuel efficiency.** Turkmenistan has a very active market in imported used passenger vehicles. Regulations are in place regarding the age and engine capacity of these vehicles (model year no more than three years before purchase year, engines no larger than 3.5 L). But there are no regulations or incentives regarding fuel efficiency itself. Furthermore, gasoline prices are extremely low (about \$0.29 per liter). Therefore consumers have very little incentive to choose smaller, more fuel-efficient cars. Hybrids and electric cars are essentially absent.
- **Lack of specific needed infrastructure.** During the PIF stage, the GEF Scientific and Technical Advisory Panel noted the potential for smart-grid technology to achieve energy savings in city lighting networks. Such technologies are completely absent in Turkmenistan, even on a pilot basis. Furthermore, while there is a waste-processing facility in Ashgabat that conducts some recycling, there is also a need to optimize the sorting, processing, and testing of incoming and outgoing waste streams in order to expand recycling and make the use of recovered materials more economically viable. In both of these areas, technical and financial assessment, investment, and training are needed to introduce these new types of infrastructure to Turkmenistan.

Underlying causes

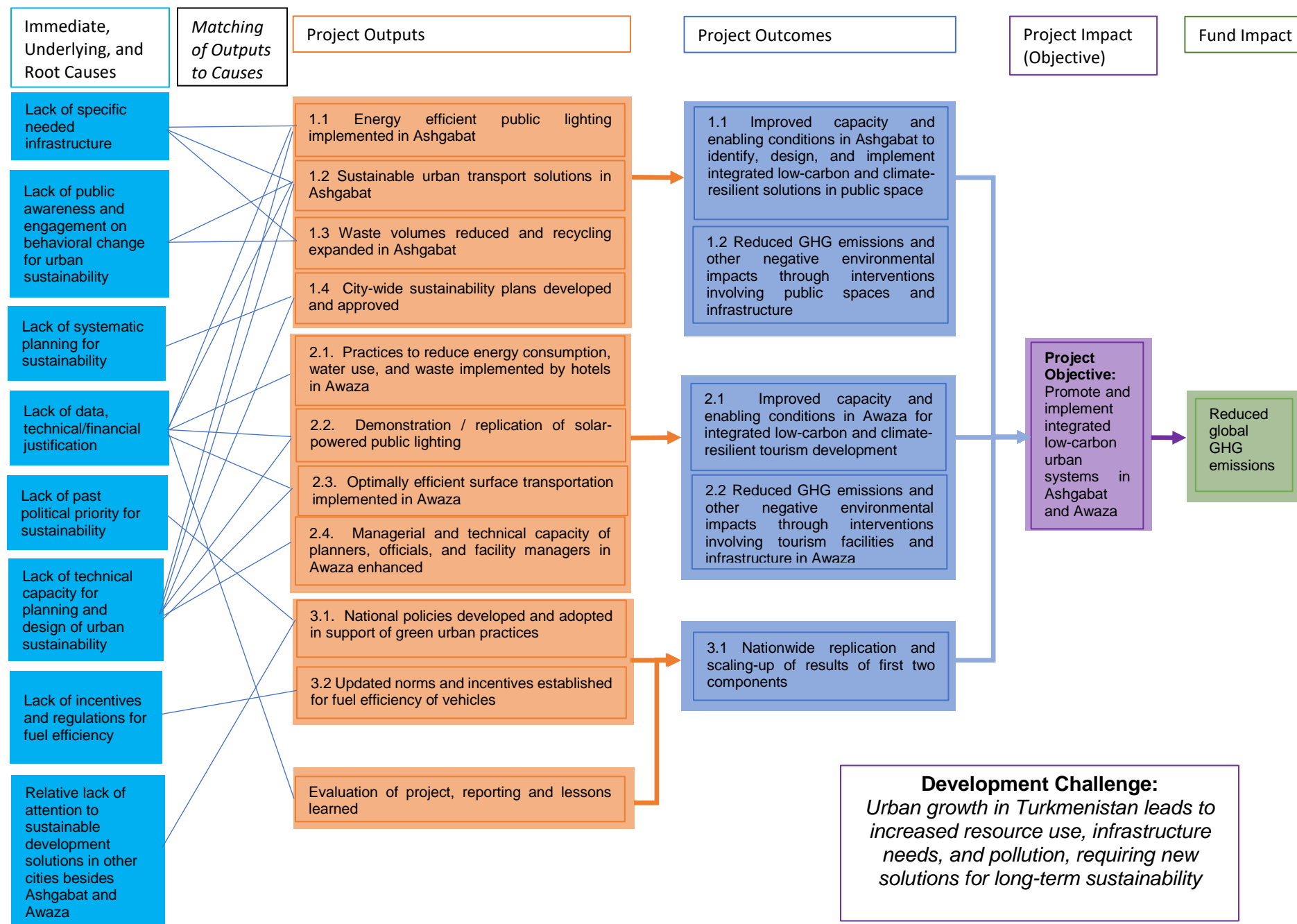
- **Lack of data and lack of technical and financial justification of state investment in urban sustainability.** Ultimately, necessary investments from the state budget will require technical and financial justification, to convince the highest-level decisionmakers of their value to the country. For all of the areas proposed by the project – energy-efficient transport, energy-efficient lighting, greening for reduction of the urban heat island effect, and sustainable tourism in Awaza – such justification is minimal or absent at present. Enhanced data and integrated analysis are needed.
- **Relative lack of attention to sustainable development solutions in Turkmenistan's other cities.** Turkmenistan's other large cities (Turkmenabat, Dashoguz, Mary, and others) are dealing with analogous issues of growth, but have received much less attention and state investment to date than Ashgabat and Awaza. Activities with specific regard to sustainability are extremely limited in these other cities.
- **Lack of systematic planning for sustainability in Ashgabat and Awaza.** Economic development plans and state budget allocations for Ashgabat and Awaza emphasize economic growth, social benefits, and enhancement of Turkmenistan's image, but environmental sustainability is minimally reflected.

Root causes

- **Lack of past political priority for sustainability.** This lack of planning arises from a lack of political priority and absence of champions for urban sustainability. The Government now does recognize the need for sustainable practices in all its cities, but policy and investment gaps remain.
- **Lack of technical capacity in planning and design for urban sustainability.** The broad concept of sustainable cities and specific technical approaches to sustainable urban development and hotel practices are quite new to both the Government and the private sector of Turkmenistan. Elaboration and implementation of effective integrated strategies for sustainable urban development will require technical assistance from outside experts and capacity-building among national decisionmakers and managers.
- **Lack of public awareness and engagement about behavioral change for sustainability.** The notion of sustainability is little known among the citizens of Turkmenistan's cities. Even more remote are sustainability-oriented behavioral approaches now ingrained in many citizens elsewhere in the world, including sorting of household waste and carpooling. For citizens to understand why and how to adopt these practices, an integrated combination of program organization and promotional outreach is needed.

Figure 2 elaborates the project's theory of change, including the overall development challenge, all of these immediate, underlying, and root causes, and the intended impacts, outcomes, and outputs of the project.

Figure 2. Theory of Change



The project fits within a promising context of growing priority on urban sustainability, reflected recently at the highest levels of the Government of Turkmenistan. Notably, Turkmenistan hosted the first-ever United Nations Global Sustainable Transport Conference in Ashgabat in late November 2016. This event was the realization of a Resolution introduced by Turkmenistan and adopted by the UN General Assembly in December 2015 (as well as a previous Resolution on sustainable transport and connectivity introduced by Turkmenistan in 2014). Participants formally reaffirmed their commitment to sustainable transport and to reducing associated GHG emissions. The event also included a side event on implementation of the Sustainable Development Goals (SDGs) in Turkmenistan. UNDP and the Government are now engaged in follow-up discussions about how to include indicators and targets related to SDGs in the 2017 Presidential Plan for 2017-2021, within the context of the already-adopted national development plan up to 2030. At the Conference, more than 50 countries endorsed the “Ashgabat Statement on Commitments and Policy Recommendations,” with a view to supporting cleaner, greener transportation, which ranges from local transit systems to worldwide multimodal networks.

The focus of this project is reduction of GHG emissions within the broader context of urban sustainability. In addition, the project touches upon climate resilience – with regard both to specific issues such as water management in hotels, which saves both energy and water, and to broader planning, strategy, and policy for sustainability and responsiveness to climate change. The project is directly consistent with Turkmenistan’s Intended Nationally Determined Contribution (INDC), which was submitted in September 2015, as well as the National Climate Change Strategy of Turkmenistan, developed with the help of UNDP and adopted in 2012.

In sum, the project will address the multifaceted issue of sustainable urban development in several ways – technical assistance, institutional and policy support, organization and development of programs, and promotion of behavioral change, in conjunction with national priorities and needs articulated by the Government. Measures introduced in Ashgabat and Awaza and supported by national policy will yield significant GHG emissions reductions and social benefits, while also showcasing cities as a basis for replication elsewhere in Turkmenistan. In the end, the project will lead to a new paradigm of how cities and citizens of Turkmenistan deal with growth in these key sectors, yielding change that will persist after the project’s interventions have ended.

IV. RESULTS AND PARTNERSHIPS

i. Expected Results

The objective of the 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.**

The project will lead to several general outcomes in Ashgabat, Awaza, and other cities across Turkmenistan:

- 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.

To achieve these outcomes, UNDP, the Government and its partners in Turkmenistan have defined outputs and activities across three components – with the first focusing on Ashgabat, the second focusing on Awaza, and the third seeking scale-up via policy and regulations at the national and municipal level throughout Turkmenistan.

Component 1. Sustainable urban development in Ashgabat

This component has two targeted outcomes:

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

As noted in the project strategy, Ashgabat is already progressive and active with regard to street lighting, specifically with routine replacement of spent lamps with LEDs. In executing this output, the project will seek to tap new technical opportunities, while taking advantage of existing activity on LEDs, with the goal of enhancing know-how and providing technical/financial justification for replication.

Activity 1.1.1. Piloting of EE lighting linked with smart-grid feedback and dispatching. Given that Ashgabat already is pursuing efficiency with regard to lamps, the next level of achievable savings involves application of intelligent systems with dimmers, timers, light sensors, and/or motion sensors. Integration with smart grid technology more broadly in the network would further reduce energy consumption in lighting networks. The potential energy savings even in systems with significant LED use are in the range of 20 to 30 percent. The project will provide technical assistance in site selection and system design, as well as a share of the investment cost to pilot the system in one neighborhood.

Activity 1.1.2. Documentation of LED street lamp performance and justification of replication. Results from ongoing LED replacements will also be compiled and presented to the Ministry of Energy and city administrations as justification and technical guidance for replication elsewhere in the city and country. The project will provide technical and management support for implementation and evaluation of replication efforts.

End of project target: 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.

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

This broad output involves several specific activities, as described below. Ultimately, this work is intended to curtail the number of cars on the road and also increase the fuel efficiency per car, thereby contributing to the targeted outcome of reduced GHG emissions.

Activity 1.2.1. Design and construction of dedicated bus and bicycle lanes. The Ministry of Motor Transport is responsible for planning, operating, and maintaining government-run fleets of motor vehicles throughout the country. Already the ministry, in conjunction with the Ashgabat city administration, is highly involved with measures to improve public transport and manage congestion in the city. The ministry manages a fleet of 300 government-owned yellow taxis (soon to be expanded to 500), plus a fleet of 700 city buses (soon to be expanded to 1200, with the purchase of new Hyundai buses compliant with the Euro-4 standard). See the Ministry's letter in Annex M.

Due in part to these activities, as well as the still-manageable volume of cars on city roads, congestion is not an urgent problem at present. But the Ministry of Motor Transport and the city administration expect congestion problems to increase rapidly soon. Therefore, specialists at the Ministry are already studying options for establishing dedicated bus lanes along key thoroughfares. As these specialists lack experience and knowledge of international best practices, the project will provide targeted technical assistance. In particular, the project will deliver direct technical assistance in analysis, site selection and design, drawing upon international best practices, including recent successes from the UNDP-supported GEF-funded project on sustainable transport in Almaty, Kazakhstan, where a dedicated bus line with special stations is up and running. The project's technical assistance will include a full analysis of social and environmental risks, and recommendations for mitigating them, as discussed in Annexes F and G.

Promotion of bicycling is fully consistent with current national initiatives, which have emerged at the direction of the President, to promote greater fitness and physical activity. At present, however, city traffic speeds and volume in Ashgabat, combined with prevailing driving habits, make bicycling unacceptably dangerous. Therefore, the project will provide technical recommendations to the city administration of Ashgabat on where bicycle lanes could be created, either on existing roads (with painting of full lanes or half-lanes on the right side), or via dedicated new construction.

Activity 1.2.2. Design of e-passes, map updates, and a mobile app for riders. The Ashgabat bus system is relatively fast, reliable, and widely used, with a mostly young fleet and attractive bus shelters that often even include enclosed climate-controlled areas. But there remain some inefficiencies in the system. Normal payments are made in cash to the driver (30 tenge, or less than US \$0.10 per ride at official exchange rates), who makes change as needed. This prolongs the wait at every stop. The Ministry of Motor Transport has therefore begun to study options for an electronic card-based payment system. Here too, however, the Ministry's interest is not yet matched by its expertise. Therefore, the project will deliver technical assistance in the development of such a system, in terms of both overall scoping and technical details such as design, programming, and identification of hardware options.

Another deterrent to bus ridership is inadequate maps. Most bus stops do have large maps, but they are most often faded and/or out of date. Furthermore, street closures often prompt rerouting, which is not reflected in the maps, nor in other signage. The Ministry has expressed interest in developing a mobile app that would help riders to understand routes, timetables, and options for connections. Such a tool would be completely new for Turkmenistan, but at the same time, it is quite timely given the widespread use of mobile devices and availability of relatively good mobile data and location services. The project will provide technical assistance in design and operation of this app, and would provide resources to help ensure that it is available to the public free of charge.

Activity 1.2.3. Behavioral-choice programs and outreach on sustainable transport. The project will conduct public information campaigns in conjunction with official Government messaging, to encourage alternatives to inefficient private motor vehicle transport. These campaigns will involve a variety of modes of outreach, including advertising at bus stops, television and print media, and posters to be put up at schools, agencies, and enterprises.

A. Promotion of safe bicycling. As noted above, cycling is dangerous in Ashgabat. The project will therefore first promote safety for cyclists via "share the road" informational campaigns for drivers, supported by increased law enforcement for cyclist safety, including officer training and new regulations as needed. Then, upon proper study

of bicycle lane expansion options under Activity 1.2.1 above, the project will also conduct a campaign for cyclists to promote use of available dedicated lanes, with proper precautions about riding and wearing helmets.

B. Promotion of proper tire inflation. Drivers in Turkmenistan commonly and intentionally keep their tires underinflated, in the hopes of obtaining a smoother ride. But correctly inflated tires increase safety and lengthen tire life, and can result in 1 to 3 percent improvement in efficiency relative to underinflated tires. To capture some of this energy-saving potential, the project will promote proper tire inflation via signs, media spots, and other means. This campaign will target both fleet-owning enterprises and individual car owners.

C. Promotion of carpooling. Already many factories and large government agencies offer shuttles for employees. The campaign organized by the project would encourage further implementation of such shuttles, as well as general outreach to the public about the benefits of sharing rides. (Informal use of private cars as taxis – essentially, impromptu paid hitchhiking – is already considered quite normal in Ashgabat, even by women passengers.)

Activity 1.2.4. Data collection and analysis on transport volumes, choices, and preferences. Data on passenger and freight volumes in various modes of transit are only spottily available. Specific information on consumer preferences and choices (including gender and age dimensions) are completely absent. Therefore the project, in addition to compiling official quantitative data, will conduct surveys, focus groups, and interviews to help shed light on how best to serve citizens' evolving transport needs. Results from this research will be delivered to the Ministry of Motor Transport and the city administration.

End of project target: Reduction in number of passenger-km of private car travel, via increased use of alternative modes and carpooling, by 3 percent (180 million passenger-km per year)

Output 1.3. Waste volumes reduced and recycling expanded in Ashgabat

Waste management in Turkmenistan is the responsibility of the Ministry of Communal Services. While the system of waste collection in Ashgabat is well developed (and the city itself is impressively clean), high-level Ministry officials recognize that population growth and economic development in the capital are leading to increasing volumes of waste. While recycling is already applied to a limited extent in Turkmenistan, it is still quite new in the country, especially at the level of residential waste separation area, which is completely new in Turkmenistan. The focus on recycling of glass, plastic, and paper should still offer significant energy savings and reduction of natural resource use, while creating new modes of citizen engagement. Thus the project is well positioned to create incremental benefits with technical assistance and outreach in this area.

Some waste is separated by hand at the municipal waste facility in Rukhabad. The city is also developing a new recycling facility at Owadandepe, but it is not running. There is even some waste sorting already at the consumer level in Ashgabat at certain bus stations and public areas, where people can place glass, plastic bottles, and newspaper into separate receptacles, but such special containers are extremely limited. The great majority of waste remains unsorted.

In this light, the project will carry out several related activities, with the specific objectives of reducing wasted resources and increasing recycling, leading to reduction in overall life-cycle use of resources and energy.

Activity 1.3.1. Public information campaign to reduce solid waste. The project will conduct outreach via publications, mass media, and direct interaction with state and private enterprises as well as private citizens to reduce solid waste by reducing paperwork and packaging.

Activity 1.3.2. Piloting of sorting of recyclable household waste in Ashgabat. The Ministry of Communal Services has expressed strong interest in establishing a pilot project, with the support of UNDP, for sorting of residential waste in one microdistrict of Ashgabat. This effort would involve design of the system, the installation of special receptacles (for glass, plastic bottles, newspaper, and possibly cans), and organization and implementation of expanded collection. The pilot effort would also involve education and outreach to residents on why and how to separate their recyclables, as well as a quantitative evaluation of how much waste is diverted from regular landfill waste. Results will be used to promote replication throughout Ashgabat and, eventually, in other cities of Turkmenistan.

Activity 1.3.3. Morphological analysis of waste streams into and out of Ashgabat recycling facility. The project will work with the Ministry to inventory incoming waste streams. Such data collection would help guide future efforts

in planning of expanded programs on waste separation and recycling. Moreover, the project will support the chemical analysis of the content and quality of recycling facility output, to support the sale and use of secondary raw materials, such as plastic, rubber, and glass.

End of project target: increase in use of secondary raw materials by 25%

Output 1.4. City-wide sustainability plans developed and approved

This activity will provide integration among all of the outputs and activities of this component. To the extent that the adopted National Climate Change Strategy involves both mitigation and adaptation, this activity may include integration of mitigation and adaptation at the municipal level as well, especially

Activity 1.4.1. Development of sustainability plans for Ashgabat and other cities. The project will assist officials from the city administration of Ashgabat, as well as officials from various relevant national ministries, in developing integrated sustainability plans for the city. This work will include assistance in preparing the actual plans, including capital and operational budgets, agency assignments, timetables, performance metrics, and so on. Training and capacity-building will be targeted at the officials to ensure that they can integrate sustainability into their own work during and after the project period.

End of project target: Two other cities in Turkmenistan with total population of at least 175,000 have formally adopted sustainability plans

Component 2. Sustainable Tourism Infrastructure and Management Practices in Awaza

This component has two targeted outcomes:

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

The project will conduct three integrated activities toward implementation of green hotel practices in Awaza.

Activity 2.1.1. Development and implementation of green standards for hotels. The project will develop green standards for operation of existing hotels in Awaza, and then will promote their implementation throughout the tourist zone. These standards may include a combination of required actions, including energy audit 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; reduction of waste in packaging and other disposable items; and so on. Results will be measured at all participating hotels.

Activity 2.1.2. Execution of energy/water audits. In conjunction with the new standards, the project will provide comprehensive technical audits of energy and water consumption of each major hotel of Awaza, with identification and preliminary cost estimation for conservation measures. It is expected that significant savings are achievable via measures such as occupancy sensors involving minimal cost or loss of comfort for guests. The project will followup on audits with a study of measures implemented and savings achieved as a result of the audits.

Activity 2.1.3. Public promotion of successes in green hotel practices in Awaza, including annual awards. To support the implementation of the standards and audit-recommended measures of the first two activities, the project will carry out promotional efforts to draw attention to the green practices and their importance to the hotels of Awaza, including annual prizes for individuals and hotels.

End of project target: green hotel management standards adopted and implemented by Awaza hotels

End of project target: reduction of energy consumption and water consumption in Awaza hotels: energy/water audit measures implemented, leading to reduction in energy and water consumption per guest by an average of 10%

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

As in Ashgabat, the project will design low-carbon upgrades of public lighting in Awaza, and will cover a portion of incremental costs with GEF funds.

Activity 2.2.1. Demonstration and replication of solar-powered lighting. The project will conduct pilot demonstrations of solar-powered lighting for walkways and/or streets. The demonstration will involve at least six fixtures in two different types of applications. The design process and installed performance of the new lighting systems will be documented and used as justification and technical guidance for replication throughout the tourism zone.

End of project target: demonstration in at least six fixtures in two different types of applications

Output 2.3. Optimally efficient surface transportation implemented in Awaza

Awaza is already quite progressive with regard to vehicle traffic, with a requirement that visitors arriving by car park outside the tourist zone and take buses to the resort area. Within the resort, there are numerous options for walking, cycling, boating, and use of small electric carts as well as shuttle buses. Furthermore, the volume of traffic remains quite low. There is therefore no pressing need for added investment or even much enhanced planning with regard to transport in Awaza.

There does remain some untapped potential for development of solar-powered charging stations for the electric vehicles. Such stations would be suitable in terms of the local climate, especially during the peak summer season, and consistent with the image of Awaza as a progressive and advanced. One activity has been developed accordingly.

Activity 2.3.1. Piloting of solar-powered charging stations for electric vehicles. The project will partially support the design and piloting of several such stations, using existing shaded parking facilities. This work will lead to reduced emissions, and increase know-how for eventual application of solar charging stations throughout Turkmenistan, for use when electric vehicles achieve the market penetration already witnessed in other countries.

End of project target: a total of ten solar charging stations installed nationwide at three different sites

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

This output will support the effective implementation of all the other outputs of this component.

Activity 2.4.1. Technical assistance and training for planners, officials, and facility managers in Awaza. The project will deliver technical and managerial training to an array of responsible parties in Awaza – urban planners, administrators, hotel managers, maintenance personnel, and others. This training, provided twice annually to a rotating set of audiences, will include technical guidance on planning, operation, monitoring, and maintenance of new systems in building, lighting, and transport. More broadly, it will also clarify the concept and the advantages of sustainability in order to help ensure ownership of new practices.

Component 3. Municipal and National Policy

This component has one broad targeted outcome:

- 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

National policies are needed to set clear mandates for sustainable urban development, to define specific action steps and agency roles, to ensure integration and mutual consistency among goals of social and economic development and sustainability, and to provide a basis for needed state investment and nationwide scale-up. Activity under Output 3.1 will address this need.

Activity 3.1.1. Development and adoption of national policies and budgets in support of scaled-up urban sustainability practices. The project will form a working group of relevant national and international agencies, and will lead the development of new policies and state budget recommendations. This work will yield stand-alone documents (such as Ministry orders or action plans) or possibly revised parts of the National Low-Emission Development Plan. It will also include a plan for transfer of responsibilities from the project to appropriate agencies, for sustainable post-project continuation of needed activity.

Activity 3.1.2. Training and information delivery for capacity enhancement of responsible agencies and individuals. The project will deliver materials and training for national officials and municipal officials not reached by other components and activities, to support their ability to plan and implement new policies even after the close of the project. This material and training will focus on the lessons learned from application in Ashgabat and Awaza in the other components.

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

UNDP and the State Committee for Environmental Protection and Land Resources of Turkmenistan have identified a significant opportunity to achieve scaled-up fuel savings and avoided emissions via the creation of incentives and revised standards for fuel efficiency of imported cars. The goal of this output is twofold: first, to shift the entire market of newly-purchased imported vehicles toward greater fuel efficiency, and second, to support the expansion of the market for the most efficient cars, including hybrids and electric vehicles.

Activity 3.2.1. Development and implementation of fuel economy standards and incentives for motor vehicles. 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. This activity will also develop regulations regarding the charging and servicing of hybrid and electric vehicles, based in part on the results of Activity 2.3.1.

End of project target: 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)

Monitoring and evaluation (M&E) and knowledge management

The project includes a separate component on M&E and knowledge management, outside the three components listed above. The project will document all of the technical design and performance results of its activities in lighting, transport, waste management, and hotel management. Furthermore, at the level of the whole project, progress, quantitative results, and lessons learned will be regularly compiled and reported to UNDP and GEF in accordance with established requirements for monitoring, reporting, and verification of project activity. This work will feed substantially into the Mid-term Review and Terminal Evaluation, and will also result in a final report on project results and lessons learned, as well as numerous smaller reports on specific subjects. All materials will be made available via UNDP’s website, and will be presented at conferences and other forums as appropriate.

This component will also include the establishment of procedures and responsibilities for M&E efforts by Turkmen agencies in assessing sustainability programs in both Ashgabat and Awaza. These procedures will remain in place after the end of the project, thus helping to assure effective and responsive management of future sustainability efforts.

The project will seek to maximize knowledge-sharing, both among the cities of Turkmenistan and among the countries of the region. Knowledge-sharing will flow both to and from the project. Modes of information exchange will vary widely, depending on intended audiences, but may include messaging in the national and international mass media, as well as social media where accessible. This work will be designed for synergy with the government’s outreach efforts to the public to promote Ashgabat and Awaza as examples of sustainability, innovation, and social responsibility. The work on knowledge management will bring together all relevant activities and outputs generated under Component 1, 2 and 3. The number of citizens reached by the project will to be determined in aggregate from mass media circulation data, distribution of materials, etc. While currently there is no outreach by public-relations

and knowledge-sharing on sustainable urban development, the end of project target is 500,000 citizens including 250,000 women and girls.

For more details, please see Section VII.

End of project target: number of citizens reached by public-relations and knowledge-sharing on sustainable urban development -- 500,000 citizens reached (250,000 women and girls)

ii. Partnerships

The State Committee for Environmental Protection and Land Resources of Turkmenistan has worked closely with UNDP for years in programming for environmental protection projects funded by the GEF and others. The State Committee has also been a leading partner in strategic planning and other support for preparation of this project on sustainable urban development in Turkmenistan. As National Implementing Partner, the State Committee will name a senior staff member as National Project Coordinator and will chair the Project Steering Committee.

During project preparation, UNDP has consulted closely with responsible agencies of the Government with regard to specific activity areas: the Ministry of Energy for street lighting; the Ministry of Motor Transport for transport; the Ministry of Communal Services for waste management; the Ministry of Tourism for hotel management; and the city administration of Ashgabat and the district administration of Awaza in all areas. These entities will be invited to serve on the Project Steering Committee.

The Union of Industrialists and Entrepreneurs, founded in 2008, is the leading association of private sector businesses in Turkmenistan. The Union's 15,000 members, or about 15 percent of registered private enterprises or individuals in private business in Turkmenistan, generate about 87 percent of the privately-generated GDP of the country. This organization 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 Union is ready to support the project during implementation in matters ranging from technical consultancy, to provision of needed equipment, to delivery of services.

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. The projects will share materials and consultant referrals, and will participate in meetings hosted by each other.

The project will liaise with projects of the GEF Sustainable Cities Integrated Approach Pilot (SC IAP), which is part of the GEF's Integrated Approach Pilot (IAP) series, which aims to adopt a more holistic approach to sustainable city development. The SC IAP consists of two tracks: (i) city-level projects (23 cities with around US\$140 million total GEF grant funding) and (ii) a Global Platform for Sustainable Cities (GPSC) led by the World Bank (with US\$10 million GEF grant funding). While this project in Turkmenistan is *not* one of the city-level projects, the Turkmenistan project will liaise with the SC IAP. The GPSC is a knowledge platform that ties all of the participating SC IAP cities together by providing a collaborative space for both cities and a wide range of entities already working on urban sustainability issues. The project in Turkmenistan will liaise with the GPSC to get program updates from the Collaboration for Development (C4D) website. Project details of UNDP-implemented projects have been shared so that the GPSC is able to provide relevant program materials and find synergies between the SC-IAP/GPSC and this project in Turkmenistan. The project will actively use the GPSC for knowledge management, including to learn from and use similar methodologies and indicators as they evolve.

iii. Stakeholder engagement

City residents of Turkmenistan, especially those in Ashgabat, are the key stakeholders at the broadest level for the project. Hotels and guests of Awaza also have a direct interest in the outcomes of the project, as do all of the government partner agencies listed above. The project will engage these stakeholders in various ways:

- *Citizens.* The project will gather data via surveys and interviews on preferences and habits of citizens, especially regarding transport and waste, and will design its outreach and incentives accordingly. Engagement of citizens directly in program activity is difficult in Turkmenistan, given restrictions on public assembly and information,

but where possible, the project will work with citizens within approved channels, and will encourage peer-to-peer outreach in encouraging carpooling, walking, bicycling, and waste sorting.

- *Hotels.* Under Output 2.1, the project will help organize a council of hotels in Awaza, which will serve as a vehicle for sharing experiences and best practices in green hotel management. The project will also seek to engage hotels in implementing sustainable practices by creating friendly competition among them, with annual recognition and rewards. UNDP will assist hotels in promoting their green practices and also encouraging sustainable behavior by guests (such as opting out of laundering of linens, or using shutoff modes upon leaving rooms), via information posted in hotel rooms.
- *Government agencies.* As noted in the activity descriptions, most project activities will involve direct collaboration between UNDP and relevant government agencies on policy development and implementation, as well as design, piloting, and documentation of sustainable infrastructure and systems.

iv. Mainstreaming gender

The development challenge of project – fulfilling the potential for sustainable urban development in Turkmenistan, thereby measurably reducing the impacts of urban growth while also advancing social and economic development goals – is broadly relevant to both sexes, in all age groups in the general population. The impacts of the project in terms of environmental quality and reduced traffic congestion, and various outcomes achieved in transport, lighting, waste, and overall planning are also expected to be fully inclusive of women, men and children.

Therefore, while the project does not have activities that specifically and directly aim to tackle gender inequality as a primary focus, the project does seek equal engagement and equal benefits in all of its activities. Various areas where gender dimensions need to be taken into special account are outlined below.

Data collection and analysis, especially regarding transport. While some areas of project activity such as energy savings in street lighting are universal in how they affect all citizens without regard to gender, transport has various dimensions that may affect men and women unequally. Measures to reduce the use of private cars and increase public transportation may have differential effects, to the extent that men and women show different rates of car ownership and public transportation ridership. But data are essentially absent with regard to gender dimensions of transport. Therefore the project will conduct comprehensive studies before and during its implementation of transport-related activities, in order to maximize effectiveness and ensure gender-inclusivity.

Engagement of women in project implementation. In addition to collection of data, the project will also ensure gender-relevance and gender-inclusivity in its activities by engaging women in the implementation of activities – including those targeting professionals (such as the policy, planning, and management work under Output 1.4 on urban sustainability plans, 2.1 on hotel management, and 3.1 on national policy), as well as those targeting the general public (Output 1.2 on transport in Ashgabat and 1.3 on municipal waste and recycling). This engagement will involve inclusion of women as national experts (where possible), recipients of training, and members of advisory groups.

Informational outreach. The project will make an effort to reach both men and women equally with its informational outreach, including both training for professionals and promotional activity among the general public. Women will be depicted equally in program materials, with a special attention to ensure equal portrayal in areas such as motor vehicle operation and maintenance, where stereotypes might more strongly assume male roles. Women do operate cars widely in Ashgabat, but statistics are, as noted above, unavailable.

With proper data-driven program design as noted above, the gender-related risks of the project should be minimal or absent. Annex L provides a full discussion of the gender context of this project, as well as a gender action plan.

v. South-South and Triangular Cooperation (SSTrC)

As noted above, the project will establish knowledge-sharing flow in both directions with analogous UNDP-supported projects in Kazakhstan, Armenia, and Georgia. The project will broadly examine efforts outside the

Central Asian and Caspian regions on specific technical solutions such as dedicated bus lanes, which are being increasingly widely applied in Eastern Europe, the Middle East, Asia, and around the world.

The project will seek to disseminate its results using existing information sharing networks and forums of relevant focus in Turkmenistan, regionally and globally. The project will learn from the outputs of the GEF SC IAP, which seeks opportunities for improved efficiency, synergy and increased returns of investment in developing cities with initial engagement (2015-2020), with initial engagement in 23 cities in 11 countries. While not one of the official city participants, the project in Turkmenistan will liaise with the SC IAP's GPSC led by the World Bank including to get program updates from the C4D website. Project details have been shared so that the GPSC is able to provide relevant program materials and find synergies between the SC-IAP/GPSC and this project in Turkmenistan. The project will actively use the GPSC for knowledge management. UNDP may invite representatives of some of the SC IAP city projects to attend the closing workshop of the project in Turkmenistan, and to deliver presentations and disseminate their own materials. The project will also contribute to relevant GEF- and UN-related publications, as appropriate.

In its recruitment of international experts, the project will take into account of the value of south-south knowledge sharing, and ways in which a given country's experience and expertise might be particularly appropriate for the economic, social, climate-related, and environmental conditions of Turkmenistan.

V. FEASIBILITY

i. Cost efficiency and effectiveness

The project is ambitious in its breadth of scope and intended scale, seeking to transform technical solutions, planning practice, and citizen behavior across various sectors and across the country. It will achieve scale via various mechanisms, including: technical and financial justification of state investment in infrastructure, outreach via mass media, and municipal and national policy (national standards and incentives for fuel efficiency in cars).

The project involves significant co-financing from the Government of Turkmenistan, reflecting its strong commitment to the project. GEF funding represents a relatively small share of the total combined project budget, but GEF-supported activities will help ensure that government investments and programs have maximal cost-effectiveness.

Given its broad scope, the project will achieve correspondingly broad benefits: establishment of an enabling environment for sustainability, prevention of traffic congestion, reduction of waste and litter, engagement of citizens, promotion of innovation, and of course, reduction of energy consumption and associated greenhouse gas emissions.

The project's target for direct GHG emissions reductions is 366,500 tonnes of avoided CO₂ during the project period, including 294,000 tonnes from vehicle efficiency standards and incentives; 30,000 tonnes from lighting measures; 20,000 tonnes from promotion of proper tire inflation; and 22,500 tonnes from energy management in hotels. Up to 648,000 tonnes of consequential CO₂ emissions reductions are expected. Consequential emissions reductions are not included as a target in the Project Results Framework but will be estimated at the end of the project. Details of the 'Calculations of Potential Energy Savings and GHG emissions Reductions' are provided in Annex J.

ii. Risk Management

The project's design reflects a thorough assessment of barriers and risks affecting the potential success of sustainable urban development in Turkmenistan. Activities have been designed specifically to lift the barriers as elaborated in the sections on strategy (Section III) and expected results (Section IV.i).

The risks in the table below reflect factors that lie outside the direct influence of the project, or along its periphery. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e. when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks will also be reported to the GEF in the annual Project Implementation Report (PIR).

Project risks				
Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
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	Political, institutional	I=3 P=2	The project's activities and co-financing plans take account of state budgets that have already been profoundly affected by low export revenues from natural gas. UNDP and key partners from the Government, including the State Committee for Environmental Protection and Land Resources of Turkmenistan and numerous	Project staff, National Project Coordinator, UNDP Country Office

Project risks				
Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
			ministries, have all agreed on needs, proposed activities, and targeted outcomes. Furthermore, the project seeks specifically to mitigate this risk via the development of technical and financial justification of sustainability measures (use of LED lighting and smart-grid systems, dedicated bus and bike lanes, energy and water conservation measures identified by facility audits in hotels). UNDP will also provide steady advocacy through direct connections between its senior management and high-level officials within ministries and in the Cabinet of Ministers	
Implementation of project activities, especially pilot projects, is hampered by administrative delays arising from slow processes of permissions, contracting, and procurement	Institutional, administrative	I=2 P=2	The Project Manager will develop detailed Annual Work Plans reflecting a full required process plan for each activity, including pilot projects. The process plans, in turn, will contain a proper and realistic sequence of contacts, site selection, and agency permission, as well as recruitment, contracting, and procurement. These plans will be developed and finalized with the participation of national partners and the Project Implementation Unit of the UNDP Country Office (administrative staff responsible for contracting and procurement). The Project Manager will also rely on the National Project Coordinator and UNDP senior management to help advocate for resolution of any bureaucratic delays on the Government side.	Project Manager, UNDP Country Office staff (Project Implementation Unit, senior management as needed), National Project Coordinator
Piloted technologies and practices prove not to be technically and/or financially justified, and therefore do not lead to replication – or possibly even lead to a broad backlash against the technology (for example, premature failure of LEDs would damage the	Technical	I=2 P=2	International and national experts will be engaged in the selection, design, installation, operation, and monitoring of pilot projects, and will ensure consistency with both proven international best practice and national conditions. Documentation of pilot projects will include not only immediate savings of energy costs, but also larger effects on the state budget	Project team, including international and national consultants

Project risks				
Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
popularity of LEDs and all EE lighting)			(greater availability of gas for export, reduced subsidies for consumers), as well as performance, durability, and non-energy benefits.	
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, noise, and environmental damage.	Social and environmental (See Annex F, Social and Environmental Screening Template)	I=3 P=2	The project's role in development of new bicycle and bus lanes is to provide technical assistance in planning. This planning will explicitly include recommendations for safety, environmental mitigation, and minimization of social impacts. The project will include this risk in its Environmental Social Management Plan and will monitor it accordingly. See Annex F for a fuller elaboration of expected recommendations.	Project Manager, staff, and consultants; Ministry of Motor Transport; Municipality of Ashgabat
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	Social (See Annex F, Social and Environmental Screening Template)	I=2 P=2	All project activities to promote cycling will emphasize safety – including encouragement to motorists to “share the road” and to cyclists to wear helmets. The project will also support enhanced law enforcement for cyclist safety by means of training and new regulations as needed. Then, upon proper study of bicycle lane expansion options, the project will also conduct a campaign for cyclists to promote use of available dedicated lanes, with proper precautions about riding.	Project staff, Ministry of Motor Transport, municipal administration of Ashgabat, police and other agencies
Project activity to promote increased carpooling exposes citizens to increased risks of crime, with particular risks for women	Social (See Annex F, Social and Environmental Screening Template)	I=1 P=1	Already in Turkmenistan, hailing rides from strangers for fees negotiated on the spot is quite common, even among women passengers. Most citizens do not perceive this practice as risky in the least. Nevertheless, in its promotion of carpooling, the project will not encourage informal hitchhiking, but rather specifically sharing of rides among people already acquainted with each other, with shared starting points and destinations. This will apply especially to shuttle services for employees of large agencies and enterprises.	Project staff and institutional partners

Project risks				
Description	Type	Impact & Probability	Mitigation Measures	Responsible Parties
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.	Social (See Annex F, Social and Environmental Screening Template)	I=1 P=1	The project will deal with this issue above all by showing respect for women's autonomy in their choices of dress and transport. Materials produced by the project will show women riding bicycles in practically appropriate attire, and women in traditional dress taking other modes of alternative transport.	Project staff
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	Social (See Annex F, Social and Environmental Screening Template)	I=2 P=2	The design of the pilot recycling program will explicitly include an analysis of both occupational safety and quality control for recycled materials, including a process to keep hazardous waste out of recycling streams. This risk will be included in the ESMP and monitored accordingly.	Project staff and consultants in collaboration with the Ministry of Communal Services
Climate warming leads to various effects that reduce the effectiveness of project activities, such as lowered willingness to ride bicycles or wait for buses, increased demand for air conditioning in hotels in Awaza, and so on.	Climate	I=1 P=2	The likelihood of a warmer climate in essentially all of Turkmenistan is high, but the probability of its having a measurably significant impact on consumer behavior is lower. Nevertheless, the project will watch for evidence of possible climate-related effects on its activities and will adjust the activities accordingly.	Project Manager and technical staff

iii. Social and environmental safeguards

A defining principle of sustainable urban development is that it should achieve **both** socioeconomic benefits and reduction of adverse environmental impacts, with synergistic positive results for all citizens. In this light, all project activities have been designed to achieve both social and environmental benefits, and to avoid unintended negative consequences. As indicated in the completed Social and Environmental Safeguards Program (SESP), the project recognizes some social or environmental risks to be managed. The overall SESP risk rating is moderate. Please see the completed template (Annex F) and Environmental and Social Management Plan (ESMP, Annex G) for more details.

iv. Sustainability and Scaling Up

Sustainability – All project activities are designed to generate useful immediate outputs, and to fulfill larger outcomes in terms of time frame and scale. Many elements of the project involve the creation of new sustainable infrastructure and systems whose operating lifetimes extend well beyond the project. Technical capacity building efforts will ensure that responsible agencies and individuals will continue to design, deploy, operate, and maintain infrastructure and systems without further intervention from the project. Outreach and engagement among citizens will likewise build a foundation of awareness (and ideally, ingrained good habits) for continuation of sustainable

behavior in waste management and surface travel after the project's end. Furthermore, under Output 3.1, the project and partner agencies will set forth a plan for transfer of responsibility, supported by training and capacity-building, such that the project's activities can be continued sustainably after its close.

Scaling Up – The project has specifically chosen to focus first on Ashgabat and Awaza because these cities embody very large scales of potential impact and because of their visibility will serve as examples for other cities to replicate and scale up similar initiatives on an even wider scale. The project will strongly emphasize the development of technical and financial documentation from projects in Ashgabat and Awaza, to provide justification and a knowledge base to support replication elsewhere. National policy and state budget investment planning will support such replication.

See the project's theory of change (Section II, Strategy) for further discussion of issues of sustainability and scale.

v. Economic and/or financial analysis:

Not applicable to this Project Document.

VI. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s):

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 11: Make cities inclusive, safe, resilient and sustainable

This project will contribute to the following country outcome included in the UNDAF/Country Programme Document:

Outcome 2.2: Environmentally sustainable use of natural resources contributes to effectiveness of economic processes and increased quality of life

This project will be linked to the following outputs of the UNDP Strategic Plan:

Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals, and waste.

Output 1.5. Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)

	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
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	Reduction in GHG emissions from transport, public lighting, and hotel management, relative to baseline	Total estimated GHG emissions from motor vehicles, public lighting, and hotels in Awaza: approximately 4.4 million tonnes of CO ₂ per year, projected to grow to 5.0 million tonnes per year by 2020	Savings of 80,000 tonnes of CO ₂ emissions achieved via project interventions by end of year 3	Savings of 366,000 tonnes of CO ₂ emissions achieved via project interventions by end of project	See Annex J for details on the input data and calculations that underlie estimates of potential energy savings and GHG emissions reductions
	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	Energy savings of 1350 TJ across all sectors achieved by the end of year 3	Energy savings of 6200 TJ across all sectors	See Annex J for details on the input data and calculations that underlie estimates of potential energy savings and GHG emissions reductions
	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	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)	

	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
Component 1: Sustainable urban development in Ashgabat <i>Targeted Outcomes:</i> <ul style="list-style-type: none"> Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space 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	Reduction by 0.5 percent (60 million passenger-km per year)	Reduction by 3 percent (180 million passenger-km per year)	A dynamic growing baseline, consistent with documented trends of increasing private vehicle ownership and use. Verification by traffic studies and participant surveys.
	Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan	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	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	See Annex J for a discussion of data and calculations used to define the estimated energy-saving potential and targeted reductions from the lighting sector.
	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	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%	Measurement and evaluation of this indicator will depend on the availability of data from waste collection agencies, recycling facilities and landfills.
	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	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	The project will promote sustainability planning in several cities across Turkmenistan outside of Ashgabat and Awaza, not only two. Partial results regarding sustainability plans will be reported.
Component 2. Sustainable tourism infrastructure and management practices in Awaza <i>Targeted outcomes:</i> <ul style="list-style-type: none"> Improved capacities and enabling conditions in 	Reduction of energy consumption and water consumption in Awaza hotels	Baseline data unavailable. To be obtained by facility audits in first three project years.	Energy and water audits completed in 24 hotels, with measures identified for cost-effective reduction of energy and water consumption per	Energy/water audit measures implemented, leading to reduction in energy and water consumption per	See Annex J for a discussion of the potential for energy savings and avoided emissions from Awaza hotels, including comparisons with international benchmarks.

	Objective and Outcome Indicators	Baseline	Mid-term Target	End of Project Target	Assumptions
<p><i>Awaza for integrated low-carbon and climate resilient tourism development</i></p> <ul style="list-style-type: none"> <i>Reduced GHG emissions and other negative environmental impact through interventions involving tourism facilities and infrastructure in Awaza</i> 			guest by an average of 10%	guest by an average of 10%	
	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	Green hotel management standards developed with participation by major hotels in Awaza	Green hotel management standards adopted and implemented	The project will seek to establish standards applicable across the tourist zone. Individual hotels may also choose to establish their own standards that go beyond the standards are developed for all of Awaza.
	Number and capacity of solar-powered charging stations for electric cars	No solar charging stations	One solar charging station installed, with performance evaluation initiated	A total of ten solar charging stations installed nationwide at three different sites	Technical specifications of charging stations, including their capacity. will be determined during the design process. Establishment of charging stations outside Awaza is contingent on the emergence of a market for electric cars elsewhere in the country.
<p>Component 3. Municipal and National Policy</p> <p><i>Targeted outcome:</i></p> <ul style="list-style-type: none"> <i>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</i> 	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	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)	See Annex J for a full discussion of sectoral potential for increased fuel efficiency, and of the methods used to calculate potential energy savings and avoided emissions.
M&E and Knowledge Management	Number of citizens reached by public-relations and knowledge-sharing on sustainable urban development	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)	Number of citizens reached to be determined in aggregate from mass media circulation data, distribution of materials, etc.

VII. MONITORING AND EVALUATION (M&E) PLAN

The project results as outlined in the Project Results Framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this Project Document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the [GEF M&E policy](#) and other relevant GEF policies.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies.

M&E oversight and monitoring responsibilities:

Project Manager: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will 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.

The Project Manager will develop Annual Work Plans based on the multi-year work plan included in Annex A, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc.) occur on a regular basis.

Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will oversee an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. Results of this review, as well as findings outlined in the project terminal evaluation report and the management response, will be presented at a closing workshop open to a broad variety of stakeholders from Turkmenistan and from UNDP projects elsewhere in the region. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

Project Implementing Partner: The Implementing Partner is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and is aligned with national systems so that the data used by and generated by the project supports national systems.

UNDP Country Office: The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within

one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the *independent mid-term review* and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

Audit: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.¹

Additional GEF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:

- a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project implementation;
- b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
- c) Review the results framework and finalize the indicators, means of verification and monitoring plan;
- d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;
- e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies;
- f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
- g) Plan and schedule Project Board meetings and finalize the first year annual work plan.

The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission

¹ See guidance here: <https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx>

deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks and meetings, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

GEF Focal Area Tracking Tools: The GEF Climate Change Mitigation Tracking Tool will be used to monitor global environmental benefit results. The baseline/CEO Endorsement GEF Focal Area Tracking Tool – submitted as Annex D to this project document – will be updated by the Project Manager/Team (not the evaluation consultants hired to undertake the Mid-term Review (MTR) or the Terminal Evaluation (TE) and shared with the MTR consultants and TE consultants before the required review/evaluation missions take place. The updated GEF Tracking Tool will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

Independent Mid-term Review (MTR): An independent MTR process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

Terminal Evaluation (TE): An independent TE will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.

The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to

the UNDP ERC. Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

Final Report: The project's terminal PIR along with the TE report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Mandatory GEF M&E Requirements and M&E Budget:

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ² (US\$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	\$ 3,000	\$3,000	Within two months of project document signature
Inception Report	Project Manager and International Consultant	\$ 10,500		Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None		Quarterly, annually
Monitoring of indicators in project results framework	Project Manager and national consultants	\$ 32,000	\$31,000	Annually
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None		Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: \$5,000 Total: \$30,000		Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	Project Manager and international consultant (not including specific knowledge generation within components)	\$ 15,000	\$40,000	Annually, with increased effort in final year
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	None		On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None for time of project manager, and UNDP CO		

² Excluding project team staff time and UNDP staff time and travel expenses.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ² (US\$)		Time frame
		GEF grant	Co-financing	
Project Board meetings	Project Board UNDP Country Office Project Manager	Per year: \$1,300 Total: \$7,800 (participation of members will be in-kind)	\$6,000	At minimum annually
Supervision missions	UNDP Country Office	None ³		Annually
Oversight missions	UNDP-GEF team	None ³		Troubleshooting as needed
Knowledge management	Project Manager	\$24,000 (for workshops, events, materials, etc.)	\$30,000	On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None		To be determined.
Mid-term GEF Tracking Tool	Project Manager and national consultant	\$ 2,000 (see also monitoring of indicators, above)		Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	\$ 28,000		At end of third project year.
Terminal GEF Tracking Tool	Project Manager and national consultant, with participation by international consultant	\$ 2,000 (see also monitoring of indicators, above)		Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	\$ 36,000		At least three months before operational closure
Translation of MTR and TE reports into English	UNDP Country Office	\$ 3,000		
TOTAL indicative COST		\$ 193,300	\$110,000	
Excluding project team staff time, and UNDP staff and travel expenses				

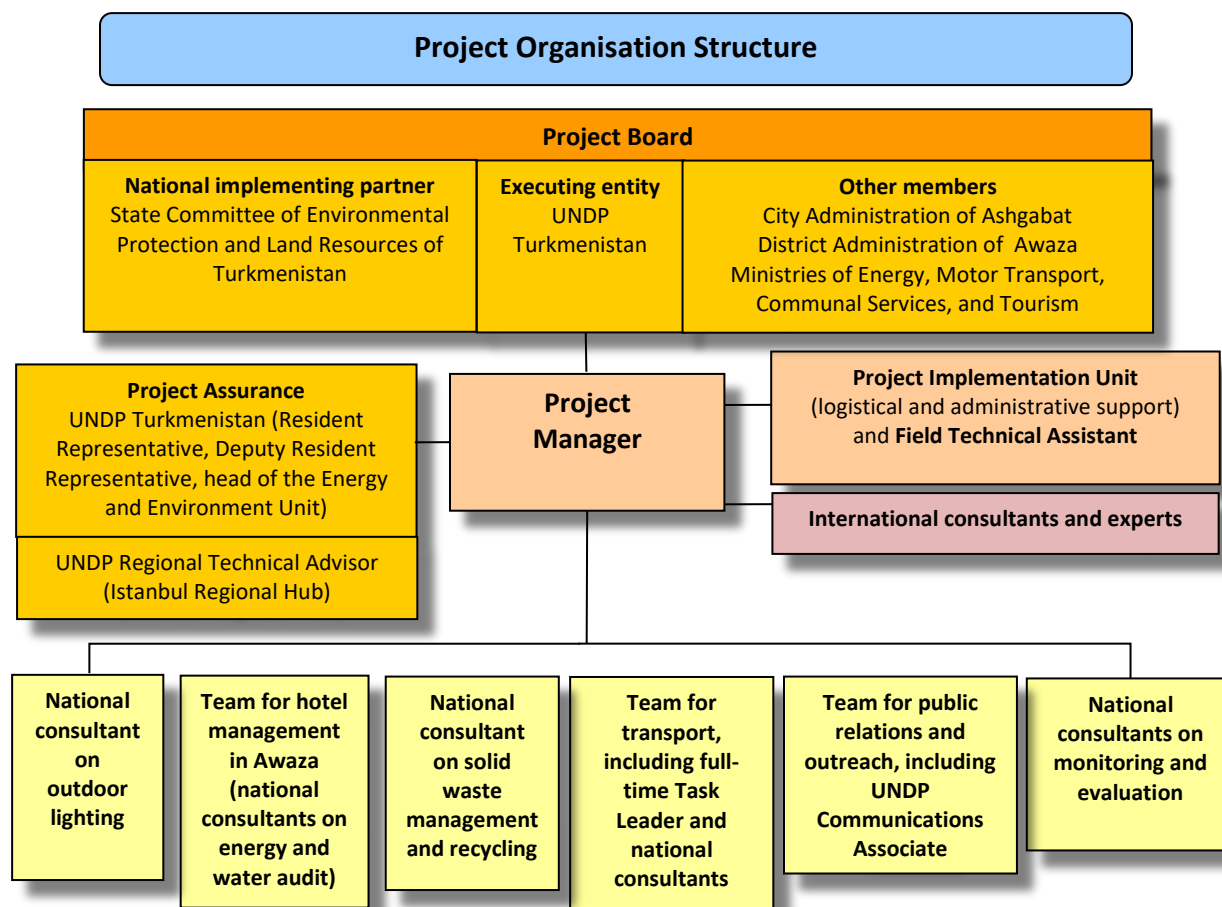
* UNDP inputs for standard monitoring and reporting, the Midterm Review and Terminal Evaluations, as well as site visits from UNDP-GEF Istanbul Regional Hub, are expected, but associated co-financing amounts are not listed here. UNDP in Turkmenistan has pledged \$100,000 in co-financing, which is listed entirely under Project Management. Such management activity supported with these funds will be integrated with project M&E.

³ The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

VIII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project's governance mechanism: The project will be implemented following UNDP's national implementation modality, according to the Standard Basic Assistance Agreement between UNDP and the Government of Turkmenistan, and the Country Programme.

The project organisation structure is as follows:



The **National Implementing Partner** for this project is the State Committee for Environmental Protection and Land Resources of Turkmenistan. The National Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. The National Implementing Partner will appoint a senior staff member as National Project Coordinator.

The **Project Board** (also called Project Steering Committee) is responsible for making consensus management decisions when guidance is required by the Project Manager, including recommendation for approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. The Project Board will also closely oversee and take account of results from monitoring and evaluation efforts. The Terms of Reference for the Project Board are contained in Annex E.

The Project Board will also include representatives of the city administration of Ashgabat; the administration of the national tourist zone of Awaza; the Ministry of Energy; the Ministry of Motor Transport; the Ministry of Communal Services; the Ministry of Tourism; and the Union of Industrialists and Entrepreneurs, an association of private-sector entities that is extremely active and innovative in all economic sectors of the country. Representatives of other city administrations may be invited to participate in board meetings if expanded project activities warrant.

The **Project Manager** will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager function will end when the final project terminal evaluation report, and other documentation required by the GEF and UNDP, has been completed and submitted to UNDP (including operational closure of the project). The Project Manager will be assisted by a **Field Technical Assistant** across all components. The **Project Implementation Unit**, housed within the UNDP Country Office, will provide the part-time effort of multiple staff members in logistics, procurement, and financial management at the request of the Project Manager. All work of the PIU will be carried out in accordance with UNDP's requirements for safeguards and best practices. It is anticipated that the work of the PIU will be covered by a Direct Project Costs agreement between UNDP and the Government of Turkmenistan. (The PIU is considered separate from UNDP management carrying out oversight of the project.)

The Project Manager will supervise several **implementation teams** in all key programmatic and technical areas of the project – transport, lighting, solid waste, hotel management, and public education and promotional outreach. In the case of transport, the team will be headed by a full-time Task Leader working on the same premises as the Project Manager. This Task Leader will supervise other technical consultants as needed, including a national entity authorized to draft fuel economy standards as well as a coordinator for carpooling and public-transportation incentives. In other subject areas, the teams will consist of a single lead consultant, working in collaboration with national partners.

Evaluation specialists will likewise be engaged as needed for short-term or long-term assignments, reporting either to implementation team leaders or directly to the Project Manager, depending on the scope of the evaluation assignment.

UNDP will engage international consultants to provide training on international best practices in green hotel management, smart-grid applications for outdoor lighting, recycling, solar energy for lighting and charging cars, and other areas as needed. The international consultants will review all demonstration project designs and will also review and verify the results of monitoring and verification.

The project will build **partnerships** with relevant government agencies at the national and municipal level, as well as with hotels in Awaza. The project will also work closely with the Union of Industrialists and Entrepreneurs on various areas of program activity – for example, in promoting greater fuel efficiency in private vehicle fleets and in expanding the quality and use of recycled materials for manufacturing.

The **project assurance** role will be provided by the UNDP Country Office, specifically the Programme Officer for the Resilience, Climate Change and Energy Portfolio, as well as the UNDP-GEF Regional Technical Advisor, working out of the Istanbul Regional Hub.

UNDP Direct Project Services as requested by Government: The UNDP, as GEF Agency for this project, will provide project management cycle services for the project as defined by the GEF Council. In addition, the Government of Turkmenistan may request UNDP direct services for specific projects, according to its policies and convenience. The UNDP and Government of Turkmenistan acknowledge and agree that those services are not mandatory, and will be provided only upon Government request. If requested the services would follow the UNDP policies on the recovery of direct costs. These services (and their costs) are specified in the Letter of Agreement (Annex K). As is determined by the GEF Council requirements, these service costs will be assigned as Project Management Cost, duly identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated on the basis of estimated actual or transaction based costs and should be charged to the

direct project costs account codes: “64397- Services to projects – CO staff” and “74596-Services to projects GOE for CO)””.

Agreement on intellectual property rights and use of logo on the project’s deliverables and disclosure of information: In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy⁴ and the GEF policy on public involvement⁵.

Project management: For the inception phase of the project UNDP will provide temporary space for the project management office. At the inception meeting, UNDP and national partners will discuss and agree on the project office and its setup process.

IX. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 63,160,046. This is financed through a GEF grant of USD 6,060,046, USD 100,000 in cash co-financing to be administered by UNDP and *USD 57,000,000* in parallel co-financing. UNDP, as the GEF Implementing Agency, is responsible for the execution of the GEF resources.

Parallel co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. The planned parallel co-financing will be used as follows:

Co-financing source	Co-financing type	Co-financing amount (USD)	Planned Activities/Outputs	Risks	Risk Mitigation Measures
Government of Turkmenistan (State Committee for Environmental Protection and Land Resources and other)	Cash	\$57 million	Across all activities and outputs of project. State budget investment to be devoted especially to Outputs 1.1 (lighting in Ashgabat), 1.2 (transport in Ashgabat), 1.3 (waste management in Ashgabat), and 2.3 (transport in Awaza). Staff time and program effort in analysis, implementation, promotion, monitoring, and management to be applied across all components and outputs, plus M&E and project management.	Relevant state programmes have been approved, but budgets and specific line items must be approved annually and may be subject to various emergent priorities and constraints.	Project and relevant ministries, plus city administrations, will work closely together to match technical and investment support with existing priorities, within projects with secure Government funding.

⁴ See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

⁵ See https://www.thegef.org/gef/policies_guidelines

The co-financing pledge of \$57 million has been formally confirmed in a support letter from the State Committee for Environmental Protection and Land Resources (see Annex M). This sum reflects expected amounts of state budget funding for relevant areas such as upgrades to street lighting and electricity infrastructure, public transportation investment, and so on, not only for the State Committee itself but also for other ministries and state agencies. Additional letters of support from the Ministry of Energy and the Ministry of Motor Transport are also included in Annex M, but are not included in co-financing projections.

Most cash co-financing will cover the investment costs of new infrastructure (including solar and smart street lighting systems and other smart-grid technology, new bus and bicycle lanes, electric vehicle charging stations, and recycling collection equipment). A significant amount of cash co-financing will also be used to cover agency staff time.

Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the Project Board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board. Should the following deviations occur, the Project Manager and UNDP Country Office will seek the approval of the UNDP-GEF team as these are considered major amendments by the GEF:

- a) Budget re-allocations among components in the project with amounts involving 10% of the total project grant or more;
- b) Introduction of new budget items/or components that exceed 5% of original GEF allocation.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

Refund to Donor: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the UNDP-GEF Unit in New York.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. On an exceptional basis only, a no-cost extension beyond the initial duration of the project will be sought from in-country UNDP colleagues and then the UNDP-GEF Executive Coordinator.

Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Financial completion: The project will be financially closed when the following conditions have been met:

- a) The project is operationally completed or has been cancelled;
- b) The Implementing Partner has reported all financial transactions to UNDP;
- c) UNDP has closed the accounts for the project;
- d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed within 12 months of operational closure or after the date of cancellation. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the UNDP-GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

X. TOTAL BUDGET AND WORK PLAN

Atlas Proposal or Award ID:	00081872	Atlas Primary Output Project ID:	00091000
Atlas Proposal or Award Title:	Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza		
Atlas Business Unit	TKM10		
Atlas Primary Output Project Title	[to be confirmed]		
UNDP-GEF PIMS No.	5452		
Implementing Partner	State Committee for Environmental Protection and Land Resources of Turkmenistan		

GEF Component/ Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Amount Year 6 (USD)	Total (USD)	See Budget Note:
Component 1: Sustainable urban development in Ashgabat	State Committee for Environmental Protection and Land Resources	62000	GEF	71200	International consultants	0	128,000	164,000	126,000	56,000	0	474,000	1
				71300	National consultants	4,000	40,800	40,800	32,800	32,800	10,400	161,600	2
				71400	Contracted services (individual)	77,280	110,260	111,300	108,380	84,720	75,520	567,460	3
				71600	Travel	2,000	16,000	16,500	16,000	2,000	2,000	54,500	4
				72200	Equipment	0	631,473	1,344,000	256,000	0	0	2,231,473	5
				74200	Communications and publishing	7,500	9,000	9,000	9,000	9,000	12,000	55,500	6
				74500	Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	6,000	
				75700	Workshops and meetings	6,000	6,000	6,000	6,000	6,000	6,000	36,000	7
					Total Component 1	97,780	942,533	1,692,600	555,180	191,520	106,920	3,586,533	
	State Committee for	62000	GEF	71200	International consultants	20,000	61,000	61,000	40,000	35,000	21,000	238,000	1

GEF Component/ Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Amount Year 6 (USD)	Total (USD)	See Budget Note:
Component 2. Sustainable tourism infrastructure and management practices in Awaza	Environmental Protection and Land Resources			71300	National consultants	9,600	100,000	104,800	28,800	28,800	16,800	288,800	2
				71400	Contracted services (individual)	14,520	25,970	26,220	26,500	22,780	17,480	133,470	3
				71600	Travel	3,750	8,750	8,750	8,750	3,750	3,750	37,500	4
				72200	Equipment	0	320,000	320,000	0	0	0	640,000	8
				74200	Communications and publishing	6,500	9,000	9,000	9,000	6,000	8,500	48,000	6
				74500	Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	6,000	
				75700	Workshops and meetings	3,310	4,000	4,000	4,000	4,000	4,000	23,310	7
					Total Component 2	58,680	529,720	534,770	118,050	101,330	72,530	1,415,080	
Component 3: Municipal and national policy	State Committee for Environmental Protection and Land Resources	62000	GEF	71200	International consultants	0	28,000	28,000	28,000	28,000	0	112,000	1
				71300	National consultants	9,000	16,500	21,100	19,000	15,000	17,400	98,000	2
				71400	Contracted services (individual)	48,240	48,730	49,250	39,390	31,160	31,760	248,530	3
				71600	Travel	3,600	3,600	3,600	3,600	3,600	3,600	21,600	4
				74200	Communications and publishing	3,700	6,000	6,000	6,000	8,000	10,000	39,700	6
				74500	Miscellaneous	1,000	1,000	1,000	1,000	1,000	1,000	6,000	
				75700	Workshops and meetings	6,000	6,000	6,000	6,000	6,000	6,000	36,000	7
					Total Component 3	71,540	109,830	114,950	102,990	92,760	69,760	561,830	

GEF Component/ Activity	Respon- sible Party	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Amount Year 6 (USD)	Total (USD)	See Budget Note:
Monitoring and evaluation (M&E) and knowledge management	State Committ ee for Environ mental Protecti on and Land Resourc es	62000	GEF	71200	International consultants	10,500	0	24,500	0	0	31,500	66,500	1
				71300	National consultants	0	6,000	13,000	6,000	8,000	27,000	60,000	2
				71400	Contracted services (individual)	2,460	2,580	2,710	2,850	2,990	3,140	16,730	3, 9
				72100	Professional services	5,000	5,000	5,000	5,000	5,000	5,000	30,000	10
				75700	Workshops and meetings	6,300	3,300	3,300	3,300	7,300	11,300	34,800	7
					Total M&E	24,260	16,880	48,510	17,150	23,290	77,940	208,030	
Project Management	State Committ ee for Environ mental Protecti on and Land Resourc es, UNDP	62000	GEF	71400	Contracted services (individual)	12,300	12,920	13,560	14,240	14,950	15,700	83,670	3
				72200	Office equipment	9,303	0	0	0	0	0	9,303	11
				72400	Communications	2,200	2,200	2,200	2,200	2,200	2,200	13,200	12
				72500	Office supplies	800	800	800	800	800	800.75	4,800.75	
				73100	Office rent	9,600	9,600	9,600	9,600	9,600	9,600	57,600	13
				74596	Services to projects GOE for CO	20,000	20,000	20,000	20,000	20,000	19,999.25	119,999.25	14
			UNDP	71400	Contracted services (individual)	20,000	16,000	16,000	16,000	16,000	16,000	100,000	15
					Total Project Management	74,203	61,520	62,160	62,840	63,550	64,300	388,573	
PROJECT TOTAL						326,463	1,660,483	2,452,990	856,210	472,450	391,450	6,160,046	

Budget notes:

1. The project will hire international experts under individual contracts in various technical areas of the project, including design and deployment of smart-grid and solar lighting; planning and design of bus and bicycle lanes; development of electronic payments and an app for bus riders; waste management and recycling; green hotel management; and policy, including fuel economy standards and incentives. International experts will also be hired for the Midterm and Terminal Evaluations.
2. The project will hire multiple national experts under individual contracts. In addition to technical areas listed under note 1, this item also includes the actual energy audits of hotels in Awaza (note the higher budgeted amounts for Component 2, years 2 and 3), as well as public relations and translation services.
3. The Project Manager and Field Technical Assistant will be hired full-time under fixed-term contracts according to the approved UNDP pay scale. The amount payable under these contracts is split here across all four components, plus project management, in proportion to the expected volume of work. Four technical experts will also be hired under service contracts with year-long terms and monthly payments – one on lighting, one on transport, one on hotel management, and one on policy and regulations.
4. This line includes travel costs for project staff and consultants. Consultancy contracts will normally include these travel costs.
5. The project will procure equipment, in accordance with UNDP requirements, for smart-grid controls and dispatching; solar-powered lighting; construction of bicycle lanes; and receptacles for sorted household waste in Ashgabat. Ownership of this equipment will be transferred to government agencies responsible for managing lighting, transport, and communal services. It is expected that UNDP equipment purchases will cover only a small portion of overall infrastructure project costs, with other expenses for equipment, installation and maintenance services, etc. to be covered by the relevant agencies out of their state budget allocations. Funds from this budget line may also be used for investment in replication efforts in other cities besides Ashgabat.
6. This item includes the cost of production and distribution of printed publications and promotional material, website design and maintenance, and audiovisual productions on all specific areas of project activity, such as promotion of alternative transport and recycling, as well as dissemination of results of pilot projects. (The separate non-numbered component on monitoring and evaluation includes further knowledge management about the whole project, including lessons learned.)
7. The project will organize workshops and meetings in various specific technical areas with various stakeholders under the project Components. The project will also focus on general knowledge-sharing about the concept of sustainable urban development and the project on the whole under Component M&E and Knowledge Management. Budget lines also include the costs of the Inception Workshop, and a closing conference on results and lessons learned.
8. The project will procure equipment, in accordance with UNDP requirements, for solar-powered lighting and electric vehicle charging stations in Awaza, as well as any equipment needed to conduct and fulfill energy and water audits in hotels. Ownership of this equipment will be transferred to agencies responsible for managing lighting, transport, and hotel operations. It is expected that UNDP equipment purchases will cover only a small portion of overall infrastructure and energy audit project costs, with other expenses for equipment, installation and maintenance services, etc. to be covered by the relevant agencies out of their state budget allocations. Funds from this line may also be used for investment in replication efforts in other cities besides Awaza.
9. This line, which covers a small share of the salaries of the Project Manager and Field Technical Assistant, is not included in the table on M&E costs in Section VII of this Project Document. Otherwise, the M&E budget items here correspond exactly with the items in the table in Section VII.
10. This line includes the cost of the mandatory annual financial audit.
11. This line includes the cost of mobile telephone service for the Project Manager and Field Technical Assistant, as well as Internet services for the full-time project office.
12. This line includes the cost of four networked computers, a photocopy machine, office furniture, and other needs of the full-time project office.
13. The project expects to rent space at rates far below those prevailing in Ashgabat, thanks to the assistance of its partners. It is expected that basic communication services such as land-line telephones, but not mobile services, could be included with rent.
14. UNDP will provide the services of several of its country office staff members in administration, logistics, and procurement under a Direct Project Cost agreement. Estimated UNDP Direct Project Cost recovery charges are as indicated in the Agreement in Annex K of the Project Document. The project is to be managed on the 100% Country Office Cost Recovery basis, upon request of the government, the implementing partner. The estimated cost (total \$119,999.25) includes: (i) recruitment and payroll management of project staff; (ii) purchase of goods and equipment as requested; and (iii) hiring of consultants. In accordance with GEF Council requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget. DPC costs would be charged at the end of each year based on the UNDP Universal

Pricelist (UPL) or the actual corresponding service cost. The amounts here are estimations based on the services preliminarily indicated. However, as part of annual project operational planning, the DPC to be requested during the calendar year would be defined and the amount included in the yearly project management budgets and would be charged based on actual services provided at the end of that year.

15. UNDP TRAC funds will cover the additional costs of personnel needed for routine project management, including oversight, procurement, financial management, administration, and logistics, beyond the amounts covered by the Direct Project Cost Agreement.

Summary of Funds:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
GEF	306,463	1,644,483	2,436,990	840,210	456,450	375,450	6,060,046
State Committee for Environmental Protection and Land Resources of Turkmenistan	2,000,000	4,000,000	10,000,000	10,000,000	15,000,000	16,000,000	\$57,000,000
UNDP	20,000	16,000	16,000	16,000	16,000	16,000	\$100,000
TOTAL	\$2,326,463	\$5,660,483	\$12,452,990	\$10,856,210	\$15,472,450	\$16,391,450	\$63,160,046

XI. LEGAL CONTEXT

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to “Executing Agency” shall be deemed to refer to “Implementing Partner”, as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

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

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner’s obligations under this Project Document.

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

Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

XII. MANDATORY ANNEXES

- A. Multiyear Work Plan
- B. Monitoring Plan
- C. Evaluation Plan
- D. GEF Tracking Tool (s) at baseline
- E. Terms of Reference for Project Board and Project Manager
- F. UNDP Social and Environmental and Social Screening Template (SESP)
- G. Environmental and Social Management Plan (ESMP) for moderate and high risk projects only
- H. UNDP Project Quality Assurance Report (to be completed by UNDP Country Office)
- I. UNDP Risk Log (to be completed by UNDP Country Office)
- J. Calculations of Potential Energy Savings and GHG Emissions Reductions
- K. Direct Project Costs Agreement

Annex A. Multiyear Work Plan

Task/ Activity	Responsible Party	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.1.1 1.1.2	Project Manager (PM), national consultant, Ashgabat lighting agency																								
1.2.1	PM, Task Leader, national consultants, with support of Ministry of Motor Transport and municipal administration of Ashgabat																								
1.2.2	PM, Task Leader, national consultants																								
1.2.3	PM, Task Leader, national consultants																								
1.2.4	PM, Task Leader, national consultants																								
1.3.1 1.3.2	PM, national consultants, with support of Ministry of Communal Services																								
1.3.3	PM, national consultants																								
1.4.1	PM, International Chief Technical Advisor (ICTA), national consultants, city administration of Ashgabat																								
2.1.1	PM, national and international consultants, hotel management																								
2.1.2	PM, national consultants																								
2.1.3	PM, national and international consultants, hotel management																								
2.2.1	PM, national consultant, Awaza administration																								
2.3.1	PM, national consultant, Awaza administration																								
2.4.1	PM, national and international consultants																								
3.1.1	PM, ICTA, national and international consultants, under oversight of UNDP CO, Project Board, and UNDP Istanbul Regional Hub																								
3.1.2	PM, ICTA, national and international consultants																								
3.2.1	PM, UNDP Communications Associate, ICTA, national consultants																								

The numbered tasks shown in the table are as follows.

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.

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.

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.

Activity 1.4.1. Development of sustainability plans for Ashgabat and other cities.

Activity 2.1.1. Development and implementation of green standards for hotels.

Activity 2.1.2. Execution of energy/water audits.

Activity 2.1.3. Public promotion of successes in green hotel practices in Awaza, including annual awards.

Activity 2.2.1. Demonstration and replication of solar-powered lighting.

Activity 2.3.1. Piloting of solar-powered charging stations for electric vehicles.

Activity 2.4.1. Technical assistance and training for planners, officials, and facility managers in Awaza.

Activity 3.1.1. Development and adoption of national policies and budgets in support of scaled-up urban sustainability practices.

Activity 3.1.2. Training and information delivery for capacity enhancement of responsible agencies and individuals.

Activity 3.2.1. Development and implementation of fuel economy standards and incentives for motor vehicles.

Annex B: Monitoring Plan

The Project Manager will collect results data according to the following monitoring plan.

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
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.	Reduction in GHG emissions from transport, public lighting, and hotel management, relative to baseline	Key indicator for climate change mitigation impact, in tonnes of avoided CO ₂ equivalent per year	<i>Transport:</i> Aggregated data from national vehicle registries for number, type, and age of cars; published regulations for fuel economy of cars; gross sales figures for gasoline and diesel from filling stations. <i>Lighting:</i> Data on inventories and operating hours from national and municipal agencies responsible for public lighting in Ashgabat and Awaza <i>Hotels:</i> Energy and water audit data Updated emissions factors for all fuel types and electricity, as taken from authoritative national sources	<i>Transport and lighting:</i> Three times during project period: inception (year 1); midterm (second half of year 3); and end of project (second half of year 6) <i>Hotels:</i> Audits to be conducted in first three years of project	Project Manager, Task Leader for transport, and consultants, with support from members of Project Board (government agencies)	Review by Project Manager and international consultants	Assumption that vehicle registry data and fuel sales data will be available with adequate thoroughness and timeliness. If unavailable, then project will need to develop alternative methods of calculating traffic volumes and fuel consumption, as it did during the preparatory period.
	Reduction in energy consumption from transport, public lighting, and hotel management, relative to baseline	Key indicator for energy savings impact, in terms of TJ	<i>Transport:</i> Aggregated data from national vehicle registries for number, type, and age of cars; published regulations for fuel economy of	<i>Transport and lighting:</i> Three times during project period: inception (year 1); midterm (second half of year 3); and end of	Project Manager, Task Leader for transport, and consultants, with support from members of Project Board	Review by Project Manager and international consultants	Assumption that vehicle registry data and fuel sales data will be available with adequate thoroughness

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
			cars; gross sales figures for gasoline and diesel from filling stations. <i>Lighting</i> : Data on inventories and operating hours from national and municipal agencies responsible for public lighting in Ashgabat and Awaza <i>Hotels</i> : Energy and water audit data	project (second half of year 6) <i>Hotels</i> : Audits to be conducted in first three years of project	(government agencies)		and timeliness. If unavailable, then project will need to develop alternative methods of calculating traffic volumes and fuel consumption, as it did during the preparatory period.
	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	Indicator of stakeholder engagement	Registration and survey data from participants in carpooling, tire inflation, and recycling programs. Inventory figures for recycling bins in residential sorting/collection pilot, supported by neighbourhood population data. Official data on bus ridership, as well as figures for downloaded bus-route apps, and issuance of electronic fare cards.	Ongoing collection and maintenance of enrolment records, recycling bin inventories, and download/usage data on apps and e-fare cards. Surveys to be conducted at midterm and end of project. Official data on bus ridership also collected at midterm and end of project.	Project Manager, Task Leaders, and consultants	Review by Project Manager and international consultants	Monitoring this indicator will pose special challenges because of its diffuse nature and large scale. Recycling bin inventories will be taken by selective sampling, not for all bins at all collection times.
Component 1: Sustainable urban development in Ashgabat	Reduction in number of passenger-km of private car travel, via increased use of	Key indicator of parameter directly linked to GHG	Traffic studies in the field; surveys and enrolment data for participants in	Data on vehicle ownership and fuel consumption to be collected at inception,	Project Manager, Task Leader for Transport, and consultants	Review by Project Manager and	Assumption of a dynamic growing baseline, consistent with

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
<p><i>Targeted Outcomes:</i></p> <ul style="list-style-type: none"> Improved capacities and enabling conditions in Ashgabat to identify, design and implement integrated low-carbon and climate-resilient solutions in public space Reduced GHG emissions and other negative environmental impact through interventions involving public spaces and infrastructure 	alternative modes and carpooling	emissions reductions from transport	carpooling programs; aggregated official data on vehicle ownership and fuel consumption in Ashgabat	midterm, and end of project. Traffic studies and surveys also to be conducted at inception, midterm, and end of project.		international consultants	documented trends of increasing private vehicle ownership and use.
	Reduction in electricity consumption from public outdoor lighting in Ashgabat and all of Turkmenistan	Indicator of parameter directly linked to GHG emissions reductions from lighting	Data on inventories and operating hours from national and municipal agencies responsible for public lighting in Ashgabat. Monitoring of pilot projects on smart-grid and solar-powered street lighting fixtures.	General data to be collected at inception, midterm, and end of project. Pilot project data to be collected for one year before installation and then annually afterward.	Project Manager, Task Leader for lighting, and consultants, with support from Ministry of Energy and municipal administration of Ashgabat.	Review by Project Manager and international consultants	Smart dispatching system should have its own energy accounting functions. Relamping can be calculated easily based on known wattages and numbers of lamps.
	Reduction in landfill waste from Ashgabat and Awaza relative to baseline from recycling and waste reduction programs	Indicator with non-energy sustainability dimensions but also effects on energy consumption and GHG emissions, insofar as use of recycled material displaces energy-intensive new materials	Morphological study of waste streams, into and out of recycling facility.	Study to be conducted at inception and end of project	Project team and consultants, with support of Ministry of Communal Services	Review by Project Manager and international consultant	Increased recycling volume can be considered a direct proxy for the indicator, reduction in landfill waste.
	Number of cities of Turkmenistan (and total population)	Indicator of engagement, as well as of	Published policy documents	Midterm and end of project	Project Manager, consultants on policy, with	Review by Project Manager and consultants	This indicator is intended to roughly measure

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
	therein) that adopt sustainability practices in transport, lighting, and waste management	output regarding policy adoption			support from municipal administrations		the breadth of the reach of the project, not details about transformed policy and practice. It is likely that cities, as well as the national government, will adopt policies of varying degrees of ambition and coverage.
Component 2. Sustainable tourism infrastructure and management practices in Awaza <i>Targeted outcomes:</i> <ul style="list-style-type: none"> Improved capacities and enabling conditions in Awaza for integrated low-carbon and climate resilient tourism development Reduced GHG emissions and other negative environmental impact through interventions 	Reduction of energy consumption and water consumption in Awaza hotels	Indicators of parameters directly linked to GHG emissions from hotels.	Energy and water audits.	Audits to be completed within first three years of project. Verification of performance of installed measures to be completed by end of project.	Project manager and consultants, especially contracted individuals/ companies responsible for energy and water audits	Review by Project Manager and International Consultant	Permanent metering devices for electricity, gas, and water will be installed where not present already. Hotels may be wary of sharing data on their operations, but granting of such data access to the project will be a condition of the audit agreement.
	Adoption and implementation of green hotel management standards by Awaza hotels	Output indicator, linked to previous indicator on energy and	Signed documents elaborating standards and identities of hotels adopting them	End of project.	Project Manager and consultants	Review by Project Manager	

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
<i>involving tourism facilities and infrastructure in Awaza</i>		water consumption by hotels					
	Number and capacity of solar-powered charging stations for electric cars	Output indicator, linked to reduction of GHG emissions	Field verification and specifications of installed equipment	Specifications of equipment to be verified during design and procurement. Field verification immediately and then annually after installation.	Project Manager and consultants	Field verification by both consultants and project staff	Number and capacity of charging stations will depend on project's assessment of demand among the electric vehicle fleet in Awaza
Component 3. Municipal and National Policy <i>Targeted outcome:</i> <ul style="list-style-type: none"> 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	Indicator for fulfilment of relevant activity and associated impact	Published standards and regulations. Statistics on market sales of highly efficient vehicle types subject to incentives, including hybrid and/or electric vehicles	Midterm and end of project.	Project Manager, Task Leader for transport, national consultants on policy	Review by Project Manager and consultants	Statistics on sales go beyond measurement of the indicator itself, but if available, will provide a very useful measure of impact.
M&E and Knowledge Management	Number of citizens reached by public-relations and knowledge-sharing	Output indicator for citizen outreach and knowledge-sharing	Media agency statistics on publication circulation volumes, television viewership, etc. Registers of	Annually	Project Manager, consultants on outreach and public relations	Review by Project Manager and consultants	There is no failsafe way to measure this indicator in a way that completely eliminates the

Objective / Component / Outcome	Indicators	Description	Data Sources and Collection Methods	Frequency	Responsibility for Data Collection	Means of Verification	Assumptions and Risks
			participants at outreach events organized by the project. Internal project data on distribution of published materials.				risk of double-counting. The number of individual citizens reached will be estimated based on total audience size (where total audience is the number of individual interactions between project-led media and citizens).

Annex C. Evaluation Plan

Evaluation Title	Planned start date Month/year	Planned end date Month/year	Included in the Country Office Evaluation Plan	Budget for consultants	Other budget (i.e. travel, site visits etc....)	Budget for translation
Midterm Review	February 2020	April 2020	Yes	28,500	1,500	1,500
Terminal Evaluation	February 2023	March 2023	Yes	36,500	1,500	1,500
Total evaluation budget				USD 71,000		

See Section VII for full details, including a proposed budget, for monitoring and evaluation of the project.

Annex D. GEF Climate Change Tracking Tool at Baseline

Submitted separately as a MS Excel file

Annex E. Terms of Reference for the Project Board and the Project Manager

Terms of Reference

Project Board

1. General Conditions

- 1.1. The Project Board is to be formed on the basis of the project document signed by the State Committee on Environmental Protection and Land Resources of Turkmenistan and the United Nations Development Programme (UNDP), dated [xx.xx.xxxx], for the project entitled “Sustainable Cities in Turkmenistan: Green Urban Development in Ashgabat and Awaza” (hereinafter referred to as “the Project.”)
- 1.2. This document establishes the fundamental tasks, structure, organizational process, and meeting schedule of the Project Board, as well as the functions and rights of the Project Board and National Project Director.
- 1.3. This document applies to the activity of all members of the Project Board.
- 1.4. The Project Board is a group providing management and oversight, coordination functions, and political support to the Project.
- 1.5. The Project Board operates on the basis of the laws of Turkmenistan, and decrees and orders of the President of Turkmenistan, as well as this document.
- 1.6. The activity of the Project Board is based on the principles of free discussion and openness.

2. Fundamental Tasks of the Project Board

- 2.1. Oversight and coordination of the activities of the Project.
- 2.2. Creation of conditions for collaborative participation of local authorities with project staff and consultants, making possible the successful realization of project activity.
- 2.3. 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.
- 2.4. Delivery of assistance in the realization of the work plans of the Project.

3. Fundamental Functions of the Project Board

- 3.1. Overall direction of the realization of the project;
- 3.2. Definition of high-level directions of project;
- 3.3. Facilitation of collaboration with other complementary projects;
- 3.4. Facilitation of collaboration among government agencies, organizations, and other institutes for the successful realization of the project;
- 3.5. Provision of full access by the project to all documents and information in various government departments necessary for monitoring and realization of the project;
- 3.6. Delivery of methodological and practical assistance to the project on questions of realization of project activities;

- 3.7. Review and confirmation of Annual Work Plans, budget revisions, and staged financing;
- 3.8. Review and confirmation of annual reports on project activity;
- 3.9. Execution of the function of main coordinating body for promotion of the interests of the Project with regard to political, regulatory, legal, and financial support from the Government of Turkmenistan;
- 3.10. Continued effort to raise additional co-financing to support results and activities of the project after the conclusion of funding from the Global Environmental Facility.

4. Composition of the Project Board

4.1. The Project Board includes representatives of the following organizations:

- 1) UNDP
- 2) State Committee for Environmental Protection and Land Resources of Turkmenistan
- 3) Municipal administration of the city of Ashgabat
- 4) Administration of the National Tourist Zone of Awaza
- 5) Union of Industrialists and Entrepreneurs of Turkmenistan

4.2. The general direction and operation of the Project Board will be determined by its co-chairs.

4.3. For resolution of specific issues at Project Board meetings, various entities may be invited to attend, including city officials, consultants, experts, and others.

4.4. The roster of the Project Board may be changed and/or supplemented by agreement of Project Board members, subject to approval by the co-chairs.

5. Role and Responsibilities of the National Project Director

5.1. The National Project Director (NPD) bears the responsibility for coordination of project realization, in the name of the national implementing agency.

5.2. The NPD represents the Government as the assigned person responsible for promotion of sustainable urban development in Turkmenistan, from the side of the Government.

5.3. The NPD will direct the project over its entire duration, in order to provide for the realization of project action steps in accordance with the project document.

5.4. The NPD may delegate all needed authority to the Project Manager, for the successful implementation of the project.

5.5. The NPD provides for delivery of financial information to relevant authorized entities in accordance with operating principles for national activity.

5.6. The NPD provides for coordination among project action steps and corresponding steps made in the framework of government programs and relevant incentives.

5.7. The NPD presents various forms of support for the successful execution of the project and corresponding steps after completion of the project, including the long-term persistence of project results, as well as dissemination of lessons learned.

5.8. The NPD confirms Annual Work Plans and project budgets.

5.9. The NPD confirms financial and substantive reports on project realization.

5.10. The NPD provides for collaboration with partners and coordination with departments of the National Implementing Agency.

6. Organization of activity and scheduling of meetings of the Project Board

6.1. The Project Board conducts its work at meetings convened at least once annually, or more often as needed.

6.2. Decisions may be made by the Project Board with a quorum of two-thirds of its members in attendance.

6.3. Costs of facilities for Project Board meetings are to be covered by the Project. Agencies of the Government of Turkmenistan may instead offer to cover costs of Project Board meetings. The costs of the work of Project Board members shall be considered as the Government's or other project partners' voluntary in-kind contribution to the project and shall not be paid separately by the project. Members of the Board are also not eligible to receive any monetary compensation from their work as experts or advisers to the project.

6.4. The Project Board makes decisions by votes at meetings. Project Board members attending meetings must devote every effort to achieving consensus.

6.5. Decisions of Project Board meetings are formulated as protocols and are distributed to all members, then signed by the Chairperson.

6.6. Decisions made at Project Board meetings are binding for project staff and for organizations represented on the Project Board.

6.7. Project staff will carry out the following activities in support of Project Board meetings:

- analysis of information provided by organizations, preparation of an agenda, and provision of necessary materials;
- advance submittal of the draft agenda and accompanying materials with a cover letter for the review and approval of the co-chairs or their appointed delegates;
- announcement of the time and location of the meeting and distribution of approved materials to Project Board members no less than ten days before the meeting.

7. Rights and Responsibilities

7.1. For realization of the functions assigned to the Project Board, its members are granted certain rights and responsibilities. They bear responsibility in accordance with adopted legislation of Turkmenistan, other legal and regulatory acts, orders and decrees of the President of Turkmenistan, and this document.

7.2. Members of the Project Board have the right:

- 7.2.1. To participate in all meetings of the Project Board;
- 7.2.2. To receive any information about Project Board activity; and
- 7.2.3. To present relevant initiatives to be considered as Project Board resolutions;
- 7.2.4. Rights of Project Board members are not necessarily limited to those listed above.

7.3. The co-chairs of the Project Board:

- 7.3.1. Define the internal processes of Project Board work;
- 7.3.2. Chair Project Board meetings;
- 7.3.3. Call ad-hoc Project Board meetings;
- 7.3.4. Support the constant connection between the Project Board and the Project Manager;

- 7.3.5. Provide informational connections among members of the Project Board;
- 7.3.6. Determine the date of Project Board meetings, in conjunction with the Project Manager;
- 7.3.7. Review and confirm the agenda of Project Board meetings;
- 7.3.8. Coordinate the activity of the Project Board in delivery of needed support to project staff for the successful realization of the project;
- 7.3.9. Represent the Project Board in its relations with other organizations.

8. Oversight

- 8.1. The Project Board is to be guided by this document with regard to its own activity.
- 8.2. The activity of the Project Board is assessed at the following meeting, after presentation and discussion of annual reports.

Terms of Reference

Project Manager

Location: Ashgabat

Status and duration: Full-time (40 working hours per week), for full duration of project period (2017-2022) subject to annual performance reviews

Compensation: Commensurate with experience and qualifications

Summary of responsibilities:

The Project Manager will be the lead full-time staff person responsible for day-to-day oversight of all program activity and fulfilment of outputs and outcomes elaborated in the Project Document.

Specific duties and responsibilities:

Operational project management in accordance with the Project Document and the UNDP guidelines and procedures for direct implemented projects, including:

- Management and supervision of project implementation and evaluation across all components. Assurance of successful completion of the project in accordance with the stated outcomes and performance indicators summarized in the Project Results Framework.
- Regular communication and coordination with the National Implementing Partner, members of the Project Board, and all other partners and interested stakeholders, with regard to all project activity. Organization of Project Board meetings at least once, or ideally twice, per year, subject to availability of members.
- Regular communication with senior UNDP management with regard to all project activity. Assurance of coordination with other UNDP projects and broad strategic initiatives.
- Preparation of Annual Work Plans, including monthly targets and deliverables as well as annual spending targets in accordance with the Project Document. Tracking of work outputs throughout the year in light of these Annual Work Plans.
- Tracking and managing of project spending in accordance with the project budget, as well as UNDP rules and procedures, to ensure transparency, responsibility, and timely fulfilment of both program targets and budget targets.
- Preparation and submittal of annual Project Implementation Reviews and other required progress reports to the Project Board, UNDP, and GEF in accordance with applicable requirements, in all required languages (English, Russian, and/or Turkmen, using outside translation as needed).
- Supervision of the experts working for the project, including the Task Leader for transport and both international and national consultants.
- Supervision of regular data collection and analysis, as well as reporting and public outreach via the mass media, events, and other means, to disseminate the results of the project and to promote sustainable urban development in Turkmenistan
- Oversight of the overall administration of the project office.
- Regular travel within Turkmenistan to organize and monitor project activity; possible travel outside the country for participation in directly relevant international meetings.

- Support of independent Midterm and Terminal Evaluations of the project.

Expected Qualifications:

- University degree in management, engineering, marketing, or another field with direct relevance to the project
- At least 10 years of experience in managing large-scale projects on climate change mitigation, energy efficiency, and/or urban development in Turkmenistan
- Close familiarity with the roles, activities, and priorities of the Government of Turkmenistan, and particularly the State Committee of Environmental Protection and Land Resources, municipal administrations in Ashgabat, Awaza and other cities, and other national partners
- Demonstrated ability to work effectively with a broad range of stakeholders
- Demonstrated ability to work effectively under close supervision, as well as under minimal supervision
- Superior skills in organization and management, including past experience with planning, tracking, evaluation, and supervision of consultants and/or employees
- Strong skills in financial tracking and budget management
- Close familiarity with the operations and rules of UNDP is not a requirement but will be viewed with favour
- Fluency in Russian and English, in reading, writing, and speaking.

Required application materials:

Candidates should submit a full curriculum vitae, a brief statement of interest and qualifications, and a financial proposal.

Annex F. UNDP Social and Environmental Screening Template

Please see it in separate attachment

Annex G. Environmental and Social Management Plan (ESMP)

This project has identified as “moderate” risk. Therefore an ESMP will be developed during the project inception period.

The objective of the ESMP is to ensure compliance of relevant policies and to direct the Project personnel and stakeholders during the implementation of the project in tackling the social and environmental concerns identified. Among those, the ESMP aims to manage the environmental and social impacts through appropriate mitigation measures that may arise with the implementation of the project. The ESMP will provide specific guidance to be followed consistent with any existing environmental and social impact studies of working sites (to be identified) but also the policies at the local, national and international level, and the UNDP.

The 'moderate' risk rating is due mainly to potential investments that may require construction work, including street infrastructure, as well as operation of a pilot recycling program. The preliminary consideration of potential environmental and social risks mainly relate to occupational and consumer safety, as well as the release of pollutants, as well as temporary concerns about traffic, noise, and utility service disruption during construction. See Annex F for more details.

It is expected that on the whole, the Project will lead to net positive environmental impacts due to the reduction of GHG emissions and lowering of waste volumes. It is also expected that the Project will lead to positive social impacts.

The ESMP will include the following sections:

- Section 1 – Project scope and coverage, and objectives of the ESMP
- Section 2 – Potential social and environmental impacts due to the project activities and the methodology used
- Section 3 – Analysis of the legal and institutional framework relevant to the safeguards
- Section 4 – Procedures used for screening, assessment and management of environmental and social risks identified.
- Section 5 – Overview of institutional capacity assessment and building, including the assignment of responsibilities along the project cycle.
- Section 6 – Stakeholder engagement and disclosure process.
- Section 7 – UNDP’s grievance redress mechanism to be utilised during the project.
- Section 8 – Monitoring and evaluation arrangements
- Section 9 – Budget for ESMP implementation.

The ESMP will be submitted to UNDP-GEF for review and approval.

Annex H. UNDP Project Quality Assurance Report

To be prepared after GEF CEO Endorsement, prior to Project Document signature.

Annex I. UNDP Risk Log

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Management Response	Owner	Submitted, updated by	Last Update	Status
1	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	Project preparatory period	Political, operational	<p>The possible impact of this risk is that targeted outputs and outcomes across the components would be delayed or unfulfilled.</p> <p>I=3 P=2 I x P = 6</p>	<p>The project's activities and co-financing plans take account of state budgets that have already been profoundly affected by low export revenues from natural gas. UNDP and key partners from the Government, including the State Committee for Environmental Protection and Land Resources of Turkmenistan and numerous ministries, have all agreed on needs, proposed activities, and targeted outcomes. Furthermore, the project seeks specifically to mitigate this risk via the development of technical and financial justification of sustainability measures (use of LED lighting and smart-grid systems, dedicated bus and bike lanes, energy and water conservation measures identified by facility audits in hotels). UNDP will also provide steady advocacy through direct connections between its senior management and high-level officials within ministries and in the Cabinet of Ministers.</p>	Project staff, National Project Coordinator, UNDP Country Office	UNDP		
2	Implementation of project activities, especially pilot		Operational	The possible impact of this risk is that project	The Project Manager will develop detailed Annual Work Plans reflecting a full	Project Manager, UNDP Country Office staff	UNDP		

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Management Response	Owner	Submitted, updated by	Last Update	Status
	projects, is hampered by administrative delays arising from slow processes of permissions, contracting, and procurement			<p>activities would be delayed, leading to reduced replication and lower benefits achieved during the project period.</p> <p>I=2 P=2 I x P = 4</p>	required process plan for each activity, including pilot projects. The process plans, in turn, will contain a proper and realistic sequence of contacts, site selection, and agency permission, as well as recruitment, contracting, and procurement. These plans will be developed and finalized with the participation of national partners and the Project Implementation Unit of the UNDP Country Office (administrative staff responsible for contracting and procurement). The Project Manager will also rely on the National Project Coordinator and UNDP senior management to help advocate for resolution of any bureaucratic delays on the Government side.	(Project Implementation Unit, senior management as needed), National Project Coordinator			
3	Piloted technologies and practices prove not to be technically and/or financially justified, and therefore do not lead to replication – or possibly even lead to a broad backlash against the technology (for example,		Operational, financial	The possible impact of this risk is that demonstration projects do not lead to cost-effective energy savings and avoided emissions, nor to replication.	International and national experts will be engaged in the selection, design, installation, operation, and monitoring of pilot projects, and will ensure consistency with both proven international best practice and national conditions. Documentation of pilot projects will include not only immediate savings of energy costs, but also larger effects on the state budget (greater	Project team, including international and national consultants	UNDP		

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Management Response	Owner	Submitted, updated by	Last Update	Status
	premature failure of LEDs would damage the popularity of LEDs and all EE lighting)			I=2 P=2 I x P = 4	availability of gas for export, reduced subsidies for consumers), as well as performance, durability, and non-energy benefits.				
4	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, noise, and environmental damage.		Social and Environmental (See Annex F, Social and Environmental Screening Template)	I=3 P=2 I x P = 6	The project's role in development of new bicycle and bus lanes is to provide technical assistance in planning. This planning will explicitly include recommendations for safety, environmental mitigation, and minimization of social impacts. The project will include this risk in its Environmental Social Management Plan and will monitor it accordingly. See Annex F for a fuller elaboration of expected recommendations.	Project Manager, staff, and consultants; Ministry of Motor Transport; Municipality of Ashgabat	UNDP		
5	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		Social (See Annex F, Social and Environmental Screening Template)	The possible impact of this risk is increased injuries for cyclists. The risk pertains to increased numbers of cyclists, not increased risk per cyclist. I=2	All project activities to promote cycling will emphasize safety – including encouragement to motorists to “share the road” and to cyclists to wear helmets. The project will also support enhanced law enforcement for cyclist safety by means of training and new regulations as needed. Then, upon proper study of bicycle lane expansion options, the project will also conduct a campaign for cyclists to	Project staff, Ministry of Motor Transport, municipal administration of Ashgabat, police and other agencies	UNDP		

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Management Response	Owner	Submitted, updated by	Last Update	Status
				P=2I x P = 4	promote use of available dedicated lanes, with proper precautions about riding.				
6	Project activity to promote increased carpooling exposes citizens to increased risks of crime, with particular risks for women		Social (See Annex F, Social and Environmental Screening Template)	<p>The potential impact of this risk is increased incidence of crime against women who carpool in Turkmenistan,</p> <p>I=1</p> <p>P=1</p> <p>I x P = 1</p>	Already in Turkmenistan, hailing rides from strangers for fees negotiated on the spot is quite common, even among women passengers. Most citizens do not perceive this practice as risky in the least. Nevertheless, in its promotion of carpooling, the project will not encourage informal hitchhiking, but rather specifically sharing of rides among people already acquainted with each other, with shared starting points and destinations. This will apply especially to shuttle services for employees of large agencies and enterprises.	Project staff and institutional partners	UNDP		
7	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.		Social (See Annex F, Social and Environmental Screening Template)	<p>The possible impact of this risk is that women will receive lower benefits from the project than men do, insofar as women are less likely to ride bicycles.</p> <p>I=1</p>	The project will deal with this issue above all by showing respect for women's autonomy in their choices of dress and transport. Materials produced by the project will show women riding bicycles in practically appropriate attire, and women in traditional dress taking other modes of alternative transport.	Project staff	UNDP		

#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Management Response	Owner	Submitted, updated by	Last Update	Status
				I=1 I x P = 1					
8	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		Social (See Annex F, Social and Environmental Screening Template)	I=2 P=2 I x P = 4	The design of the pilot recycling program will explicitly include an analysis of both occupational safety and quality control for recycled materials, including a process to keep hazardous waste out of recycling streams. This risk will be included in the ESMP and monitored accordingly.	Project staff and consultants in collaboration with the Ministry of Communal Services	UNDP		
9	Climate warming leads to various effects that reduce the effectiveness of project activities, such as lowered willingness to ride bicycles or wait for buses, increased demand for air conditioning in hotels in Awaza, and so on.		Climate	I=1 P=2 I x P = 2	The likelihood of a warmer climate in essentially all of Turkmenistan is high, but the probability of its having a measurably significant impact on consumer behavior is lower. Nevertheless, the project will watch for evidence of possible climate-related effects on its activities and will adjust the activities accordingly.	Project Manager and technical staff	UNDP		

Annex J. Calculations of Potential Energy Savings and GHG Emissions Reductions

The project will lead to avoided GHG emissions in three main ways:

1. Reduction of electricity consumption for street lighting and other public lighting in Ashgabat and Awaza, with replication throughout Turkmenistan
2. Reduction in average fuel efficiency of private motor vehicles throughout Turkmenistan, mostly from implementation of standards and incentives
3. Reduction of energy consumption in hotels in Awaza via the implementation of improved energy and water management practices.

1. Lighting

Official data on public outdoor lighting inventories from 2013 through 2015, obtained from official regional agencies responsible for lighting, are presented in Supplement 1 to this Annex. These data indicate a steep increase in the quantity of lighting fixtures, with an accompanying rise in electricity consumption and associated GHG emissions by about 8 percent per year from 2013 through 2015.

Baseline scenario

There are no officially-published projections of how Turkmenistan's lighting inventory will change throughout the six-year project period, but it is possible to develop a conservative baseline scenario based on the following assumptions:

- Public lighting will continue to expand in Turkmenistan, in a way consistent with the country's increasing urban population and economic development.
- Growth in energy consumption in Ashgabat and Awaza will continue, but at a slowing rate, as coverage of unlighted areas becomes filled in, and as energy-efficient light-emitting diodes (LEDs) come into increasing use through routine replacement of spent lamps. The baseline scenario assumes growth of GHG emissions from public lighting in Ashgabat at 1.4 percent per year, and in Awaza at 1 percent per year, for the duration of the project period.
- GHG emissions from public lighting in the other regions and cities of Turkmenistan have been growing quickly, including notable spikes in lighting energy consumption in 2015 in the Dashoguz velayat (33 percent increase over 2014), the Mary velayat (29 percent increase over 2014), and the Ahal velayat (13 percent increase over 2014, not including Ashgabat, which is in Ahal but has special separate administrative status). These increases are occurring because of increasing coverage of unlighted areas, but using conventional fixtures with high-pressure sodium and mercury vapor lamps, instead of LEDs. Such spikes in emissions have not yet occurred in Lebap and Balkan velayats, but are expected. The baseline scenario conservatively assumes that, during the project period, GHG emissions from lighting will level off gradually at five percent per year in all five velayats, as coverage of unlit areas continues, and as LEDs very gradually penetrate the inventory as replacement lamps.
- All of Turkmenistan's electricity comes from gas-fired power plants, with a mix of older and newer power stations with varying levels of efficiency. The electricity emissions factor for Turkmenistan is 0.63 tonnes of CO₂ per MWh of end-use electricity.⁶
- Taking Ashgabat, Awaza, and the five velayats together, baseline CO₂ emissions from public lighting are projected to rise from about 82,000 tonnes per year in 2015 to about 121,000 tonnes in 2023, with the annual rate of increase slowing from about 8 percent in 2013-15 to about 3 percent in 2021-23.

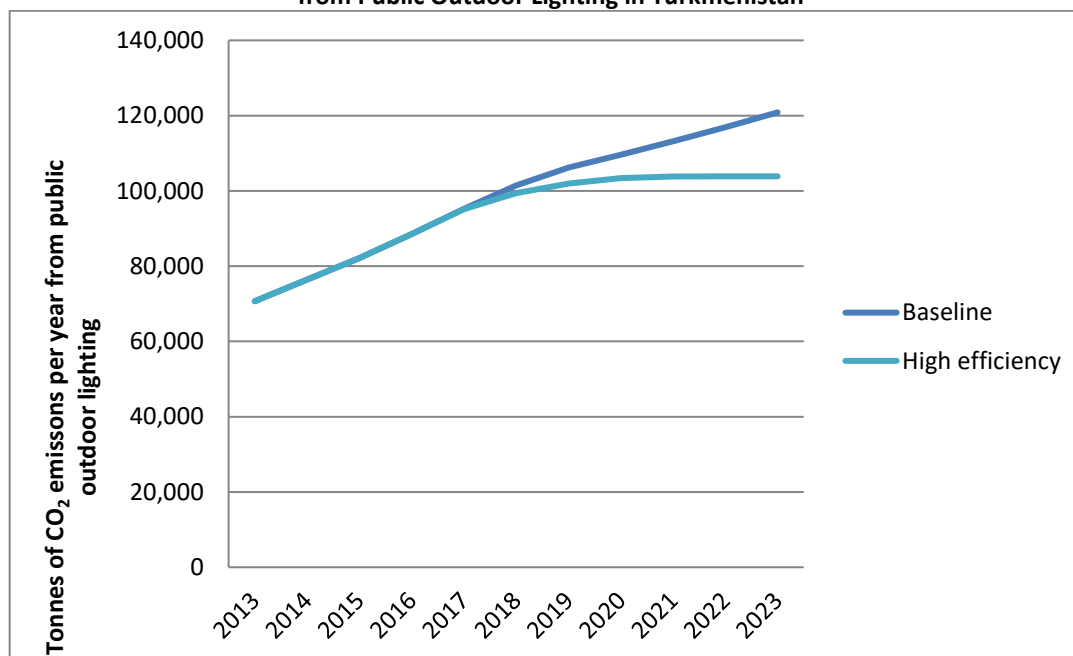
High efficiency (alternative) scenario

Under the alternative scenario, accelerated use of LEDs across Turkmenistan, as well as increased use of smart dispatching systems and solar-powered fixtures, will lead to a slowing of growth in energy consumption and GHG emissions from the public lighting sector. The scenario makes the following assumptions:

⁶ EBRD 2009. *Electricity Emissions Factor Review*

- Growth in energy consumption and GHG emissions from lighting in Ashgabat and Awaza in the baseline scenario will slow in Ashgabat and Ashgabat to zero percent per year by the end of the project period, as the slow addition of new lighted areas is offset by increasing use of LEDs, solar lighting, and smart dispatching throughout the two urban zones.
- The accelerated use of LEDs and phase-out of high-pressure sodium and mercury vapor lamps, as well as some replication of solar-powered fixtures and smart dispatching and controls, will lead to a significant reduction in GHG emissions from public lighting in the five velayats – down to zero percent per year by the project’s end – when relamping with LEDs will offset the increased lighting loads from the addition of new coverage.
- Taking Ashgabat, Awaza, and the five velayats together, CO₂ emissions from public lighting in the alternative scenario are projected to rise from about 82,000 tonnes per year in 2015 to about 104,000 tonnes in 2023, with the annual rate of increase slowing from about 8 percent in 2013-15 to less than 1 percent in 2021-23.
- The total potential energy savings in Ashgabat are estimated at 2.5 million kWh per year by 2020. The midterm target for Component/Outcome 1 is set at 60 percent of this level, or **1.5 million kWh**.
- The total potential energy savings in Turkmenistan are estimated at 13.6 million kWh per year by 2023. The final target for Component/Outcome 1 is set at 60 percent of this level, or **8 million kWh**.
- The total potential amount of avoided CO₂ emissions under the high efficiency scenario during the project period is calculated at 50,000 tonnes. The project’s overall target for GHG emissions reductions includes 60 percent of this potential, or **30,000 tonnes of avoided CO₂ emissions from the lighting sector during the project period**.

Figure J.1 **Baseline and High Efficiency Scenarios for CO₂ Emissions from Public Outdoor Lighting in Turkmenistan**



2. Transport

Project activities in the transport sector will catalyze energy savings and avoided GHG emissions in two broad ways:

- **Increasing the fuel efficiency of private vehicles**, via Activity 3.2.1 (development and implementation of standards and incentives for fuel efficiency), and to a lesser extent from Activity 1.2.3b (promotion of proper tire inflation);
- **Reduction of private vehicle use**, via Activity 1.2.1 (planning for bus and bicycle lanes in Ashgabat) and 1.2.2 (development of mobile app, e-pass system, and improved maps for buses in Ashgabat).

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. The other activities are expected to have lesser effects because of later projected time frames for implementation (for example, planning for bike lanes and dedicated bus lanes in Activity 1.2.1), the indirectness of influence on efficiency (bus system enhancements in Activity 1.2.2), and small market share (promotion of electric vehicle infrastructure in Awaza in Activity 2.3.1). These other activities are included in the project still with the intention of achieving GHG emissions reductions, but also promoting innovation and preparing Turkmenistan for further advances in the post-project period. Calculations of GHG emissions potential from these latter activities are not included here because of the uncertainty and small scale of expected results.

Emissions reductions from increased vehicle efficiency

The *Manual for Calculating Greenhouse Gas Benefits of Global Environment Facility Transportation Projects*, prepared for the Scientific and Technical Advisory Panel of the GEF, provides instructions on how to calculate avoided GHG emissions from transportation projects. The manual opens with a discussion of definitions and general methodological principles. It then discusses methodological issues for specific types of transportation projects, and explains the use of special accompanying spreadsheet tools, called Transportation Emissions Evaluation Models for Projects (TEEMP). The calculations provided here are consistent with the instructions in the manual.

There are two main ways in which the project will achieve emissions reductions from increased vehicle efficiency:

1. Promotion of proper tire inflation (Activity 1.2.3b)
2. Development and implementation of standards, incentives, and penalties, regarding fuel efficiency of passenger cars (Activity 3.2.1).

Calculated estimates of the potential for avoided emissions from each of these activities are presented below.

Data limitations and known market conditions

Official data on the product mix of cars in Turkmenistan are unavailable, but it is widely agreed and easily observed that Turkmenistan's stock of cars embodies a mix of newer imports from Japanese, Korean, German, and American manufacturers (Toyota, Nissan, Lexus, Hyundai, Daewoo, Mercedes, and Ford), plus older Russian-made cars (Lada/VAZ). While the exact number of private cars on the road in Turkmenistan is not publicly available, the national experts on the project preparation team have estimated, based on known figures from subsets of private vehicle owners, that the total stock of private passenger cars in service in Turkmenistan, including sport utility vehicles (SUVs), stood at 717,000 as of 2015.

The new-car market in Turkmenistan is still almost nonexistent, with only a few boutique new-car dealers in Ashgabat. The most substantive available report indicates that fewer than 500 new cars were purchased in the country in the first nine months of 2015, with Hyundai and Mercedes leading in sales.⁷

Given the extremely low volume of new car sales, almost all cars newly purchased in Turkmenistan are previously used, imported from wholesale dealers in the United States and elsewhere, representing top international brands

⁷ <http://bestsellingcarsblog.com/category/turkmenistan/>

such as Toyota, Hyundai, and Ford. The Toyota Camry is ubiquitous in the cities of Turkmenistan, along with higher-end models such as the Toyota Avalon and the Mercedes C-class. The Toyota Prado (known in the United States as the Land Cruiser) is the most popular SUV.

According to current regulations, no cars may be imported into Turkmenistan if their model year is more than three years before the date of purchase. As a result, most cars are relatively young and accordingly reflect recent advances in fuel efficiency. Notably, these regulations on the age of cars ensure that the baseline is highly dynamic, such that fuel efficiency of the fleet of Turkmen cars should increase as vehicle fuel efficiency rises with technological improvements over time.

The baseline scenario starts with the figure of 717,000 private passenger cars (including sport utility vehicles) in 2015. As there are no official projections of increased car ownership, the projection of the growth of this vehicle stock has been based on known trends in the growth of population (steady at about 1 percent per year) and of GDP (more than 10 percent per year annually between 2012 and 2015). Based on these trends, it is assumed very conservatively for all calculations that the number of privately-owned cars would grow 2 percent per year through 2027.

No data are available on the annual average number of vehicle kilometers traveled in Turkmenistan. The baseline scenario estimates conservatively that each passenger vehicle in Turkmenistan is driven an average of 16,000 km (about 10,000 miles) in a year.

For all of the calculations below, the CO₂ emissions factor is taken directly from the GEF Scientific and Technical Advisory Panel's TEEMP for "eco-driving," a figure of 2.75 kg of CO₂ emissions per liter of gasoline consumed in a car.

The rebound effect

According to the *Manual for Calculating Greenhouse Gas Benefits of Global Environment Facility Transportation Projects*, GHG emissions reductions from activities to increase average vehicle efficiency are to be calculated as follows:

$$CO_2 \text{ reductions for a given fuel} = (\text{fuel savings}) * (CO_2 \text{ emissions factor}) - \text{"rebound effect"}$$

where:

- calculated fuel savings take account of a dynamic "baseline shift" – that is, the assumption that some savings would have happened anyway because of improved technology, even without GEF intervention;
- the rebound effect is the amount of fuel consumed by the increase in travel resulting from the reduced fuel cost of travel.

For Turkmenistan, given the rapid growth of private vehicle ownership as well as the extremely low price of fuel (approximately US \$0.29 per liter), the rebound effect is most plausibly defined as zero. Therefore, the avoided emissions from increased vehicle efficiency simply equal fuel savings multiplied by the emissions factor.

Projected avoided emissions from promotion of proper tire inflation

The avoided GHG emissions reduction potential from promotion of proper tire inflation (Activity 1.2.3b) has been calculated via the TEEMP spreadsheet tool for "eco-driving," using input data for the number of cars and vehicle-kilometers traveled as elaborated above, plus default values provided in the tool. The result is an estimated cumulative GHG emissions reduction of about **50,000 tonnes between 2017 and 2030**, including an estimated **20,000 tonnes during the project period of 2017-2023**. The overall project target for GHG emissions reductions includes this full amount.

Projected avoided emissions from standards, incentives, and penalties with regard to vehicle fuel efficiency

Activity 3.2.1 of the project will seek to raise the overall efficiency of the entire vehicle stock in Turkmenistan via standards beyond the existing maximum age requirement for imports. Specifically, the activity will aim to increase

the market for highly efficient cars, including hybrids and electric vehicles, and to create restrictions or disincentives regarding gas-guzzling SUVs.

The fuel savings have been estimated from implementation of standards, incentives, and penalties with regard to vehicle fuel efficiency via comparison of a baseline and alternative scenario for the stock of private vehicles in Turkmenistan. The scenarios and associated estimates of GHG emissions are consistent with the instructions in the *Manual for Calculating Greenhouse Gas Benefits of Global Environment Facility Transportation Projects*, but do not make use of any TEEMP spreadsheet tool, beyond use of default values such as the emissions factor, because no TEEMP tool deals directly with vehicle fuel efficiency standards and incentives.

Time frame for projected scenarios

The scenarios extend through 2027, reflecting the ten-year period starting with the first full project year. On the one hand, this time frame addresses the need to forecast the project's impacts both during the project period (defined by GEF as "direct" energy savings and GHG emissions reductions) and after the project period (defined by GEF as "consequential" energy savings and avoided emissions). The projection is intentionally restricted to only four years past the end of the project because of significant uncertainty arising from incomplete data and highly unpredictable national and global dynamics in the automobile market.

Baseline scenario

The baseline scenario calculates average fuel efficiency of the stock of private passenger vehicles in Turkmenistan based on a projection of the mix of vehicle types and models on the road in Turkmenistan. This scenario uses the figures for total number of cars and average vehicle-kilometers traveled as elaborated above. Further assumptions of this baseline projection are presented in Table J.1.

Table J.1 Projected market share and fuel efficiency of passenger vehicle types in Turkmenistan (baseline scenario), 2015-2027

Type of vehicle	Typical models	Market share in 2015 (%)	Projected trend in market share	Average fuel economy in 2015 (km/liter)	Baseline improvement in fuel economy
Full-size sedan	Toyota Camry, Hyundai Sonata, Nissan Altima, other higher-end models	60	Rises by 1 percent per year through 2027	10.5	Rises to 10.8 km/liter in 2021
Compact sedan (new generation)	Hyundai Elantra, Toyota Corolla	10	Rises by 0.5 percent per year through 2027	14.3	Rises to 14.7 km/liter in 2021
Compact sedan (older generation)	Lada Samara	10	Declines gradually as older cars are removed from service, reaching zero in 2027	12.7	Declines to 12.5 km/liter in 2022, reflecting reduced performance of older cars
Full-size SUV	Toyota Prado and similar	10	Rises by 0.9 percent per year through 2027	6.9	Rises to 7.0 km/liter in 2021
Compact SUV	Toyota RAV-4, Hyundai IX35 (Tucson), and similar	10	Rises by 0.5 percent per year through 2027	10.5	Rises to 10.8 km/liter in 2021
Total stock		100	Rises by 2 percent through 2027	10.75	Remains essentially steady throughout 2015-2027

The scenario projects that full-sized sedans, which are already dominant in the market, would become even more prevalent, with market share rising to 68 percent in 2027. The shares of newer compact sedans, large SUVs, and compact SUVs all rise gradually to about 11 percent each by 2027. The share of much older small cars such as the Lada Samara gradually declines from 10 percent in 2015 to zero in 2027, as these cars are removed from service.

Across all vehicle types except the older small cars, the baseline scenario assumes a highly dynamic baseline, in which fuel economy improves over time even without program intervention, because of Turkmenistan's maximum age stipulation for imports, as well as the periodic technological improvements expected from major manufacturers.

Under the baseline scenario, the average fuel economy of the whole stock of private passenger vehicles begins at 10.75 km per liter in 2015. Then average fuel efficiency fluctuates within a narrow range from 10.66 to 10.87 km per liter, retreating to 10.76 km per liter in 2027. Factors that tend to increase overall fuel efficiency (technological advances within vehicle categories, increased number of compact sedans) are closely offset by factors that tend to reduce overall fuel efficiency (increased number of large SUVs, decommissioning of small and fuel-thrifty compact Russian-made cars).

High efficiency (alternative) scenario

Even with a dynamic baseline, Turkmenistan would still have much untapped potential for vehicle fuel efficiency under business as usual, for two main reasons, both related to the extremely low price of fuel. First, the market for highly fuel-efficient cars remains extremely limited. There are essentially no hybrid or electric vehicles on the road at all in Turkmenistan. Second, there is a widespread preference for full-size sedans and SUVs, as noted above.

The alternative scenario uses the largely the same parameters and assumptions as the baseline, but with values adjusted based on expected effects of project activity. These effects include:

- Introduction of hybrid full-size sedans
- Introduction of hybrid small sedans
- Reduction in the growth of market share of large SUVs.

Table J.2 presents the specific assumptions of the alternative scenario.

Table J.2 Projected market share and fuel efficiency of passenger vehicle types in Turkmenistan (alternative scenario), 2015-2027

Type of vehicle	Typical models	Market share in 2015 (%)	Projected trend in market share	Average fuel economy in 2015 (km/liter)	Baseline improvement in fuel economy
Full-size sedan	Toyota Camry, Hyundai Sonata, Nissan Altima, other higher-end models	60	Total number of full-sized sedans rises by one percent per year as in baseline, but some are hybrids (see row below)	10.5	Rises to 10.8 km/liter in 2021

Type of vehicle	Typical models	Market share in 2015 (%)	Projected trend in market share	Average fuel economy in 2015 (km/liter)	Baseline improvement in fuel economy
Hybrid full-size sedan	Toyota Camry hybrid, Hyundai Sonata hybrid	Zero	Two percent share of all full-size sedans starting in 2017	16.9	Rises to 17.9 km/liter in 2021
Compact sedan (new generation)	Hyundai Elantra, Toyota Corolla	10	Rises by 2.5 percent per year from 2018 through 2027	14.3	Rises to 14.7 km/liter in 2021
Compact hybrid	Toyota Prius	Zero	Starting at 0.32 percent market share in 2018, rising to 1.1 percent in 2027	21.7	Rises to 22.7 km/liter in 2020, and to 25.0 km/liter in 2024
Compact sedan (older generation)	Lada Samara	10	Declines gradually as older cars are removed from service, reaching zero percent in 2027	12.7	Declines to 12.5 km/liter in 2022, reflecting reduced performance of older cars
Full-size SUV	Toyota Prado and similar	10	Declines by 5 percent per year starting in 2018	6.9 r	Rises to 7.0 km/liter in 2021
Compact SUV	Toyota RAV-4, Hyundai IX35 (Tucson), and similar	10	Rises by 0.5 percent per year through 2027	10.5	Rises to 10.8 km/liter in 2021
Total stock		100	Rises by 3 percent per year 2015-2020, and by 2 percent per year thereafter	10.75	Increases steadily throughout period, up to 11.3 km/liter in 2027

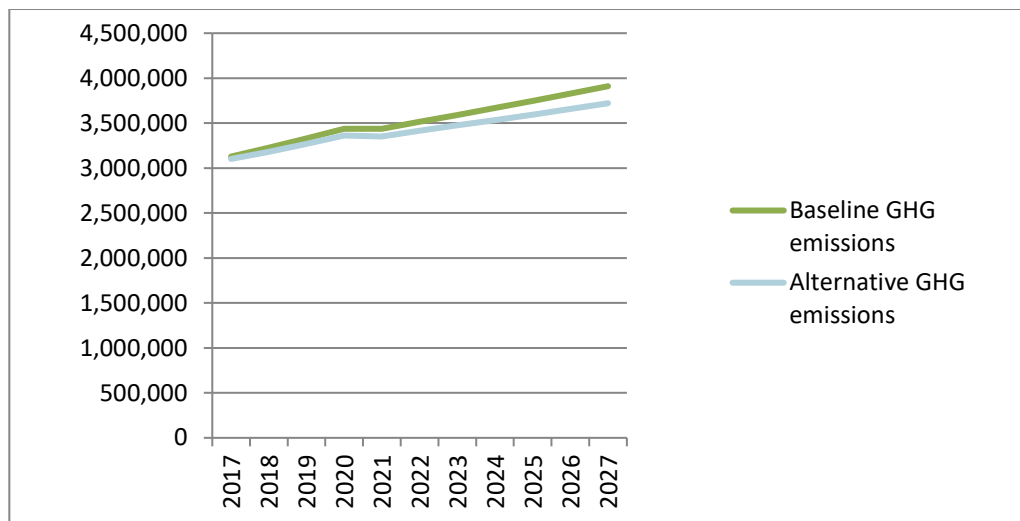
The alternative scenario foresees the introduction of hybrid full-size and compact sedans into the Turkmen marketplace, as well as expanded purchase of small sedans with conventional but efficient drivetrains. The scenario further envisions a decline in market share of large SUVs, replaced largely by smaller SUVs or conventional passenger cars. Overall, these effects cumulatively lead to a gradual increase in overall average fuel efficiency from the starting point of 10.75 km/liter in 2015 up to 11.3 km/liter in 2027.

Comparison of scenarios and determination of net avoided emissions potential

Though the differences in the two scenarios are small in relative terms, they suggest a significant cumulative effect. The total avoided CO₂ emissions from standards and incentives adopted during the project period is estimated at 1.1 million tonnes by 2027: 490,000 tonnes of direct GHG emissions reductions during the project period through 2023, plus about 618,000 tonnes of consequential GHG emissions reductions.

The overall project target for GHG emissions reductions includes 60 percent of the calculated direct GHG emissions potential for the project period, or **294,000 tonnes**.

Figure J.2. **Baseline and Alternative Scenarios for CO₂ Emissions from Private Passenger Cars in Turkmenistan, 2017-2027**



Measuring savings and avoided emissions during the project period

The estimates and calculations presented above are intended to define, as precisely as possible, the potential for energy savings and avoided emissions from project activities in the transport sector.

As noted, however, both the baseline and alternative scenarios carry significant uncertainty because of the absence of sufficiently detailed data on the number, type, and energy performance specifications of private cars. Both scenarios therefore rely on informal data and assumptions. Uncertainty is compounded further as the scenarios are projected into the future.

Therefore, 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 research effort will make use of official data from the state motor vehicle registry if they become available, supplemented as needed by observational surveys and other means. This inventory will be used to update both the baseline and alternative scenarios.

Evaluation efforts will focus especially on specific areas – such as the number of hybrid and high-efficiency cars sold in Turkmenistan, or the number of “gas-guzzlers” – before and after the creation of standards, incentives, and penalties introduced by the project.

3. Energy savings and avoided emissions from energy audits and implementation of “green” practices at hotels in Awaza

No detailed data on energy consumption in the hotels, nor on occupancy, have been made available to the project team during the preparatory period. Therefore, detailed projections of energy savings and avoided emissions from Activity 2.1.1 (standards for “green” hotel management and operations in Awaza) and Activity 2.1.2 (energy and water audits in Awaza hotels) cannot be conducted in advance. Instead, energy savings and avoided emissions will be calculated individually for each participating hotel during the project period, in conjunction with the audits and associated follow-up implementation and evaluation work of Activity 2.1.2. Targets in the Project Results Framework have been defined accordingly, not as absolute quantities of avoided emissions, but rather as proportional differences in emissions before and after implementation of audit measures.

Meanwhile, it is possible to develop credible indicative projections of the GHG emissions reduction potential from hotels in Awaza via comparisons with international data on hotels. The Center for Hospitality Research at Cornell University prepares an annual sustainability benchmarking database index⁸ for hotels, with data on energy consumption, water consumption, and GHG emissions. This database is searchable by city, country, and climate zone, and includes data from much of the world, though not for Turkmenistan.

The Caspian Sea coast is notable for its hot summers, cold winters, and mostly dry weather. Awaza's hotels are also distinctive for their ambitious scale, with bold design and lighting of public spaces, very large temperature-controlled swimming pools, and so on. There is no single location in the hotel benchmarking database that very closely matches all of these conditions. The data in Table J.3 present benchmarking data from far-flung locations, representing hotel types and climates similar in various ways to those of Awaza.

Table J.3 Mean **annual energy consumption and GHG emissions per square meter**
in hotels in various locations and climate zones

Location or zone	Mean energy consumption (kWh/m ²)
United Kingdom	320
United Arab Emirates	306
Turkey	300
Hot desert, arid, low-latitude	293
Hot steppe, subtropical, semiarid	297
Las Vegas	282

Source: Cornell Hotel Sustainability Benchmarking Index 2016. <http://scholarship.sha.cornell.edu/chrreports/17/>.

Although the chosen locations vary widely, the range of mean figures for energy consumption does not vary very widely across various selected locations and zones. (GHG emissions do vary more widely, presumably because of differences in primary energy sources.) It is therefore assumed, for the purpose of indicative calculations, an average of 300 kWh per square meter of floor area for energy consumption in Awaza hotels, most of which is used for electricity for lighting and summer air conditioning.

The hotels of Awaza are all in the range of 12 stories tall. It is estimated that each has about 240 rooms, with a total of 72 square meters of floor area per room, including common areas, for a total of about 17,000 square meters per hotel.⁹ Using this figure in conjunction with the estimate of 300 kWh/m² per year, it is estimated that each hotel consumes about 5 million kWh of energy per year.

The project's target is to reduce energy consumption by 10 percent in 24 hotels, or a total of 12 million kWh per year. Using a figure of 0.63 kg of CO₂e/kWh, an annual emissions reduction is estimated as about **7500 tonnes of avoided CO₂ emissions per year** from successful implementation of energy-conservation measures in the hotels, or a total of 22,500 tonnes during the project period. The target for total GHG reductions from the project includes this amount.

⁸ See <http://scholarship.sha.cornell.edu/chr/> and the Benchmarking Index Report for 2016 <http://scholarship.sha.cornell.edu/cgi/viewcontent.cgi?article=1016&context=chrreports>

⁹ deRoos, Jan, 2011. *Planning and Programming a Hotel*. Cornell University School of Hotel Administration. The Scholarly Commons. <http://scholarship.sha.cornell.edu/cgi/viewcontent.cgi?article=1293&context=articles>

Energy savings and avoided emissions from other areas of the project

Aside from lighting and transport, the project also includes activities in promotion of recycling (Output 1.3), as well as urban sustainability planning and policy (Outputs 1.3 and 3.1).

Output 1.3 is included in the project for several reasons – to reduce landfill burdens; to reduce litter; to promote citizen engagement in sustainability; to promote innovation; to reduce consumption of primary raw materials; and to reduce the energy consumption embodied in the manufacture of products for which recycled materials can be used. Determining the reduction in energy consumption would be extremely complex, involving detailed study of manufacturing processes, energy inputs, and material inputs, as well as data on product outputs and sales. Such a study is beyond the scope of the project's preparation. Therefore, the project sets targets for volumes of recycled material, but not for associated energy savings and avoided emissions.

The project's work on urban planning and policy is intended to create an enabling environment for achieving the full variety of benefits of sustainability, including reductions in traffic congestion, landfill burdens, and GHG emissions. The quantitative GHG-reduction impact of successful creation of this enabling environment is not separable from activities conducted within the enabling environment. Therefore, the calculations presented here do not include any additional savings specifically attributable to planning and policy, beyond what has already been described above in the sections on lighting, transport, and hotels.

Summary of targeted GHG emissions reductions

Sector/Activity	Direct GHG emissions reduction (tonnes CO ₂)	Consequential GHG emissions reduction (tonnes CO ₂)	Total GHG emissions reduction (tonnes CO ₂)
Lighting	30,000	Not calculated	30,000
Transport (promotion of proper tire inflation)	20,000	30,000	50,000
Transport (fuel efficiency standards, incentives)	294,000	618,000	912,000
Hotel management	22,500	Not calculated	22,500
TOTAL	366,500	648,000	1,014,500

Annex J, Supplement 1. Public Lighting in Turkmenistan by Type and Region

1.1 Inventory of street lighting for Ashgabat

Ashgabat consists of six districts. A dedicated department of street lighting provides for planning and servicing of the whole system of outdoor lighting, including streets, squares, and parks.

Inventory of outdoor lighting in Ashgabat

№	District	Lamp post (fixture) type																Torchieres		Suspended lights	Total light points (lamps)
		1-socket post		2-socket post		3-socket post		4-socket post		5-socket post		6-socket post		16 -socket post		24-socket post					
		Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)		
1	Bakhtyyarlyk	2798	2798	2196	4392	51	153	60	240									239	928	298	8809
2	Kopetdag	3766	3766	2362	4724	325	975	123	492	135	675	47	282	14	224	3	72	2698	9344	881	21435
3	Berkarar	3431	3431	635	1270			62	248	28	140	4	24					487	1044	725	6882
4	Archabil	3923	3923	4938	9876			23	92			2	12					2963	3923	2110	19936
5	Abadan	776	776	137	274																1050
6	Rukhabat	1215	1215	235	470															75	1760
7	Ahal Velayat	444	444	1028	2056															1398	3898
Total		16353	16353	11531	23062	376	1128	268	1072	163	815	53	318	14	224	3	72	6387	15239	5487	63770

1.2 Inventory of street lighting in Awaza

In Awaza, there is no specialized enterprise for technical servicing of street lighting. Technical servicing is carried out via the effort of specialists of agencies to whom the given street lighting belongs -- in particular, the Awaza committee, the municipal administration, the Ministry of Communal Services, and enterprises that operate the electric network.

Inventory of street lighting in Awaza

No	Street	1-socket post (12 meters tall)	2-socket post (12 meters tall)	4-socket torchiera	5-socket torchiera (4 meters tall)	6-socket torchiera	Total light points (lamps)
1	Ashgabat Street	24	60		226		1274
2	Arkadag Avenue- Deizchiler Street	12	14		86		470
3	Arkadag Avenue	54	61		150		926
4	Arkadag Avenue – Oguzkhan Avenue – Khazar Street		41		79		477
5	Arkadag Avenue – Shagadam Street		12		82		434
6	Makhtumkuly Avenue – Shagadam Street – Dekhistan Street	28					28
7	Oguzkhan Avenue – Tolkun Street – Dekhistan Street				89		445
8	Oguzkhan Avenue – Dekhistan Street	9	23				55
9	Berkarar Avenue – Oguzkhan Avenue – Karakum Street	13	20		93		518
10	Karakum Street	18	8		76		414
11	Shagadam Street – Dekhistan Street	64			215		1139
12	Makhtumkuly Avenue	11	17				45
13	Berkarar Avenue		12		45		249
14	Oguzkhan Avenue	27	22		167		906
15	Oguzkhan Avenue – Dekhistan Street	7	24		87		490

No	Street	1-socket post (12 meters tall)	2-socket post (12 meters tall)	4-socket torchiera	5-socket torchiera (4 meters tall)	6-socket torchiera	Total light points (lamps)
16	Berkarar Avenue – Makhtumkuly Avenue – Dekhistan Avenue				74		370
17	Arkadag Avenue – Deizchiler Street				75		375
18	Oguzkhan Avenue – Deizchiler Street	15	10		68		375
19	Arkadag Avenue – Tolkun Street	9	13		76		415
20	Oguzkhan Avenue – Tolkun Street	15	14		81		448
21	Arkadag Avenue – Makhtumkuly Avenue	4	38		97		565
22	Makhtumkuly Avenue – Dekhistan Street	11	16		89		488
23	Ashgabat Street	7			105		532
24	Dostluk Street		18		112		596
25	Charlakly Street	49	22		107		630
26	Yelkenly Street	43	17		117		662
27	Artificial bridges			288			4320
28	Embankment lighting			1452			16520
29	Eastern platinum [?]						103
30	Small bridge					16	96
31	Fountain park	215					215
32	Territory of park of Hotels Serdar and Nebitschi	96					96
33	Flag Square			14			56
34	Perimeter lighting						128
35	Green plantings	170			217		1255
Total		901	463	1754	2613	16	22235

1.3 Street lighting in each district of each velayat

In districts, the inventory is broken down by site type (street, park, etc.). All of the data are summarized in one summary table. In the velayats as in Awaza, there is no specialized agency for technical servicing of street lighting. Technical servicing of street lighting is carried out by enterprises to which the given street lighting belongs – especially the communal services agency of the municipal administration, and enterprises responsible for electric networks.

Street lighting inventory for the velayats (regions) of Turkmenistan

№	Velayats and the capital city Ashgabat	Two-socket lamppost		Single-socket lamppost		Torchiere		Total light points (lamps)
		Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	
1	Ahal	5464	10928	11733	11733	549	2099	24760
2	Balkan	3376	9234	7848	8353	5672	22732	40319
3	Dashoguz	3097	6168	10085	9880	3338	9188	25236
4	Lebap	2756	5015	8803	8129	2851	7509	20653
5	Mary	2430	4860	9925	9925	711	1984	16769
6	Ashgabat	11531	23062	16353	16353	7264	24355	63770
Total		28654	59267	64747	64373	20385	67867	191507

Street lighting inventory for Ahal Velayat

№	Addresses	Two-socket lamppost	Single-socket lamppost	Torchieres				Total light points (lamps)
				3-socket	4-socket	5-socket	10-socket	
1	Bakharly District	1985	329	0	4	0	0	4315
2	Gokdepe District	1666	4387	0	268	0	0	8791
3	City of Tejen	51	1409	80	0	0	0	1751
4	Tejen District	0	804	0	0	0	0	804
5	Babadaikhan District	176	330	0	0	0	0	682
6	Altyn Asyr District	161	917	29	15	0	0	1386
7	Sarakhs District	0	628	0	0	0	0	628
Total		5464	11733	115	431	0	3	24760

Street lighting inventory for Balkan Velayat

№	Addresses	2-socket lamppost		Single-socket lamppost		Torchieres		Total light points (lamps)
		Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	
1	City of Khazar	76	152	476	476	45	135	716
2	Makhtumkuly District	0	0	732	732	29	87	819
3	Bereket District	205	388	872	846	0	0	1234
4	Yesenguly District	106	212	975	975	25	25	1212
5	Gumdag District	101	202	360	360	274	669	1231
6	Etrek District	141	282	92	92	0	0	374
7	City of Turkmenbashy	1304	2614	2463	3120	3891	20408	25502
8	City and District of Serdar	2747	5462	2141	2107	1408	1408	9011
Total		3376	6892	5801	5649	1781	2324	14597

Street lighting inventory for Dashoguz Velayat

№	Addresses	2-socket lamppost		Single-socket lamppost		Torchieres		Total light points (lamps) Number of lampposts
		Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	
1	City of Dashoguz	1263	2526	5532	5343	1116	2860	10729
2	City of Koneurgench	686	1372	455	443	82	82	1897
3	Koneurgench District	122	244	393	393	294	882	1519
4	Gurbansoltanezhe District	67	120	148	145	353	996	1261
5	S. A. Nyязov District	1	2	115	115	227	522	639
6	Suburban tracts of the city of Dashoguz	287	574	161	160	0	0	734
7	Boldumsaz District	163	322	645	645	238	668	1635
8	Rukhbelent District	95	190	167	167	138	297	654
9	Akdepe District	126	252	272	272	27	90	614
10	Gorogly District	75	142	633	633	570	1970	2745

№	Addresses	2-socket lamppost		Single-socket lamppost		Torchieres		Total light points (lamps) Number of lampposts
		Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	
11	S. Turkmenbashy District	40	80	1480	1480	122	260	1820
12	Gubadag District	172	344	84	84	171	561	989
Total		3097	6168	10085	9880	3338	9188	25236

Street lighting inventory for Lebap Velayat

№	Addresses	2-socket lamppost		Single-socket lamppost		Torchieres		Total light points (lamps) Number of lampposts
		Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	
1	City of Turkmenabat	1509	3018	4344	4438	1575	4197	11455
2	City of Seydi	221	450	696	696	132	312	1049
3	City of Magdanly	261	261	60	190	321	156	
4	Farap District	119	242	991	991	53	70	1163
5	Sakar District	51	102	104	104	85	198	240
6	Sayat District			277	277	232	669	509
7	Garabekevul District	79	158	352	352	66	129	497
8	Khalach District			170	170	25	65	195
9	Atamurat District			514	222	80	244	594
10	Serdarabat District	11	22	295	295			306
11	Garashsyzyk District	23	46	9	9	119	401	151
12	Galkynysh District	85	170	194	194	24	72	303
13	Birata District			196	196	121	121	317
14	B. Turkmebashy District	64	69	259	239			323
15	Khozhambaz District	5	10	637	181	42	84	684
16	Koytendag District			99	99	23	31	122
17	PosGarlyk	491	982			346	1038	837
18	Dovletly District	98	196	101	101			199
Total		2756	5015	8803	8129	2851	7509	18216

Street lighting inventory for Mary Velayat

№	Addresses	2-socket lamppost		Single-socket lamppost		Torchieres		Total light points (lamps) Number of lampposts
		Number of lampposts	Number of light points (lamps)	Number of lampposts	Number of light points (lamps)	Number of posts	Number of light points (lamps)	
1	City of Mary	710	1420	962	962	385	1228	2057
2	Mary District	440	880	1508	1508			2388
3	City of Bayramaly	525	1050	977	1221	56	168	1632
4	Bayramaly District			723	723			723
5	Yoloten District	58	116	156	156			272
6	Sakarchage District	30	60	402	402			462
7	Vekilbazar District	207	414	1062	1062	11	44	1520
8	Murgab District	509	1018	1026	1026	18	54	2098
9	Tagtabazar District	52	104	345	345	59	95	544
10	Garagum District	28	56	108	108			164
11	Turkmengala District		152	82	82			234
12	Serkhetabat District			674	674			674
13	Altyn Sakhra District	68	136	168	168	150	464	736
14	Oguzkhan District			108	108			108
Total		2627	5406	8301	8545	679	2053	13612

Inventory of types of lamps

All street lighting is carried out with lamps of the following types: DNiT-150W, DNiT-250W, DNiT-400W, DRL-125, DRL-250, DRL-400. In modernization of street lighting in Ashgabat, 140W LEDs and 210W LEDs are used. For lighting of sidewalks, 70-159W metal-halide lamps, 250W metal-halide lamps, 400W metal-halide lamps, and 1000-2000 metal-halide lamps are used, as well as incandescent lamps.

**Annual electricity consumption for street lighting, defined based on results of the street lighting inventory (Thousand kWh per year),
presented by region by year**

Region / Year	2013	2014	2015
Awaza	8716	9886	9976
Ashgabat	63249	65968	66887
Ahal	8617	9026	10199
Balkan	6200	6278	6362
Dashoguz	7395	7941	10580
Lebap	7861	8437	8567
Mary	10434	14061	18136
All of Turkmenistan	112471	121597	130707

Expected operating lifetime of fixtures and lamps, as well as the annual volumes of replacement (number of fixtures and lamps that are replaced, cost)

2.1. Expected operating lifetime of fixtures and lamps

A great volume of work is devoted to replacing streetlamps in Ashgabat. In 2017, the Asian Indoor and Martial Arts Games are planned for the city. In order to prepare, all streets and avenues are being modernized, and old lampposts and fixtures are being disassembled. In place of these, modern lampposts and fixtures are being installed, including those that use LEDs. As a result of this modernization, the number of light points is not being reduced, because old light points are being replaced by new ones. The number of installed LED fixtures at this moment cannot be determined, as work is ongoing. In Awaza, there was no previous street lighting. This tourist site was built in the past five years, and therefore all streets, parks, and squares are new, with new lampposts and fixtures. LEDs are widely used.

2.2. Overall annual cost of technical servicing of the street lighting system of Ashgabat

Overall cost of servicing street lighting	Unit	Actual cost in 2013	Actual cost in 2014	Actual cost in 2015	Confirmed cost in 2016
	Thousand manat	12038,3	16439,50	19593,66	21558,07

Annex K. Additional Agreements

STANDARD LETTER OF AGREEMENT BETWEEN UNDP AND THE GOVERNMENT FOR THE PROVISION OF SUPPORT SERVICES

Dear Mr. Batyrmurad Orazmuradov,

1. Reference is made to consultations between officials of the State Committee for Environmental Protection and Land Resources of Turkmenistan (hereinafter referred to as “the Government”) and officials of UNDP with respect to the provision of support services by the UNDP country office for nationally managed programmes and projects. UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.
2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.
3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:
 - (a) Identification and/or recruitment of project personnel;
 - (b) Administration of project personnel (Payroll, banking administration, extensions, entitlements etc.)
 - (c) Payments to vendors and project personnel;
 - (d) Issue/Apply deposits;
 - (e) PCA reports review and certification;
 - (f) F10 Settlement;
 - (g) Identification and facilitation of training activities;
 - (h) Procurement of goods and services;
4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project, the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.
5. The relevant provisions of the Standard Basic Assistance Agreement between the Government of Turkmenistan and the United Nations Development Programme signed on 05 October 1993 (the “SBAA”), including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the annex to the programme support document or project document.
6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.
7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the programme support document or project document.
8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.
9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

10. If you are in agreement with the provisions set forth above, please sign and return to this office two signed copies of this letter. Upon your signature, this letter shall constitute an agreement between your Government and UNDP on the terms and conditions for the provision of support services by the UNDP country office for nationally managed programmes and projects.

Yours sincerely,

Signed on behalf of UNDP Turkmenistan

Elena Panova
Resident Representative

For the Government

Mr. Batyrmurad Orazmuradov

Chairman of the State Committee for Environmental Protection and Land Resources of Turkmenistan

“ _____ ” _____ 2017

Attachment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to consultations between UNDP office in Turkmenistan; the institution designated by the Government of Turkmenistan and officials of UNDP with respect to the provision of support services by the UNDP country office for the nationally managed project “*Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza*” (Project ID: 00081872), “the Project”.

2. In accordance with the provisions of the letter of agreement signed on _____ and the project document, the UNDP country office shall provide support services for the Project as described below.

3. Support services to be provided:

Support services	Schedule for the provision of the support services	Cost to UNDP of providing such support services per case/person in USD	Number of case	DPC Total Amount in USD
1. Human Resources				
a) TOR review and post classification + creation	3 rd and 4 th quarter 2017	34.35	25	515.25
b) Advertisement	3 rd and 4 th quarter 2017	92.22	25	1,383.30
c) Short-listing (including long-listing)	3 rd and 4 th quarter 2017	184.44	25	2,766.60
d) Writing test preparation (questions)	3 rd and 4 th quarter 2017	53.57	25	803.55
e) Writing test arrangement and administration	3 rd and 4 th quarter 2017	91.4	25	1,371.00
f) Test Evaluation	3 rd and 4 th quarter 2017	88.83	25	1,332.45
g) Interviewing	3 rd and 4 th quarter 2017	184.44	25	2,766.60
h) Reference check	3 rd and 4 th quarter 2017	40.06	25	600.90
i) Review recruitment case	3 rd and 4 th quarter 2017	25.85	25	387.75
j) Contract issuance	3 rd and 4 th quarter 2017	72.22	25	1,083.30
k) Recurrent personnel management services: staff payroll & banking administration & management (for whole contract period)	3 rd and 4 th quarter 2017	353.27	25	5,299.05
l) Payroll validation, disbursement	3 rd and 4 th quarter 2017	123.64	25	1,854.60
m) Extension, promotion, entitlements	Yearly	105.98	25	1,324.75
n) Leave monitoring	Yearly	17.66	25	110.38
o) Leave monitoring - Absence data management in Atlas only	Yearly	5.7	25	35.63

Support services	Schedule for the provision of the support services	Cost to UNDP of providing such support services per case/person in USD	Number of case	DPC Total Amount in USD
p) Staff HR & Benefits Administration & Management (<i>one time fee, per staff. Services incl. contract issuance, benefits enrollment, payroll setup - this price applies to the separation process as well</i>)	Yearly	160.8	25	1,005.00
2. Finance				
a) Payment to vendor and staff	Quarterly, yearly	29.85	2000	17,910.00
- Urgent payments to vendor and staff (within 1 day)	Ad hoc	59.7	15	268.65
- Urgent payments to vendor and staff (within 3 day)	Ad hoc	37.31	20	223.86
b) Issue check only (Atlas Agencies only)	Ad hoc	12.82	120	461.52
- Issue check only (Atlas Agencies only - within 1 day)	Ad hoc	25.64	20	153.84
- Issue check only (Atlas Agencies only - within 3 days)	Ad hoc	16.03	20	96.18
c) Vendor profile only (Atlas Agencies only)	As per the working plan	15.44	250	1,158.00
d) Journal Voucher or General Ledger Journal Entry (GLJE)	Quarterly, yearly	35.67	50	535.05
e) PCA reports review and certification	As per the working plan	25.8	200	1,548.00
f) F10 Settlement	As per the working plan	24.82	250	1,861.50
g) Issue/Apply Deposits Only	As per the working plan	16.36	45	220.86
3. Procurement				
a) Procurement not involving CAP - below US\$ 50,000				
-Identification and selection	As per the working plan	282.29	500	35,286.25
- Issue Purchase Order	As per the working plan	41.95	500	6,292.50
- Follow-up	As per the working plan	41.95	500	5,243.75
b) Procurement process involving CAP (and/or ITB,				

Support services	Schedule for the provision of the support services	Cost to UNDP of providing such support services per case/person in USD	Number of case	DPC Total Amount in USD
RFP, requirements) - above US\$ 50,000)				
- Identification & selection	As per the working plan	489.45	50	7,341.75
- Contracting/Issue Purchase Order	As per the working plan	104.07	50	1,561.05
- Follow-up	As per the working plan	107.07	50	1,338.38
c) Consultant recruitment	As per the working plan			0.00
- Advertising	As per the working plan	36.11	50	451.38
- shortlisting and selection	As per the working plan	157.13	50	1,964.13
- Contract issuance	As per the working plan	72.22	50	902.75
d) Procurement involving RACP (goods, services & consultant > US\$150,000)				
- Identification & selection	As per the working plan	582.33	9	1,310.24
- Contracting	As per the working plan	60.67	9	136.51
- Issue PO	As per the working plan	41.95	9	113.27
-Follow up	As per the working plan	60.67	9	136.51
e) Asset disposal (without CAP)	By the closure of the project	28.77	9	64.73
f)Asset disposal involving CAP	By the closure of the project	229.4	3	172.05
4. Admin Support				
a) Issue/Renew IDs (UN LP, UN ID, etc.) _UPL	3rd and 4th QTR 2017	40.1	20	160.40
b) Registration for stay in TKM	As per the working plan	71.83	100	1,436.60
c) Custom Clearance-Diplomatic cargo	As per the working plan	332.46	20	1,994.76
d) Visa request (excl. government fee)	As per the working plan	59.55	150	1,786.50
e) Hotel Reservation	As per the working plan	17.63	150	477.00
f) Transportation Voucher Arrangement	As per the working plan	10.14	150	528.90
g) Ticket request (booking, purchase)	As per the working plan	71.79	150	2,153.70
h) Travel Authorization	As per the working plan	27.12	150	813.60
i) Miscellaneous Letters	As per the working plan	12.55	150	1,255.00
Total DPC				119,999.25

Total amount for support services shall not exceed 119,999.25 USD.

4. Description of functions and responsibilities of the parties involved:

As the national implementing partner, the **State Committee for Environment Protection and Land Resources of Turkmenistan** (SCEPLR) will oversee all aspects of project implementation. SCEPLR is responsible for the protection of ecosystems, protection of surface and underground water resources and monitoring the environment and natural resources, and climate monitoring. In addition, it carries out environmental assessments of various projects. The SCEPLR structure includes 5 velayat (provincial) Environmental Protection agencies, The National Institute of Deserts, Flora and Fauna (NIDFF), Ecological control service. Among other tasks, provincial administrations units of the SCEPLR supervise the wastewater monitoring and control water use permit. They carry out systematic review and assessment of the environment in Turkmenistan, and develop standards for pollution control. SCEPLR will appoint a senior staff member to serve as the National Project Coordinator (NPC), who will be the lead individual responsible for overseeing the project.

Overall governance of the project will be carried out by the **Project Board**, which will include SCEPLR, other national agencies including the Ministries of Agriculture and Water Economy, Economy and Development, Foreign Affairs, National Committee on Hydrometeorology, Institute of Desert, Flora and Fauna, Research Institute of Water Management, Institute of Livestock Management, Velayat and Etrap (Administrative and Territorial Units at Provincial level) and UNDP. The Project Board may invite other agencies to join as members, with the roster to be definitively set and approved no later than the project's inception period. The National Project Coordinator will serve 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. Additional meetings may be called as needed by the NPC.

UNDP will join SCEPLR in managing the project and providing quality assurance, in accordance with plans approved by the Project Board. Most of UNDP's work for the project will be based in its Country Office (CO) in Ashgabat, under the supervision of the Programme Specialist for Environment and Energy and other senior programme staff, including the UNDP Resident Coordinator and Deputy Resident Coordinator as warranted. UNDP will also engage contractors to carry out Midterm and Final Evaluations of the project. The UNDP Regional Technical Advisor, based in the UNDP Regional Service Centre in Istanbul, will provide technical support, assistance with coordination, and overall project monitoring to ensure consistency with expectations from UNDP and GEF. The day-to-day operations of the project will be carried out by five full-time project staff, headed by the **Project Manager**. The Project Manager will be responsible for carrying out the activities of the project as set forth in this Project Document and any revisions approved by the Project Board. At least one month in advance of the start of each project year, the Project Manager will prepare Annual Work Plans. These plans will be reviewed and approved by the Project Board and thereafter will be used by project staff as tools for planning, implementing, and tracking work flows. In addition, for each meeting of the Project Board, the Project Manager will prepare a full status report on project activity, including recent accomplishments, risks, and proposed mitigation measures. The Project Manager will also be responsible for preparing all required annual reports for UNDP and GEF.

UNDP country office staff will assist the Project Manager in all the administrative work of the project, including logistics and clerical work. In addition, the country office will provide administrative support to the Government with regard to various specific administrative functions, whose costs will be billed as Direct Project Costs according to this Letter of Agreement.

Responsibilities of other entities of the Government are set forth in the table below.

Stakeholders/Partners	Roles and responsibilities	Involvement Plan and mechanisms
State Committee for Environment Protection and Land Resources of Turkmenistan	National implementing partner. Will provide overall project oversight and coordination with national initiatives and strategies regarding water management. Will join UNDP project team in leading design and execution of all project components at both national and velayat levels (including demonstration/investment projects for climate resilient agriculture and pasture management, as well as etrap climate adaptation action plans and national policies).	Chair of Project Board. Will join UNDP project team in leading design and execution of all project components at both national and velayat levels (including demonstration/investment projects for climate resilient agriculture and pasture management, as well as etrap climate adaptation action plans and national policies).
Ministry of Agriculture and Water Economy	Responsible for design and delivery of all project activity at the farm level, as well as accompanying training for farmers. Participate in development of national, regional, and local action plans on sustainable agricultural and land management. Will coordinate all connections between the project and local farmers' associations. Will provide overall project oversight and coordination with national initiatives and strategies regarding water management. Will join UNDP project team in leading design and execution of all project components at both national and velayat levels (including demonstration/investment projects for low-water irrigation, municipal water supply, and canal linings, as well as regional action plans and national policies).	Project beneficiary, Member of the project Board, participation in project design of pilot activities
National Committee on Hydrometeorology under the Cabinet of Ministers of Turkmenistan	Monitoring, O&M of observation network, preparation of drafts of regulations related to hydro-meteorological activities	Project Advisor
Ministry of Economy and Development	Support design and delivery of all project activity. Ministry will provide support especially in projects related to infrastructure and scaling up of investment activity. Will be responsible for ensuring implementation on NEPAAM	Member of the Project Board. Manage institutional structures for NEPAAM implementation
Institute of Desert, Flora and Fauna	Conservation and sustainable use of desert ecosystems and their resources	Project advisor
Research Institute of Water Management	Research on water quality and quantity issues	Project advisor
Institute of Livestock Management	Will participate in the design, implementation and valuation of the pilot of the livestock association in the desert pastures, provide technical input for the assessment of ecosystem values of natural pastures in the pilot etraps	Will participate in the design, implementation and valuation of the pilot of the livestock association in the desert pastures, provide technical input for the assessment of ecosystem values of natural pastures in the pilot etraps

Stakeholders/Partners	Roles and responsibilities	Involvement Plan and mechanisms
Velayat (Administrative and Territorial Units at Provincial level)	Oversight and support for the implementation of the vulnerability assessment and planning, implementation and monitoring of the participatory adaptation plans in the pilot etrap.	Member of the Project Board
Etrap (Administrative and territorial unit at district level)	Direct participation in adaptation planning, implementation and monitoring of farmer and livestock association adaptation plans.	Implementing partner and member of etrap coordinating committees
Gengesh (local government bodies)	Support for agriculture and livestock associations adaptation planning and implementation. Member of etrap coordinating committee	Member of etrap coordinating committee
Daikhan (Farmer) and Livestock Associations	Participation and decision making at all stages of all activity related to agriculture, irrigation, drainage, and sustainable land and pasture management in the pilot entraps. For demonstration projects, formal letters of understanding outlining mutual commitments will be jointly prepared and signed.	Project implementers and direct beneficiaries
Daikhan farms	Participation as part of the pilot daikhan associations that also include a few daikhan farms. These farms will be directly involved at all stages of all activity related to agriculture, irrigation, drainage, and sustainable land and pasture management in the pilot entraps. For demonstration projects, formal letters of understanding outlining mutual commitments will be jointly prepared and signed.	Project implementers and direct beneficiaries
Daikhan Bank	The Daikhan Bank will be the key financial institution for providing credit funding to the pilot daikhan associations for implementation of the participatory adaptation management plans	Financial Institution supporting credit facilities for daikhan associations and daikhan farms

XIII. ADDITIONAL ANNEXES

Annex L. Gender Mainstreaming Analysis and Action Plan

Annex M. Co-financing letters

Annex L. Gender Mainstreaming Analysis and Action Plan

Socioeconomic context

The population of Turkmenistan is estimated at 5.2 million^{10,11} people (50.2 % women), with 26.7 % reported to be younger than age fourteen years old. Over the past two decades, the population has been growing steadily, especially in the capital city of Ashgabat and other cities. (See Section II, Development Challenge, for more details.)

Since 2007, Turkmenistan's GDP has grown by almost 3.7 times. The GDP per capita in purchasing power parity terms has increased by 1.9 times and in 2012 exceeded the generally accepted threshold for countries with high average incomes. It is expected that by 2020, the per capita GDP of Turkmenistan will continue to increase by 1.5 times. In recent years, socially oriented budget expenditures have remained at more than 75% of the budget. The economy is intensely centred on oil and gas, which comprised more than 90 percent of national exports in 2011.¹² In response the Strategy 2030¹³ states the strategic goals for diversification of economy, reducing the hydrocarbon reliance and achieving sustainable, inclusive growth. Given that more than half of the population lives in rural areas, about 48 percent of the workforce is involved in agriculture, making it to be an important sector of economy that requires state support. A diversified economy also implies expanding the role of the private sector, which is expected to contribute 70 percent of GDP by 2020, up from 40 percent in 2010.

Steady socio-economic growth has also contributed to Turkmenistan's ranking of 103rd out of 186 countries in the global human development index in 2014,¹⁴ and placing the country in the medium human development category.

National policies on women's rights and gender equality

Turkmenistan is signatory to 10 core human rights treaties and their Optional Protocols, has undergone the Universal Periodic Review of the Human Rights Council, and has ratified all eight of the International Labour Organization's Fundamental Conventions.

During the past decade, significant progress has been made in national legislative reforms and the adoption of a number of international human rights instruments. Amendments made in the Family Code (2007) provided an important legal basis for ensuring observance of the principles of equality, safeguarding human rights of women and girls, and promoting violence-free relations in family settings.

On January 2015 the Government adopted a National Action Plan for Gender Equality (NAPGE) as a major policy document articulating state priorities for the achievement of gender equality. NAPGE has prioritized 14 areas requiring specific state attention and measures to be implemented within the period of 2015-2020. NAPGE stipulates the achievement of 'gender equality through coordination of the activities of state power and administration, local executive and representative bodies, public associations aimed at preventing discrimination based on sex and creating conditions for a more complete realization of personal potential of women and men in all spheres of life'.

The implementation of NAPGE is closely aligned with the strategic development goals of the country, defined in the key National Programmes,¹⁵ which are focusing on the enhancement of living standards as the primary goal of social development – implemented through a mix of economic and social policies- (1) increasing the middle class through new, more attractive private sector jobs, expanded employee training and re-training, and higher incomes; and (2) fostering a decline in the number of disadvantaged and vulnerable people, through increased and better targeted social assistance and higher-quality social service.

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¹⁰ Committee on the Elimination of Discrimination against Women, Consideration of Reports Submitted by States Parties under Article 18 of the CEDAW, Combined Third and Fourth Periodic Reports of States Parties (CEDAW/C/TKM/3-4).

¹¹ Results of a recently conducted population census have yet to be released; the Government states that the number has increased.

¹² World Bank. Diversified Development: Making the Most of Natural Resources in Eurasia. Washington, D.C., 2014.

¹³ National Program for socio-economic development of Turkmenistan for 2011-2030

¹⁴ UNDP, Human Development Report 2014, Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience NY, 2014

¹⁵ "National Program for socio-economic development of Turkmenistan for 2011-2030", "Program of President of Turkmenistan on the socio-economic development for 2012-2016", "National Program of President of Turkmenistan on the social and living conditions in villages, towns, cities, districts and district centers for the period up to 2020"

discrimination based on sex and creating conditions for a more complete realization of personal potential of women and men in all spheres of life’.

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The Law on State Guarantees for Equal Rights and Opportunities of Women and Men, adopted with new amendments in August 2015, provides another important breakthrough, particularly in the area of violence against women. The Article 22, stipulating ‘state responsibilities for prevention and protection the rights of women and men from violence in family settings, in all cases of violence- physical, psychological, or any form of harm to the person,’ represents an official legal recognition of the existence of a phenomenon of violence against women and forms a basis for state measures to end impunity and prevent/respond/protect the cases of violence.

Turkmenistan’s commitment at the highest level for gender equality was reaffirmed by the President in his Statement during the 70th Session of the UN General Assembly in September 2015, where he has specifically emphasized that the achievement of gender equality is an ‘eminent goal’ and its implementation is a ‘mutual responsibility’ of all partners in the country. In the light of this high commitment, two significant policy and legislative documents were adopted in 2015 by the Government, providing important legal and policy ground for advancing the work on gender equality.

Observations of the CEDAW Committee on conditions and policies in Turkmenistan

The progress made on legislation and policies to promote gender equality has been highly commended by the CEDAW Committee. At the same time, it has been noted that further state efforts are necessary to ensure substantive gender equality, such that *de jure* equal rights are practically translated into *de facto* equality outcomes. There is a challenge of ‘general lack of awareness about the concept of substantive gender equality’ and ‘that women themselves, especially those in rural and remote areas, are not aware of their rights, and thus lack the necessary information to claim their rights’¹⁷

The CEDAW Committee noted its serious concern that ‘violence against women appears to be socially legitimized and accompanied by a culture of silence and impunity, and that cases of violence are therefore underreported, it being considered a private issue that should remain within the family’¹⁸ This concern has been confirmed by the findings of a survey¹⁹ stating that about 38 percent of women aged 15-49 believe that a husband/partner is justified to hit or beat his wife/partner. The survey highlighted significant differences in responses by regions: only 10 percent of respondents in Ashgabat felt that beating was justifiable, while the figure reached 62 percent in the surrounding Ahal velayat. There has been also a correlation between wealth and education levels and the belief on justifiable violence – 43 percent of the poorest group versus 13.6 percent of the richest group, and 41.3 percent of those with no more than secondary education versus 20 percent of the group with higher education.

Support for small and medium-scale entrepreneurship is one of priority areas supported by the government for promoting diversification of the economy. The Law ‘On state support For Small and Medium Entrepreneurship (SME)’ stipulates a mechanism of state support to SME, creation of conducive financial, investment, and technical conditions for stimulating entrepreneurship, creation of job opportunities, increase in competitive capacity of locally produced goods and services, and strategic use of SMEs in socio-economic development of the country. The Law proclaims equal access of all citizens to the measures of support to SME. Further analysis is needed, however, to assess the real access of different groups of women/men from urban and rural settings to the opportunities provided by the Law and subsequent policy actions. The CEDAW Committee has raised a concern ‘that 52.8 per cent of women work in the informal sector, and in the rural areas they constitute 65.3 per cent,’²⁰ indicating a risk of women being exposed to discrimination and unsafe working environments and excluded from social protection schemes. The highest proportion of working women in the formal sector is in sectors where wages are low, and where they often constitute the lower ranks of employees.

¹⁶ "National Program for socio-economic development of Turkmenistan for 2011-2030", "Program of President of Turkmenistan on the socio-economic development for 2012-2016", "National Program of President of Turkmenistan on the social and living conditions in villages, towns, cities, districts and district centers for the period up to 2020"

¹⁷ Ibid

¹⁸ Committee on the Elimination of All Forms of Discrimination Against Women. Concluding Observations: Turkmenistan, 2012

¹⁹ MICS Survey, Turkmenistan, 2006

²⁰ Committee on the Elimination of All Forms of Discrimination Against Women. Concluding Observations: Turkmenistan, 2012

Other issues

Primary education is widely available in Turkmenistan, enrollment for both sexes of at least 97 per cent and literacy rates for both sexes above 99 percent. Higher education is rather well developed and expanding in various fields, including language, economics, medicine, agriculture, science, and engineering. In 2014 representation of women in education was 34.1% of female students in higher education; 50.1% of female teachers in higher education; and 47.5% of female students in vocational training institutions²¹.

State measures²² in the area of education are reflected in the policy documents on ‘Strengthening the system of education’ (2007); ‘Increase of salaries in the education sector and of student stipends’ (2007); and ‘Improvement of the teaching and educational system’ (2007). These policies encompass measures for creation of a comprehensive national model of general professional and higher education in accordance with international standards. Further policy and institutional strengthening efforts are necessary. One initiative to improve both quality and inclusiveness is Child-Friendly Schools (CFS). More than 100 schools already use the CFS certification package, which includes a comprehensive set of standards, indicators and school-based assessments²³.

Lack of high-quality sex-disaggregated data represents a challenge for evidence-based policymaking with regard to gender. A database for gender statistics (GenStat) has been introduced in Turkmenistan to assess gender development in the country representing 1,537 indicators in the areas of population, health care, physical education and sports, education and science, social welfare, work and employment, and households.²⁴ However, GenStat statistics are not available to the public, while its accessibility and availability ‘are necessary for an accurate assessment of the situation of women, to determine whether they suffer from discrimination, as well as for informed and targeted policymaking and for systematic monitoring and evaluation of progress achieved toward the realization of women’s substantive equality’²⁵

The ongoing process of localizing of SDGs to the context and development priorities in Turkmenistan is another important entry point for to ensuring that globally defined gender goal and targets are well localized and aligned with urgent gender priorities related to ensuring substantive equality in the areas of, women’s political, social, economic rights, equal access economic opportunities and health, education and social services, the rights to live in culturally and socially harmonious environment and be free from any form of violence.

Joint work between the UN and the Government of Turkmenistan on gender issues

The United Nations is working with the Government of Turkmenistan on development of a joint programme consistent with key national priorities noted above, in support of the efforts of national partners in both state and non-state sectors in the implementation of commitments for gender equality. Several UN agencies, including UNDP, are participating in the development and implementation of the joint programme. The work is envisioned in three phases: first, planning and resource mobilization; second, implementation; and third, knowledge management and full handover of program responsibilities to national entities. The joint programme is also consistent with the core directions of the current UN Partnership Framework Document with the Government of Turkmenistan.

- Quality data, aligned with international standards, are available to policy makers, legislators, and the interested public to monitor the major goals of National Programmes, the post-2015 SDGs, and PFD, and to formulate new national strategies and programmes
- Pre-school, primary and secondary education services are of higher quality, in line with international standards, and with priority given to inclusive education
- The social protection system is ready to provide inclusive quality community-based support services
- The people of Turkmenistan, especially vulnerable groups, enjoy better coverage of quality health care services focusing on women and child health
- Strategies and simplified regulations are in place to promote inclusive employment through sustainable economic diversification

²¹ Ibid

²² National Report on Analytical Review of the achievements and challenges during the implementation of the Beijing Platform of Actions and Outcome documents of the 23 special session of the UN General Assembly 2000) for the period since 1995, Turkmenistan, June 2014

²³ UNICEF Country Programme Document, Turkmenistan, June 2015

²⁴ Committee on the Elimination of All Forms of Discrimination Against Women. Combined Third and Fourth Periodic Reports, op.cit.

²⁵ Committee on the Elimination of All Forms of Discrimination Against Women. Concluding Observations: Turkmenistan, 2012

- State institutions implement and monitor laws, national programmes, and strategies in a participatory manner and in line with the country's human rights commitments

Gender equality and the new project on sustainable urban development

The new UNDP-supported, GEF-funded project on sustainable urban development will be carried out in the context of this joint programme on gender equality and women's empowerment.

The development challenge of project – fulfilling the potential for sustainable urban development in Turkmenistan, thereby measurably reducing the impacts of urban growth while also advancing social and economic development goals – is broadly relevant to both sexes, in all age groups in the general population. In turn, the impacts of the project in terms of environmental quality and reduced traffic congestion, and various outcomes achieved in transport, lighting, waste, and overall planning are also expected to be fully inclusive of women and children as well as men.

Further examination of the project's theory of change and its proposed activities reveals various areas in which gender dimensions need to be taken into special account.

Data collection and analysis, especially with regard to transport. While some areas of project activity such as street lighting are truly universal in how they affect all citizens without regard to gender, transport has various dimensions that may affect men and women unequally. Measures to reduce the use of private cars and increase public transportation may have differential effects, to the extent that men and women show different rates of car ownership and public transportation ridership. But data are essentially absent with regard to gender dimensions of transport. Therefore the project will conduct comprehensive studies before and during its implementation of transport-related activities, in order to maximize effectiveness and ensure gender-inclusivity.

Engagement of women in program development. In addition to collection of data, the project will also ensure gender-relevance and gender-inclusivity in its activities by engaging women in the development and implementation of activities – including those targeting professionals (such as the policy, planning, and management work of Activities 1.3 on urban sustainability plans, 2.1 on hotel management, and 3.2 on national policy), as well as those targeting the general public (Activity 1.2 on transport in Ashgabat and Activity 1.4 on municipal waste and recycling). This engagement will involve inclusion of women as national experts (where possible), recipients of training, and members of advisory groups.

Informational outreach. The project will make an effort to reach both men and women equally with its informational outreach, including both training for professionals and promotional activity among the general public. Women will be depicted equally in program materials, with a special attention to ensure equal portrayal in areas such as motor vehicle operation and maintenance, where stereotypes might more strongly assume male roles. (Women do operate cars fairly widely in Ashgabat, but statistics are, as noted above, unavailable).

Risks

With proper data-driven program design as noted above, the gender-related risks of the project should be minimal or absent. There do, however, remain certain possibilities to consider.

** Bicycle transport and women's attire.* Turkmen women, even in cities, most commonly wear traditional long dresses that do not allow for effective bicycle riding. Therefore it would be expected that benefits of expanded bicycle lanes and increased safety might apply more to men than to women. The project will deal with this issue first by showing respect for women's autonomy in their choices of dress and transport. Materials produced by the project will show both women riding bicycles in practically appropriate attire, and women in traditional dress taking other modes of alternative transport.

** Ride-sharing and safety.* As noted in the main narrative of the Project Document, hailing rides from strangers (hitchhiking) with on-the-spot agreement on fees is quite common even among women passengers in Turkmenistan and indeed throughout Central Asia. Citizens seem to have negligible concerns about the safety of this practice. Still, in its promotion of carpooling, the project will not encourage such informal hitchhiking, but rather specifically sharing of rides among people already acquainted with each other, with shared starting points and destinations. This will apply especially to shuttle services for employees of large agencies and enterprises.

Gender Mainstreaming Action Plan

Activities and outputs related to gender are enumerated below in the project's Gender Action Plan.

Table G.1. Gender Action Plan

Outcome: <i>Motorists in Ashgabat choose buses, bicycles, carpooling, and high-efficiency vehicles over solo driving</i>						
Gender-related activity	Indicator	Target	Baseline	Budget (USD, indicative)	Timeline	Responsibility
<i>Design of e-passes, map updates, and a mobile app for bus riders (Activity 1.2.B)</i>	Number of female bus riders who use new electronic payment system, updated maps, and mobile app	New maps used by all riders (at least 200,000 individuals), at least half of whom are women and girls (100,000). New electronic payment system and app used by at least 7,000 women.	No tools available to women nor men	270,000	New tools available by third year of project. Assessment of progress toward target complete by time of Terminal Evaluation	Project Manager, team for sustainable transport
<i>Public behavior-change campaigns (Activity 1.2.C)</i>	Number of women and girls reached by behavior-change campaigns	At least 400,000 people, at least half of whom are women and girls, exposed to public-information campaigns from project (via street advertising, mass media, etc.)	No such campaigns conducted at present	400,000	Outreach launched by end of first project year and continuing to end of project	Project Manager, team for sustainable transport, team for public relations and outreach
<i>Data collection and analysis (Activity 1.2.D)</i>	Studies of automobile use and bus ridership completed, including assessment of gender dimensions	Initial study completed by end of first project year; midterm study completed by end of third project year; final study completed by end of project	Minimal data available from state sources, with no study of gender dimensions	45,000	See target	Project Manager, team on transport, national consultants
Outcome: <i>Waste reduction and expanded recycling in Ashgabat</i>						
Gender-related activity	Indicator	Target	Baseline	Budget (indicative)	Timeline	Responsibility
<i>Delivery of public information and guidance materials (Activity 1.4.A)</i>	Number of women and girls reached by informational materials on waste reduction	At least 200,000 people, at least half of whom are women and girls, exposed to public-information campaigns from project (via street advertising, mass media, etc.)	No such campaigns conducted at present	100,000	Outreach launched by end of first project year and continuing to end of project	Project Manager, team for sustainable transport, team for public relations and outreach

Gender-related activity	Indicator	Target	Baseline	Budget (USD, indicative)	Timeline	Responsibility
<i>Piloting of residential waste sorting (Activity 1.4.B)</i>	Number of women and girls participating in pilot residential waste sorting	At least 10,000 people in one microdistrict of Ashgabat, at least half of whom are women and girls, participating in pilot residential waste sorting program	No pilot program exists at present	90,000	Pilot project launched by end of second project year, and implemented through fourth project year, with complete written assessment thereafter	Project Manager, national consultant on waste management, microdistrict administration
Outcome: Sustainability is officially integrated into planning and management of all of Turkmenistan's major cities and of hotels in Awaza						
Gender-related activity	Indicator	Target	Baseline	Budget (indicative)	Timeline	Responsibility
<i>Capacity-building of planners, officials, and facility managers in Awaza</i>	Number of women receiving training	At least 20 women receive training in planning and management for sustainability	No training currently delivered	90,000	Training delivered annually starting in first full year of project	Project Manager, team on hotel management, including international consultant
Total budget allocation (indicative):					\$995,000	

Annex M. Co-financing letters

Please see it in separate attachment.