United Nations Development Programme
Country: Pakistan
PROJECT DOCUMENT

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

UNDAF Outcome(s): Improved living conditions through environmental management for sustainable development.

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Strengthened national capacities to mainstream environment and energy concerns into national development plans and implementation systems

UNDP Strategic Plan Secondary Outcome: Countries develop and use market mechanisms to support environmental management.

Expected CP Outcome(s): Institutional strengthening and capacity development of environment governing institutions to support regulatory frameworks addressing Pakistan's environmental challenges.

Expected CPAP Output (s): Environment mainstreamed across the development sector plans and programmes

Implementing Partner Ministry of Environment
Responsible Partners: Government of Punjab (P&D Department)
Government of Sindh (Transport Department)
Ministry of Industry and Production

Brief Description

The objective of the project is to reduce the growth of the energy consumption and related greenhouse gas emissions from the transport sector in Pakistan, while simultaneously improving urban environmental conditions and improving Pakistan's trade competitiveness by 1) creating an enabling investment environment for sustainable urban transport; 2) creating an institutional and policy framework that is supportive of urban transit development; 3) improving the fuel efficiency of trucking freight transport; and 4) increasing awareness and capacity in Pakistan on sustainable transport.

Programme Period:	2010 - 2015
Atlas Award ID:	00058561
Project ID:	00072773
PIMS #	3953
Start date:	1 October 2010
End Date	31 December 2015
Management Arrangements	NIM

Total resources:	$ 78,020,000
• GEF	$ 4,800,000
• UNDP	$ 3,000,000
• World Bank	$ 2,000,000
• JICA	$ 2,300,000
• Government	$ 64,360,000
• Provinces and Cities	$ 1,560,000
In-kind contributions	

Agreed by (Economic Affairs Division): As per over leaf.

Agreed by (Ministry of Environment):

Agreed by (UNDP):

Toshihiro Tanaka
Country Director
United Nations Development Programme
Islamabad, Pakistan

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ACRONYMS

Acronym	Meaning
ADB	Asian Development Bank
BAU	Business-as-usual
BRT	Bus Rapid Transit
CDA	Capital Development Authority
CDGK	City District Government of Karachi
CDGL	City District Government of Lahore
CDM	Clean Development Mechanism
CERs	Certified Emissions Reductions
CP	Country Programme
CPAP	Country Programme Action Plan
CSR	Corporate social responsibility
DCO	District Coordination Office
EE	Energy Efficiency
EIAs	Environmental Impact Assessments
EMPs	Environmental Management Plans
ENERCON	National Energy Conservation Center (under the Ministry of Environment)
FERTS	Fuel Efficiency in the Road Transport Sector (UNDP-GEF Project completed in 2005)
GEF	Global Environment Facility
GHG	Greenhouse Gases
GJ	Gigajoules
GoP	Government of Pakistan
HDIP	Hydrocarbon Development Institute of Pakistan
IFC	International Finance Corporation (of the World Bank Group)
IPDF	Infrastructure Program Development Facility (administered by MoF)
IUCN	International Union for the Conservation of Nature
JICA	Japan International Cooperation Agency
JP	Joint Programme (under "One Program")
MDG	Millennium Development Goals
MoC	Ministry of Communications
MoE	Ministry of Environment
MoF	Ministry of Finance
MoIP	Ministry of Industry and Production (formerly Ministry of Industry, Production and Special Initiatives
MTDF	Medium Term Development Framework
NGOs	Non Government Organizations
NTRC	National Transport Research Center (under the MoC)
PDD	Project design document
PjPG	Punjab Provincial Government
PjTD	Punjab Provincial Transport Department
PMO	Project Management Office
Pro-Doc	UNDP Project Document
RDA	Rawalpindi Development Authority
SMEs	Small and Medium Enterprises

Acronym	Meaning
SPG	Sindh Provincial Government
STD	Sindh Provincial Transport Department
SRO	Standing Regulatory Order
TJ	Tera joules
ToE	Tonnes of oil equivalent
ToR	Terms of Reference
UNDP	United Nations Development Programme
UU	Urban Unit (under the Punjab Provincial Government's Planning & Development Department)
WB	World Bank

1. SITUATION ANALYSIS

Context and Global Significance

1. Pakistan's economy has experienced steady growth since 2000; the 9.0% GDP growth in 2004 and 2005 was second only to China's 10.1% GDP[1]. This growth has been accompanied by rising urbanization, higher incomes and affluence, an increase in the private ownership of motor vehicles, and urban congestion. The consequences of urban transport congestion in Pakistan are having a direct bearing on sustainable development in terms of:

   - the livability of urban areas that is deteriorating;
   - economic growth that is constrained by urban transport inefficiencies;
   - foreign exchange reserves that decrease with the increased consumption of imported fuels; and
   - Poverty alleviation where lower income households who rely on public transport are disproportionately impacted by increased urban congestion.

2. Pakistan's population was estimated to be 164.64 million in 2009 with an annual growth rate of 1.69%[2]. The country also has one of the most urbanized populations in Asia with an estimated 57.14 million urban citizens in 2008 or 35% of its population (up from 31% in 1990)[3]. The largest cities in Pakistan (Karachi (15.1 million[4]), Lahore (8.5 million[5]), Rawalpindi/Islamabad (2.78 million[6])) have an estimated population of 26.38 million inhabitants and an annual population growth rate of 2.4%. More than 70% of the national industrial sectors are located in the urban areas[7]. Conversely, the rural and small town proportion of Pakistan's population has decreased from 71% in 1990 to 65% in 2008.

3. The growth of urban centers and associated issues to improve urban mobility has posed a number of challenges for the GOP. In general, government responses to improve urban traffic flows have been to construct more roads and overpasses to assist private car owners. The current road density[8] in Pakistan is 0.32km/km^2. The network of roads increased from 170,000 km in 1990 to 260,200 km in 2009 to accommodate the increasing numbers of motor vehicles; there is concern, however, within a number of government agencies over the lack of planned interventions to effectively reduce urban commute times as well as improve urban air quality. While the increased number of roads and overpasses projects has improved traffic flows in several cities, the growth of the number of vehicles in Pakistan has increased traffic volumes to the extent that urban commute times are still increasing. Clearly, the strategy of increasing road capacity is not sustainable.

4. Compounding the growth in the number of vehicles on Pakistani roads was the GoP-supported financing scheme initiated in 2000 under which motor vehicles could be purchased with down payments less than 10% and at concessionary interest rates 8% below commercial rates; the financing scheme was closed in 2008. The popularity of this scheme, however, was a primary factor behind the increased number of motor vehicles in Pakistan from 2.7 million in 1990 to 6.4 million in 2009, an increase of over 100%[9]. Over this same period, private vehicle ownership has increased from 0.7 million to 1.5 million vehicles, an increase of 114%. Recent data on registered motor vehicle ownership in Karachi shows an increase from 1.36 million in 2005 to 1.70 million in 2007, an average of 450 vehicles being added daily to an already congested road system[10]. In Lahore, the increase has been similar with 1.25 million vehicles

[1] Government of Pakistan, Economic Survey 2009-10

[2] Economic Survey of Pakistan 2008-09.

[3] Asian Development Bank (ADB). 2008. Key Indicators for Asia and the Pacific, 39th Edition - 2008.

[4] Paper on CNG Bus Project 19 June 2009 by Karachi Mass Transit Cell, CDGK

[5] Punjab Development Statistics 2006

[6] Feasibility study of Islamabad/Rawalpindi Rapid Mass Transit system

[7] Asian Development Bank (ADB). 2005. Key Indicators 2005

[8] Government of Paktsan, Economic Survey of Pakistan 2009-10

[9] Government of Pakistan, Economic Survey 209-10

[10] Office of the Excise & Taxation, Motor registration Wing, Civic Centre Karachi, CDGK and the Transport and

in 2005 to 1.7 million in 2008, an average of 400 vehicles being added daily to Lahore's road system[11].

5. Overall CO_2 emissions in Pakistan are estimated to have risen from 80 million metric tons in 2003 to 147.8 million metric tons in 2008[12] and are expected to more than double by 2020 to 250 million tons in a business-as-usual scenario, with a 6.3% annual growth rate. In 2008, the entire transport sector was responsible for 30% of the total energy consumption in Pakistan. As such, it is also a significant contributor to GHG emissions with an estimated 26.7 million tonnes CO_{2eq} in 2003 and 37.1 million tonnes CO_{2eq} in 2008. By 2020, GHG emissions from the entire transport sector could be as high as 66.6 million tons CO_{2eq} if there are no GHG mitigation interventions in the sector and assuming 5% growth in the transport sector. Use of CNG in transport sector, as cleaner fuel, has been the priority of the government and Pakistan is currently the largest CNG user country in the world with 3116 established CNG stations and 2.4 million vehicles using CNG. However, scarcity of the indigenous gas available is one of the major constraints in this regard.

Threats and Root Causes

6. The root cause of *degrading urban mobility* in Pakistan has been the *absence of enabling policies to facilitate sustainable urban transport development and market transformation to energy efficient motor vehicles*. The consequence of this absence has been:

- lack of sustained investments in public transport;
- increasing reliance by most urban citizens either on their private motor vehicles or the informal transport sector for urban transport;
- decreased urban mobility from overcrowded roadways and a lack of organized parking spaces resulting in longer commute times and reduced opportunity for productive work, education or social activity;
- declining urban livability due to increased vehicle emissions, noise pollution and degradation of the urban landscape;
- continued operation of outdated and fuel inefficient commercial vehicles, buses and trucks, on marginal incomes and a lack of proper maintenance increasing the consumption of fossil fuels, raising vehicular pollution levels and increasing public safety risks;
- adverse impacts on global economic related activities including increased cost of freight through urban areas; and
- Exposure of Pakistan to externalities of world prices for fossil fuels.

7. GOP's investment into public transport has historically been low. Demand for public transport along several urban transit corridors in Pakistan is serviced to a large extent by operators who have gained route permits and the informal sector. This includes smaller transporters who operate energy inefficient and highly polluting buses and mini-vans reflecting to some extent, the lower incomes of the users and the areas that they serve. Since these operators are marginally profitable, their vehicles are often operated in a dangerous manner, driven at high speeds and competing with other transporters for fares and road space.

8. There are increasing demands within provincial and city governments to transform urban transit towards environmentally friendly modes that are economically viable, environmentally friendly and energy efficient. This will lead to outcomes of decreased commute times, improved urban environmental conditions and a lower trajectory growth of GHG emissions. Pakistan's largest urban centers, notably Karachi, Lahore and Rawalpindi-Islamabad, have responded to these demands by preparing mass transit solutions since 1990. None of these solutions, however, has been implemented.

9. Pakistan's healthy economic growth between 1990 and 2008 has led to *significant increases in road freight traffic*. Pakistan's freight transportation system can be characterized as: 1)

Communication Dept under CDGK

[11] Excise & Taxation, Urban Unit, P&D Dept, Gov of Punjab

[12] Based on energy consumption figures (in TOE) from Pakistan Energy Yearbook 2008, Ministry of Petroleum & Natural Resources, Hydrocarbon Development Institute of Pakistan (HDIP)

dominated by road transport with a share of 94% of all the freight[13], while the opportunities for more energy efficient rail transport are clearly underutilized; 2) being comprised mainly of trucks that are more than 30 years old that are highly energy inefficient; and 3) a trucking industry that is highly competitive leading to dangerous transport practices and overloading that damage Pakistan's road assets. In 2005, there were over 293,000 cargo trucks operating in Pakistan[14]. The increases in road freight transport have been one of the primary causes of the country's congested transport system, adversely impacting Pakistan's trade competitiveness and impeding sustainable economic growth.

10. To ensure Pakistan's trucking sector remains competitive and has formal access to finance, the GOP declared the trucking sector as a formal industry in January 2008 and adopted a "Trucking Policy" prepared under the auspices of the Ministry of Industry Production and Special Initiatives (MoIPSI)[15]. While the Policy defines a number of activities for the trucking industry to meet various objectives of sustained fuel efficiency and efficient delivery of services, current issues and barriers in meeting the objectives of the Policy include:

- Lack of a strategic plan to implement the Policy;
- Lack of strong supporting institutions to regulate the industry towards increased fuel efficiency and sustained viability;
- Lack of understanding of the true environmental, social, health and economic costs and benefits of truck fleet modernization;
- Lack of a financing mechanism design that can be adopted to modernize trucking fleets, and to determine if any subsidies are required to facilitate adoption;
- General lack of awareness of good driving habits and maintenance practices;
- Financial and technical assistance resources to accelerate adoption of the policy.

Barrier Analysis

11. Notwithstanding the LRT and BRT studies and project plans for Karachi and Lahore completed since the 1990s, there are currently no mass transit systems in any of Pakistan's cities. Barriers and issues to implementing modern public transit systems in Pakistan include:

i. *Lack of sustained institutional coordination for public transport development.* The institutional landscape for developing and managing urban transport issues is fragmented with no clear responsibilities between federal, provincial and city district governments. Past efforts have been hampered by a lack of coordination and communication, notably between the provincial governments and city district governments. This lack of institutional coordination has been exacerbated by the uneven capacities of the institutions involved. For Pakistan's three main cities, institutional arrangements for urban transport are as follows:

   - In Karachi, the City District Government of Karachi (CDGK) with their Mass Transit Planning Cell has the capacity to plan BRT and LRT studies with numerous studies undertaken since 1990. The Transport Department of the Sindh Provincial Government (SPG) was created in 2008 to properly regulate public transport through enforcing motor vehicle laws and incentivizing private sector investment in the transport sector. The capacity of the SPG Transport Department, however, is limited by a lack of qualified personnel;
   - In Lahore, the Punjab Provincial Government of (PjPG) assigns their Urban Unit (UU) under the Planning and Development Department (Punjab P&D) to undertake urban transit planning functions. While the UU have developed the best capacities within the PjPG to manage urban transit planning, the City District Government of Lahore (CDGL) and the Lahore Transit Company (LTC) will implement urban transit projects; their capacities will require considerable strengthening to implement urban transit projects;

[13] Pakistan Transport Plan Study, Final Report, NTRC/JICA, March 2006

[14] Pakistan Transport Plan Study, Final Report, NTRC/JICA, March 2006, page 3-21

[15] http://www.engineeringpakistan.com/EngPak1/truckingpolicy.php

- In Islamabad/Rawalpindi, the Capital Development Authority (CDA) is taking the lead to plan and implement urban transit projects for the twin cities area. This includes Rawalpindi whose urban transit issues fall under the jurisdiction of the Rawalpindi Development Authority (RDA) under the PjPG. The capacity of the RDA, however, is weak and poorly resourced;
- Regional and provincial transport authorities and provincial transport departments. These agencies oversee vehicle fitness and licensing. Their capacities to regulate the fitness of motor vehicles plying the roads are considered weak and under-resourced.

ii. *Absence of a comprehensive urban transport policy.* Without strong institutional coordination and framework, there are no formal approaches or policy drivers to encourage sustainable urban transport development. Past attempts to formulate national transport policies with significant urban transport components were not completed due to various financial and political reasons including:

- Drafting of a "National Transport Policy" by the Ministry of Communications (MoC) in June 1998. The Chartered Institute of Transport Pakistan (CIT) was commissioned for this work which was never completed;
- the World Bank funded "Transport Sector Development Initiative" that assisted the MoC in 1999 and 2000 with the establishment of a national transport policy board, creation of a unified Ministry of Transport and the formulation of incentives for private sector investment;
- The Small-to-Medium Enterprise Development Authority (SMEDA) under the MoIPSI was tasked by the GOP in March 1999 to develop a national transport strategy to improve efficiency in the transport sector. The strategy included a vision for "an integrated efficient and economically sustainable market driven quality urban transport system that will meet the 21st century needs of the citizens of Pakistan, support rapid economic development and protect the environment"[16];
- In 2003, GOP requested ADB to provide TA funds to assist the GOP in drafting a comprehensive "National Transport Policy". A project had been designed to incorporate institutional reform measures that will improve governance over the entire transport sector[17]. The ADB has deferred the TA; and
- In 2006, the NTRC (under the MoC) prepared a "Pakistan Transport Plan Study" that identified the elements of a national transport policy consistent with the Medium Term Development Framework 2005-2010 (MTDF)[18] with assistance from JICA.

iii. *Lack of capacity for holistic planning for integrated urban transit.* In general, government stakeholders have been under-exposed to international best-practices for integrated urban transit planning and demonstrated urban transit models with financial mechanisms that profitably sustain a transport operation. Current approaches to resolving urban transit issues are related to technology-driven solutions without due regard to broader and integrated approaches that ensure successful adoption of the technology. Examples include:

- the past LRT and BRT studies in Karachi and Lahore where the LRT and BRT lines were planned in isolation without consideration to feeder routes, operational costing, environmental and social impacts, formulation of realistic business cases for private sector participation and estimates of subsidies;
- The federal CNG bus program being managed under ENERCON where buses procured by the federal government are to be leased to private sector operators through commercial banks. Progress has been problematic since 2007 due to:
  - uncertainties regarding the completion of proposed operational CNG fueling stations;
  - failure to involve existing bus operators and the trade-in of old buses for new buses;

[16] Draft National Transport Strategy, SMEDA, Ministry of Industry, Production & Special Initiatives, March 2000

[17] ADB TA document TAR 38028 for "Technical Assistance to the Islamic Republic of Pakistan for Transport Policy Support, September 2004, www.adb.org/Documents/TARs/PAK/tar-pak-38028.pdf

[18] Medium Term Framework 2005-2010, Planning Commission, Government of Pakistan, May 2005

- weak regulatory control over securing and controlling bus routes;
- reluctance of commercial banks to be involved in bus leasing schemes; and
- Lack of reliable estimates of subsidies to sustain the program.

iv. *Insufficient regulatory control over municipal growth.* There is a lack of technical specialists within the Provincial and City District governments who can manage engineering, legal and urban planning issues for urban transit. With the exception of Islamabad, the consequence of this lack of capacity is that most city district governments in Pakistan are unable to control the growth of their jurisdictions. This has led to encroachments along main transport corridors, congested traffic flow around construction sites, poorly maintained roads, the lack of secure and organized parking spaces, and no lane markings on roads. The uncontrolled growth of these urban areas has led to the growth of urban road networks that are inadequately designed, poorly maintained and located in areas with poor drainage;

v. *Weak traffic management.* With the exception of Islamabad, the urban traffic of many cities consists of a heterogeneous mix of pedestrians, horse carts, three-wheeler auto-rickshaws, private motor vehicles, taxis, buses and trucks. Traffic laws are poorly enforced on most congested routes with virtually no facilities for the safe passage of pedestrian and non-motorized vehicular traffic. Women, children and elderly citizens in particular, are adversely impacted. Furthermore, provincial authorities responsible for traffic management (such as the Traffic Engineering Planning Agency under the Punjab Provincial Government) need to be strengthened to implement traffic demand management measures such as synchronized lighting in large cities such as Lahore;

vi. *Inability of current bus operators to modernize their assets.* Exacerbating the lack of policy and an enabling investment climate for public transportation equipment and infrastructure, most bus operators have financed their operations through informal channels (i.e. credit from family or close friendships). As such, they are unable to access formal credit sources to finance vehicle upgrades;

vii. *Low awareness of sustainable urban transport.* Most citizens are unaware of sustainable transport concepts especially existing transport operators. More importantly, there has been little or no outreach to existing urban transport operators to discuss alternatives to the current urban transport scenario. They likely view mass transit concepts such as BRT and LRT as a threat to their livelihoods since they are unaware of the benefits to their own operations.

12. There is wide stakeholder acceptance of the Trucking Policy. A number of actions, however, are required to implement the Policy to meet various objectives of fuel efficiency and global competitiveness. Current issues and barriers towards implementing the Policy include:
    - lack of a strategic action plan to prioritize and sequence specific actions to implement the Policy;
    - weak supporting institutions to regulate the industry towards increased fuel efficiency and sustained viability;
    - lack of understanding of the true environmental, social, health and economic costs and benefits of truck fleet modernization;
    - lack of a financing mechanism design that can be adopted to modernize trucking fleets, and to determine if any subsidies are required to facilitate adoption;
    - general lack of awareness of good driving habits and maintenance practices;
    - Financial and technical assistance resources to accelerate adoption of the policy.

Stakeholders Analysis and Baseline Analysis

13. The key stakeholders for the PAKSTRAN project include:

    - The Government of Pakistan:

- Planning Commission (PC) provides the oversight for Pakistan's public development programme in tandem with the Ministry of Finance (MoF). This includes the planning of the public transport infrastructure;
- ENERCON or the National Energy Conservation Center is under the administration of Ministry of Environment (MoE) and serves as the national focal point for energy conservation and energy efficiency activities in Pakistan. MoE is responsible for policy formulation in the prevention and control of pollution as well as the sustainable use of natural resources;
- The National Transport Research Center (NTRC) is under the administration of the Ministry of Communications (MoC) and conducts research and development for planning and appraisal of transport projects and plans throughout Pakistan, such as in the promotion of inter-city transport policies and strategies;
- The Hydrocarbon Development Institute of Pakistan (HDIP) is under the administration of the Ministry of Petroleum and Natural Resources (MoPNR) and provides research and technical support services in support of the design of national policies for hydrocarbon exploration and usage in Pakistan;
- Ministry of Industry Production (MoIP) (formerly the Ministry of Industry Production and Special Initiatives) is mandated to facilitate industrial growth through setting of policies, facilitating public-private partnerships and showcasing Pakistan capacity to international markets;

- The Provincial Government of Punjab (PjPG):
  - The Urban Unit (UU) is under the administration of the Planning and Development Department (PjP&D) of the PjPG. Its serves as the advisory unit to PjP&D for planning within urban sectors such as urban planning, transport and municipal finance;
  - The Transport Department (PjTD) of the PjPG is responsible for public transport policy, transport planning and licensing of all commercial vehicles and public transport services[19];
  - The Lahore Transport Company (LTC) is a not-for-profit company under the PjTD responsible for planning, providing, operating (through its members), enforcing and regulating urban public transit in the City of Lahore.

- The Provincial Government of Sindh (SPG):
  - The Transport Department (STD) of the Provincial Government of Sindh (SPG) has a mandate similar to the STD in the regulation of public transport as well as freight transport through the implementation of motor vehicle laws, encouraging private sector investment, and initiating efficient transport schemes and programs;
  - The Karachi Mass Transit Cell (KMTC) is under the administration of the City District Government of Karachi (CDGK), and has been a focal point for the preparation and study of mass transit solutions for the City of Karachi.

- The Capital Development Authority (CDA) is the oversight agency that manages, maintains and plans Islamabad's municipal infrastructure. This includes the planning of the expansion of the city and its future urban transport needs;

- Academic technical institutions in Pakistan, the most prominent including:

  - National University of Science and Technology (NUST), Islamabad;
  - University of Engineering and Technology (UET), Lahore;
  - National Engineering Directorate (NED), Karachi;
  - Ghulam Ishaque Khan Institute (GIKI), Topi, NWFP.

- IUCN Pakistan. While the mission of IUCN is to promote the sustainable use of natural resources, it has undertaken a significant role in Pakistan to improve urban air quality through the improved management of urban transport;

[19] This unit is also in-charge of freight transport as well as vehicle fitness testing standards etc. The Ministry of Communications is not only responsible for overarching transport policies but also vehicle fitness and inter-city highway engineering standards.

- Lahore Clean Air Commission (LCAC). The LCAC was appointed in September 2006 by the Lahore High Court to propose options to improve urban air quality through improved urban traffic management, use of cleaner fuels and the reduction of vehicular emissions;

- The Pakistan Automotive Manufacturer's Association (PAMA). PAMA members comprise various truck and vehicle manufacturing companies who promote the assembly of new truck models, the majority of whom are based in Karachi;

- Trucking associations, several of which are located in Karachi (e.g. Karachi Goods Carriers Association) and Lahore (e.g. Pakistan Goods Transport Association).

14. Currently, Pakistan's largest cities have poorly regulated public transport systems with severe structural and operational problems that deliver poor quality urban transport services with a high incidence of accidents. There is a lack of technical, managerial and fiscal capacity to deliver safe reliable public urban transport; as a result, organization of existing public transportation is almost non-existent with a wide variance of service quality, and a low public perception of the bus system.

15. Table 1 shows estimates of the number of registered cars and the number of public transportation vehicles in Pakistan's major cities.

Table 1: Estimates of Cars and Public Transportation Vehicles in Major Cities

City	Karachi	Lahore	Rawalpindi
Registered Cars	1.35 million[20]	1.2 million[21]	0.375 million[22]
Taxis	44,011	11,883	4,037
Buses	20,010	23,515	9,105
Minivans	69,135	27,878	11,540
School Buses	175	-	-

16. In response to urban congestion issues, Pakistan's largest urban centers, notably Karachi, Lahore and Rawalpindi-Islamabad, have been preparing mass transit solutions for a number of years. The status of these studies follows:

⇒ Karachi has completed several feasibility studies, implementation plans and design drawings for LRT and BRT systems since 1990 with much of the international technical assistance (namely ADB and JICA) targeted towards the City District Government of Karachi (CDGK). In April 2009, the ADB deferred negotiations for a US$450 million TA and loan for BRT in Karachi pending clarity on implementation arrangements. Other Karachi-related studies include:

- The study on future traffic demand forecast of Karachi city (Oct 2008-JICA);
- Feasibility study and development of transportation control plan of Karachi metropolitan (2007-Transport and Communication Dept., CDGK);
- Karachi strategic master plan 2020 (2007- CDGK);
- Detailed study on public private partnership based environment friendly public transport system for Karachi (Feb 2006-Karachi Mass Transit Cell, CDGK).

⇒ Lahore's transit situation has been studied several times since 1990 with LRT being a preferred mode for study until this year with a new government being formed. The Punjab Provincial Government (PjPG) has stated their intentions to pursue Bus Rapid Transit (BRT) for their mass transit needs[23]. Other Punjab/Lahore-related transit studies include:

- "Lahore Master Transport Plan" completed in 1990 with the assistance of JICA;

[20] Excise and Taxation, Motor Registration Wing, CDGK

[21] Punjab development statistics 2005

[22] Feasibility study of Islamabad/Rawalpindi Rapid Mass Transit system

[23] Personal communication with Secretary, Punjab Transport Department and Secretary, Punjab Planning and Development Department

- "Urban Transport Policy Study for Five Cities of Punjab Province" completed by the Urban Unit (with World Bank assistance) in November 2008[24] and finalized in July 2009[25]. The study identified major problems in the provision of cost efficient and equitable transport services and provided policy, institutional and regulatory reforms to improve delivery of urban transport services for these cities in Punjab;
- Feasibility study on Lahore LRT development (completed in 2007 by the PjPG);
- "Lahore Urban Transport Strategy Paper" completed by the Punjab Transport Department in May 2008 articulating their strategies on institutional reform and strategic plans to address urban mobility and accessibility issues in the city;
- "Punjab Large Cities Project" (PLCP). Currently, the World Bank is preparing a US$350 million TA and loan project for assistance into the institutional re-structuring and strengthening of agencies responsible for the financing and delivery of municipal services including urban public transit;
- JICA is planning to assist the PjPG P&D Department to prepare an updated version of the Master Transport Plan for Lahore City.

⇒ Rawalpindi-Islamabad have recruited an international consulting firm to develop a master transport plan for the cities and include designs for mass and bus rapid transit corridors. The 8-month study to be started in 2009 will assess current traffic use patterns and identify routes for development of BRT and other traffic management measures;

17. With the importance of road freight to Pakistan's overall economy, the GoP declared the trucking sector as a formal industry in January 2008 and adopted a "Trucking Policy" prepared under the auspices of the Ministry of Industry Production and Special Initiatives (now known as MoIP) to improve the performance of the sector. The Policy was the culmination of a number of donor-assisted initiatives to increase the energy efficiency of commercial vehicle fleets including:

- The National Trade Corridor Improvement Program (NTCIP) was adopted by the GOP in 2005 to improve Pakistan's deteriorating trade transport and logistics infrastructure. The WB, ADB and JICA have provided targeted investments into key reforms, infrastructure improvements and operations efficiencies;
- Fuel Efficiency in the Road Transport Sector (FERTS) was executed by ENERCON and implemented and funded through UNDP-GEF between 1996 and 2005. FERTS conducted a number of studies into the improving fuel efficiencies of commercial vehicles including trucks and buses.

18. The primary intent of the Policy is to ensure Pakistan's trucking sector remains competitive by providing the industry with formal access to finance, and to sustain their operations to the extent that their industry becomes competitive. With wide acceptance of the Trucking Policy by all stakeholders, the World Bank is preparing a US$25 million TA and loan package for a Second Trade and Transport Facilitation Project (TTFP-2) as a part of the NTCIP. A US$2.0 million component of the TTFP-2 is targeted for the truck modernization program[26]. Given the number of actions required by the Trucking Policy to modernize the trucking fleet, additional resources are likely required to accelerate implementation of the Policy.

19. In summary, CO_2 emissions in Pakistan from the transport sector were estimated to be 37.1 million tonnes CO_{2eq} in 2008[27]. By 2020, GHG emissions from the transport sector could be as high as 66.6 million tons CO_{2eq} if there are no GHG mitigation interventions in the sector. The baseline analysis indicates that GHG emissions from the transport sector are already more than 38.6 million tonnes CO_{2eq} in 2009 and are expected to increase by at least 5% every year for the foreseeable future. This translates into a rise in direct carbon emissions from transport alone to 49.3 million tonnes annually by 2014 or earlier depending on the growth rate of transport.

[24] http://www.urbanunit.gov.pk/downloads/rt-UTPS5C.pdf

[25] http://www.dawn.com/wps/wcm/connect/dawn-content-library/dawn/news/pakistan/provinces/14-urban-transport-policy-finalised-zj-05

[26] Project Appraisal Document for the Second Trade and Transport Facilitation Project, Report No. 48094-PK, April 10, 2009, page 52

[27] Based on energy consumption figures (in TOE) from Pakistan Energy Yearbook 2008, Ministry of Petroleum & Natural Resources, Hydrocarbon Development Institute of Pakistan (HDIP)

2. STRATEGY

Project Rationale and Policy Conformity

20. A continuation of the "business-as-usual" growth of the transport sector without interventions will be counter to Millennium Development Goals (MDGs) of "ensuring environmental sustainability" (MDG-7) and to develop global partnerships to achieve development. The Pakistan Sustainable Transport Project (PAKSTRAN) will be designed to contribute to the outcomes and outputs of UNDP Pakistan's Country Program (CP). An output of Pakistan's 2004-2008 UNDAF is the "One Program"[28] which defines the CP between 2008 and 2010 through the implementation of five Joint Program (JP) Components, one of which is the JP for Environment. PAKSTRAN will contribute primarily to the outcome and outputs under the Environment JP Component 4 (Sustainable Urbanization) as well as JP Component 1 (Strengthened and Operational Institutional Mechanisms for Integrated Environmental Management). PAKSTRAN will be designed to overcome the widespread use of old technologies, poor management practices, lack of skills in efficient operation of motorized vehicles, inadequate investments in modern vehicles, inappropriate policies, lack of effective regulation and the marginalization of vulnerable populations that have added to the state of degradation of urban areas.

21. There is an overall consensus that the implementation of BRT systems in three main cities, Karachi, Lahore and Islamabad/Rawalpindi will serve as a viable short and medium-term option to improve the efficiency of urban transport mobility. While LRT is also a desired option, it has been relegated to long term plans of these cities due to high capital costs as well as the long lead times[29]. This conclusion is supported by the various government agencies concerned with urban transport. However, the aforementioned barriers mentioned in Para. 11 must be overcome to successfully implement the system. The implementation of an integrated BRT system will support the outputs of JP Component 4: improved baseline data, mechanisms in selected cities for participatory urban environment planning and management, and demonstration activities being implemented and documented.

22. There is also broad consensus that additional assistance over and above the resources of the Second Trade & Transport Facilitation Project (TTFP-2) is required to implement the Trucking Policy. The need stems from the holistic approach outlined by the Policy to modernize the trucking fleet including strengthening the truck "industry" status; motor vehicle registration system, motor vehicle examination systems; axle load management, driver licensing and training; truck resting areas or "trans-freight stations"; trailer manufacturing and separate trailer registration; national standards and specifications for trucks, trailers and semi-trailers; and industrial estates for truck and bus body makers. Fiscal resources and innovative financing mechanisms will need to be designed and implemented to ensure the industry moves towards its goals of increased trade competitiveness and fuel efficiencies.

23. PAKSTRAN falls under the strategic priorities of the GEF, specifically under Operational Program OP11 "Promoting Environmentally Sustainable Transport" and GEF-4 strategic objectives for OP11 projects of market transformation for sustainable mobility for Pakistan's urban areas. The global objectives of the project will be to facilitate GHG reductions through these market transformation activities. As such, urban mobility will improve through modal transport switches from the private automobile to public transit and commercial transport fuel efficiencies will be improved through efforts to modernize the freight trucking fleet.

Country Ownership: Country Eligibility

24. Pakistan's commitment to addressing environmental concerns, specifically in relation to climate change, is well documented. The country ratified the UN Framework Convention on Climate Change on June 1, 1994 and the Government of Pakistan (GOP) submitted the Instrument of Accession of Kyoto Protocol on 11 January 2005.

25. Under the National Conservation Strategy (NCS) devised in 1992, Pakistan has highlighted the importance of energy efficiency and the integration of population and environmental

[28] http://www.undp.org/mdtf/one-un-funds/pakistan/docs/Pakistan_One_Programme.pdf

[29] Personal communication with Director Mass Transit Cell, Karachi and Secretary, Transport Department, PJPG. May-June 2009

programs as important elements of its sustainable development objectives and adopted these as two out of fourteen core areas of implementation.

26. Pakistan has also undertaken a comprehensive inventory of GHG emission sources and sinks for 1994, as well as prioritized feasible mitigation options and formulated a GHG abatement strategy under the GEF/UNDP Asian Least Cost Greenhouse Gas Abatement Strategy (ALGAS) project completed in 1998. This exercise identified cost-effective GHG mitigation options for the transport sector and devised a portfolio of bankable projects on which to base future GHG mitigation projects.

27. Pakistan completed a preliminary update of its national GHG inventory up to 1999-2000[30] and has defined its strategy for addressing climate change concerns through the development of Initial National Communication to the UNFCCC in 2003[31]. The GOP has reaffirmed its commitment to meeting the objectives of the Rio conventions at the World Summit on Sustainable Development held in Johannesburg in 2002.

28. The National Environment Action Plan (NEAP) places a particular focus on clean air as a program objective, and seeks to find cleaner alternatives to fossil fuel based thermal power generation, including wind and solar energy. Under the UNDP-funded NEAP Support Programme (NEAP-SP), assistance for the development of renewable energy resources and promotion of energy efficiency has been specifically pledged under one of the six program objectives to help redress past failures in achieving significant progress in this regard.

Country Drivenness

29. Pakistan does not have a comprehensive urban transport policy. This is in part due to Pakistan's past and partially current pre-occupation of building an extensive road network as a primary solution towards resolving urban congestion and air quality issues. However, with the emergence of urban transport as a critical issue amongst all levels of government, there have been a number of policies and policy formulation initiatives that support sustainable transport principles for urban areas as detailed in Para. 11. Most of these initiatives were not finalized or adopted due to various political and financial reasons.

30. Pakistan's National Environmental Policy (2005) specifically promotes the principles of sustainable transport under their sectoral guidelines for air quality and noise (i.e. regulation of vehicle emissions, enforcing fuel specifications, implementing plans to convert public transport to CNG, phase-out of two-stroke engines, encouraging of cost effective mass rapid transit systems, and promotion of safe passageways for pedestrians and cyclists).

31. From 1996 to 2005, UNDP provided GEF support for the "Fuel Efficiency in the Road Transport Sector" Project (FERTS) through the Ministry of Environment. This project:

    - demonstrated and commercialized the use of digitized tune-up stations as a means to improve the efficiency of fuel in motor vehicles;
    - advanced policy research on transport related issues to increase fuel efficiency; and
    - Setup a revolving loan fund to finance tune-up stations for SMEs.

32. In Pakistan's 2005-2010 Medium Term Development Framework (MTDF), government allocations have been made towards energy and the transport sectors that support a sustainable transport project. In the energy sector, allocations have been made towards expanding the use of CNG in public transit, specifically CNG buses initially to be undertaken in major urban centers; the program will be extended to secondary urban centers based on transportation pollution considerations. The MTDF also defines the energy conservation measures that will focus on identification, demonstration, data gathering and setup of awareness information systems to achieve 250,000 tonnes of oil equivalent of energy conservation.

[30] Khan B; Baig, "Pakistan: Preliminary National Greenhouse Gas Inventory", MAJournal of Applied Sciences and Environment Management, 2003 Dec; 7(2):49-54.

[31] http://unfccc.int/resource/docs/natc/paknc1.pdf

33. The MTDF vision for transport development includes the establishment of an efficient and well integrated transport system to facilitate development of the economy and reduce poverty. The strategies outlined in the MTDF to achieve this vision include development and rehabilitation of the road network as well as incentives for private sector involvement.

34. Currently, the Planning Commission is preparing an "Approach Paper for the 2011-2015 MDTF". The approach paper provides continued support for improving urban mobility and reducing fuel imports through energy efficiency initiatives. The sustainable transport objectives set out in the paper include promoting the use of clean fuel in the transport sector, enforcing traffic regulations to minimize congestion and pollution and proposing a strategy to ensure compliance by trucking industries and private motor vehicles.

35. As detailed in Para. 18, the GOP declared the trucking sector in January 2008 as a formal industry and adopted a "Trucking Policy" prepared under the auspices of the Ministry of Industry Production and Special Initiatives (MoIPSI) (now known as MoIP). This initiative draws on GOP support for the NTCIP and works towards national goals of fuel efficiency in the transport sector.

Alternative Scenario:

36. A proposed GEF alternative to the BAU scenario, which will be facilitated through the proposed PAKSTRAN project, is the implementation and completion of an operational sustainable urban transport (SUT) system in one of Pakistan's largest cities. The impacts of the GEF alternative at the completion of PAKSTRAN would be another two cities in Pakistan implementing sustainable urban transport plans, an 8% increase in the use of public transport systems in these cities, plans for 3 PPPs between freight truck fleets and the Government of Pakistan and a 1% improvement to specific energy consumption in the truck freight transport sector. A 7% reduction in the annual growth rate of GHG emissions from passenger transport 2 years after completion of the project and assuming a modest rate of replication. This will be facilitated through the SUT demonstrations that will be carried out under the project, which are expected to be replicated in the major urban centers in the country. The SUT measures to be demonstrated will be conducted in Pakistan's largest cities, Karachi and Lahore, and possibly others if feasible.

Design Principles and Strategic Considerations

37. Given the history of failed initiatives to develop and implement sustainable transport in Pakistan (such as BRT systems as detailed in Para 11*i*), PAKSTRAN design will focus on demonstrating best practices that are applicable to the Pakistani urban concept and take into account lessons learned and experiences from previous failed initiatives, in developing and implementing an integrated BRT system and programs to modernize the trucking sector. The demonstrations will essentially remove awareness barriers from which relevant information and experiences can be used to remove regulatory, technical and financial barriers.

38. To maximize the probability of PAKSTRAN success, demonstrations for the BRT system and a program to improve fuel efficiency of commercial vehicles will be *holistically planned*, and integrate international best-practices with ongoing transportation planning, public transport investment programs, and truck fleet modernization initiatives. Specifically, the proposed PAKSTRAN approach will:

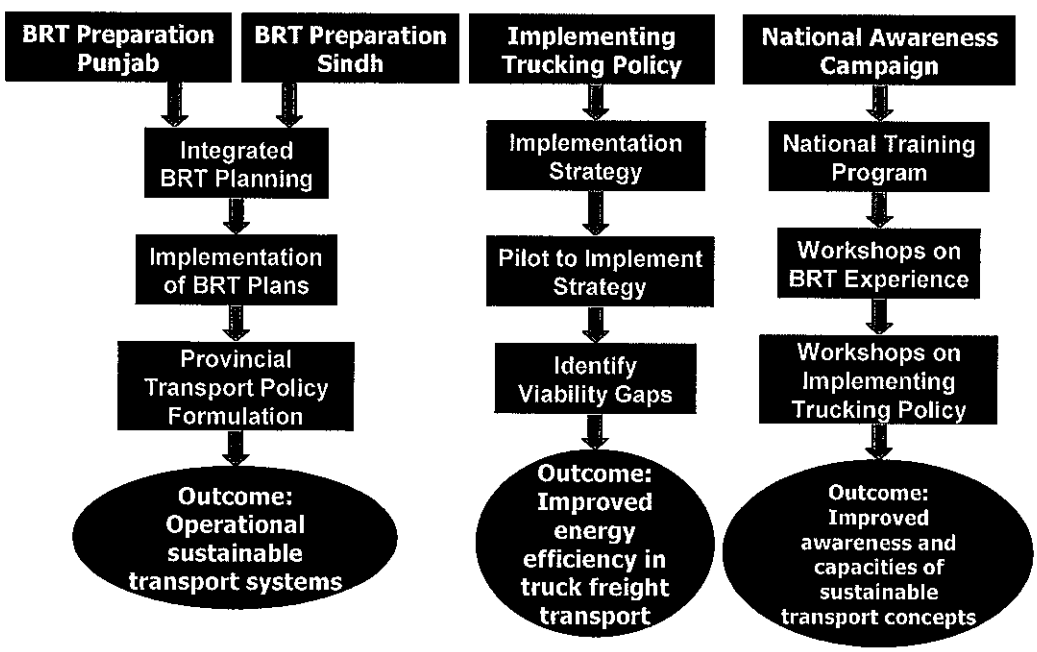
- *Adopt holistic planning approaches towards a successful "demonstration" BRT system.* BRT planning will include space requirements related to land-use planning, physical integration of BRT and feeder routes with the urban transport network, organized parking lots near bus stations, user-friendly transfer points including safe pedestrian walkways between bus stops, economic incentives for commercial development near BRT and main transfer stations, financial sustainability of an integrated BRT system, and outreach and involvement through public-private partnerships;
- *Streamline institutions; strengthen strategic plans and the regulatory policy framework at the provincial level* using BRT project demonstration experiences. PAKSTRAN will

facilitate development of sustainable transport policies and build capacity within responsible provincial agencies to adopt sustainable transport principles in planning. In the case of Pakistan, development of urban transport at the provincial level appears to be the best approach due to the mandate of the Provincial Transport Departments for setting urban transport policies and their access to capital financing from the federal government;

- *Utilize holistic approaches to demonstrate implementation of the Trucking Policy.* Holistic approaches should include innovative financial mechanisms, strengthening supporting institutions and regulations, and the utilization of foreign and specialized expertise. This should lead to an outcome of creating an enabling environment to reduce fuel consumption in the trucking sector at the provincial level;
- *Raise awareness and knowledge levels* of issues related to, and measures to achieve sustainable urban transport and fuel efficiency of commercial vehicles. This will include targeted publicity campaigns and supporting curriculum development in technical and academic institutions;
- *Be adaptively managed* to ensure examples of best practices for holistic urban transport planning and improving commercial vehicle fuel efficiency can be effectively demonstrated, replicated and sustained well after GEF support is withdrawn.

Figure 1 is a flowchart of activities to be implemented on the proposed full project.

Figure 1: Flowchart of Activities during Project Implementation



39. Without GEF-assisted interventions, increases in GHG emissions from the transport sector are unlikely to change. Overall transport related GHG emissions in Pakistan will increase over the next 20 to 30 years. The federal and provincial levels of government will continue its efforts to develop bus or mass transit projects and truck modernization programs without holistic planning and exposure to international best practices.

40. This project is designed to conform to the GEF-4 strategic objectives for sustainable transport projects of market transformation for sustainable mobility for Pakistan's urban areas and for sustainable transport of Pakistan's cargo freight. The global objectives of the PAKSTRAN will be to facilitate GHG reductions through market transformation activities. As such, urban mobility will improve through the use of efficient transport of low carbon intensity including bus

rapid transit and non-motorized modes of transport and increased fuel efficiency of cargo freight trucks.

41. The key guiding principles of the PAKSTRAN design will lead to the realization of operational sustainable transport systems in Pakistan include:

- *Demonstrate a public transit system that competes with private transport and shifts travelers from privately owned vehicles to more efficient and environmentally friendly modes of road travel such as bus rapid transit*. A shift to public buses will need to overcome common perceptions on public transport; owners of personal motor vehicles prefer the use of their vehicles in part to display a higher economic status but also because it is the most efficient option available. Current public transport services currently serve low-income commuters. Few efforts have been made at providing intra-city premium service targeting middle-income commuters; a modal shift of middle-income commuters would result in less private cars on urban roads. Based on consultations with the major stakeholders in the cities, BRT is the most economic option and can be developed within a shorter time frame than other alternatives;

- *Maintaining flexibility to locate the BRT demonstration.* The project should locate the demonstration BRT in a city that has the best probability of success. In this regard, Lahore, Karachi and the twin cities of Islamabad/Rawalpindi have already completed some BRT planning and have some political will for a BRT project to succeed;

- *Integrate affected private urban transit companies into the demonstration BRT system* by:
  - ⇒ facilitating exchanges of old buses for fuel efficient models that will operate on high volume routes such as a new BRT route;
  - ⇒ Shifting operations of some existing bus companies to support feeder routes to transport passengers to the new bus system and BRT routes.

- *Strengthening institutional and regulatory frameworks for SUT investments.* The project will support activities that strengthen the capacities of appropriate government institutions and their regulatory frameworks using the demonstration projects as applied examples for strengthening activities. This will strengthen institutions with regulations that can encourage more SUT investments, sustain their operations and support replication of the demonstrated BRT and other SUT systems throughout Pakistan;

42. Key guiding principles of PAKSTRAN design towards improving the energy efficiency of trucking freight transport include:
- *Prepare a holistic implementation strategy*. Due to the complexity and inherent risks of implementing Trucking Policy activities (i.e. coordination of activities related to strengthening industry status, motor vehicle registration systems, motor vehicle examinations etc.), a modernization strategy needs to be carefully planned; implementation of the strategy will need to involve a pilot activity that is supported by innovative financial mechanisms designed to assist truck owners to modernize their fleets;
- *Pilot should include existing trucking companies trading old trucks for new fuel efficient models*. This may involve a truck fleet in a specific geographic area or in partnership with a specific trucking entity. The pilot will need to be adaptively managed to ensure the best possible outcomes for replication;
- *Real costs and benefits of modernizing the trucking sector should be fully understood*. A study is needed to assess the economic benefits of increased trade competitiveness, improved air quality, reduced road maintenance from overloaded cargo trucks, reduced need to import fossil fuels, and reduced strain on foreign exchange reserves. Such a study will enable government to determine if subsidies and private sector participation are required to successfully implement a truck modernization program.

43. Other key activities that will enhance the sustainable aspects of PAKSTRAN include:
- Awareness programs that provide messaging on specific topics on sustainable urban transport, climate change, transport-related air pollution, and vehicle fuel efficiency;

- Supporting curriculum development in national technical and academic institutes on sustainable urban transport and urban planning;
- Targeted research that will increase the knowledge base of urban and transport fuel efficiency issues and assist in preparing GHG emissions baselines. This will include specific fuel consumption and GHG emissions data for various road transport vehicles used in Pakistan.

Project Goal, Objective, Outcomes and Outputs/Activities

44. The proposed PAKSTRAN project will bring about the reduction of GHG emissions from the Pakistan transport sector by demonstrating SUT measures that improve urban mobility and modernize the trucking fleet for fuel efficient cargo transport, and creating a favorable investment climate for replication of these measures. Moreover, the project will guide the development of the demonstrations through:
    - demonstrating international best practices for the holistic planning and implementation of integrated urban transport systems;
    - strengthening the institutional and policy framework for urban transportation development at the provincial government level;
    - demonstrating international best practices for modernizing the trucking fleet through developing fleet strategies in concert with strengthening of regulatory institutions;
    - creating an investment environment with widespread stakeholder acceptance to sustain modernization of trucking fleets;
    - Raising public awareness and knowledge of issues in sustainable urban transport and fuel efficient transport.

45. PAKSTRAN is comprised of 4 components consisting of complementary activities designed to remove barriers to achieve the project objectives:
    - Outcome 1: An operational sustainable urban transport system in Punjab Province;
    - Outcome 2: An operational sustainable urban transport system in Sindh Province;
    - Outcome 3: Improved fuel efficiency in truck freight transport;
    - Outcome 4: *Increased public awareness and institutional capacity on sustainable transport concepts*

Outcome 1: An operational sustainable urban transport system in Punjab Province.

46. *Output 1.1: Feasibility plans for a demonstration integrated BRT system in a selected city in Punjab Province.* Feasibility plans for a demonstration BRT in a selected city will be developed in coordination with the lead provincial Planning and Development Department agency in Punjab Province, the Urban Unit (UU). The plans will address passenger loads; integrate BRT routes with feeder lines; justify appropriate bus technologies for BRT and feeder routes; provide designs for segregated bus lanes, platforms, fuelling depots, safe pedestrian walkways at interchange bus stops and organized parking spaces near bus stops; and estimate revenue streams and operational costs to determine required subsidies. The city governments of Lahore and Islamabad/Rawalpindi were committed to the implementation of a BRT system for their cities[32]. Bankable feasibility plans for the selected city will be submitted by Year 2 to the "Infrastructure Project Development Facility" (IPDF) managed by MoF to facilitate public-private financing, and to the ENERCON-operated "Environmental Conservation Fund" (ECF) to provide the financial infrastructure for revolving funds to assist financing of city buses by the private sector. Several feasibility plans will be prepared, and these will be evaluated based on a set of financial viability criteria. Those that are found financially feasible will be endorsed for financing to the IPDF. *GEF support is required for the preparation of a bankable feasibility study for a demonstration BRT and the design of a financial scheme for financing city buses by the private sector.*

47. *Output 1.2: Plans for implementing a demonstration integrated BRT system.* The current Punjab Government plans to implement sustainable urban transport consist of adding CNG buses to the current bus fleets together with CNG re-fueling stations in major cities; since

[32] Technical assistance will be provided to one of these cities.

these plans do not include infrastructural investments, they are not likely to succeed in facilitating transport modal switches to public transport. At the time of this writing, Lahore appears to have the highest probability of success for BRT development with city officials identifying Ferozpur Road for development of a BRT corridor with a daily carrying capacity of 80,000 passengers. The latest studies of BRT and LRT in Lahore, however, are only pre-feasibility level studies that require a more holistic approach if they are to be financed. During Years 2 and 3, a capacity building program for the UU and their consultants will be developed and implemented to upgrade the feasibility studies from Output 1.1 to holistic BRT implementation plans for the demonstration BRT system. Technical assistance for preparing implementation plans for the demonstration BRT corridor will include the detailed engineering design of all infrastructure works (i.e. BRT and feeder bus stops, dedicated bus lanes, synchronized lighting, bus depots, fueling stations, etc.), detailed cost estimates of these works, construction planning, and operationalization plans of the completed BRT and feeder system. The plans will also include detailed financing requirements in coordination with the Punjab Transport Department (PjTD) and the appropriate District Coordination Office (DCO). These plans will address the infrastructural and operational issues that were not addressed in the Punjab Government plans, and be of bankable quality for financing[33]. In addition, baseline studies of current GHG emissions from city vehicles will also be prepared. *GEF support is only required for the preparation of the demonstration integrated BRT implementation plans*.

48. *Output 1.3: Infrastructure for a demonstration BRT system.* During Years 3 and 4, the design of the BRT system will be carried out. To ensure proper engineering, construction, operation and management of the BRT system, a capacity development program will be developed and implemented for the staff members of the appropriate city government agency (such as the District Coordination Office in Lahore) and local engineering firms on the abovementioned aspects of BRT system projects. The program will consist of workshops and job shadowing to strengthen participating government agencies and local partner engineering firms in contracting for construction services, procurement of BRT equipment and vehicles, construction quality and scheduling management, managing existing transit operators to migrate their operations to feeder routes, and oversight engineering to setup of appropriate lighting systems along the BRT route. These activities will contribute to increasing the success of the demonstration BRT system. *GEF support is required for all technical assistance to the appropriate city government agencies and local engineering firms to complete construction and procurement of infrastructure and equipment required for the demonstration BRT*;

49. *Output 1.4: An operational demonstration BRT system.* During Years 4 and 5, engineering and construction of the BRT system will be implemented along a selected corridor such as Ferozpur Road corridor with an initial carrying capacity of 20,000 passengers per hour. As the construction is going on, capacity building activities will be designed and implemented for the appointed urban transport agency to build the required human resource capacity to operate, maintain and manage a BRT system based on best international practices available. These activities include conduct of workshops and job-shadowing for driver and mechanic training, and management of maintenance and fuelling depots, as well as TA for BRT system security arrangements, formulation of fare and ticketing policies, marketing sales, and activities for monitoring GHG reductions resulting from BRT usage (possibly using community-based organizations). A focal agency such as the Lahore Transport Company will be targeted for capacity building to implement plans for improving public transport in a selected city.

    A suitable M&E plan will be developed in order to ensure that the expected amounts of CNG savings from the CNG BRT demonstration are realized. This plan will be utilized during the course of the demonstration, not only for the purpose of tracking down how much CNG is utilized, and the specific energy consumption of the BRT buses, but also for gauging the public's acceptance of this transport scheme and its economics. A methodology will be designed for the measurement of specific energy and emission parameters. The utilization of such methodology as well as implementation of the M&E plan will form part of the capacity development under the BRT demonstration. *GEF support is required for all technical*

[33] The arrangements for financing from the private sector and donor community will be carried out closely with IPDF and the ECF.

assistance activities (workshops and job shadowing) to the focal agency to create an operational demonstration BRT system

50. *Output 1.5: Strengthened institutional framework that enables holistic urban transport development.* In Years 4 and 5, a new framework (based on the draft framework of the "Lahore Urban Transport Strategy" and recommendations from the "Urban Transport Policy Studies for Five Cities in Punjab Province"[34]) will be developed, which will propose streamlined reporting lines between all levels of government (federal, provincial and municipal), and specified responsibilities and accountability of each agency. In close collaboration with the UU and PJTD and analysis of the existing institutional framework in the transport sector will be evaluated. This will also involve the analysis of various options for appropriate implementation arrangements. This will come up with recommendations for the establishment of the roles of a lead urban transport agency and various other institutions involved in urban transport development (e.g. Lahore Traffic and Transport Authority (as lead agency), PjTD, UU, DCO Lahore, Lahore Development Authority, Traffic Engineering and Transport Planning Agency, town municipal administrations, City District Government, the police, etc). Practical lessons from Outputs 1.1 to 1.4 will be used to streamline the institutional framework from the provincial to municipal levels of government for urban transport. Workshops will be organized to solicit inputs to the report and approval from stakeholders. *GEF support is required for the production of the institutional strengthening report and associated workshops*;

51. *Output 1.6: A Punjab Provincial Government integrated urban transport plan.* In Year 3 after commencement of the implementation phase of the demonstration BRT, a strategic planning process will be initiated through workshops and informal meetings. Using lessons learned from Outputs 1.1 to 1.5, the framework of the "Lahore Urban Transport Strategy" and recommendations from the "Urban Transport Policy Study for Five Cities of Punjab Province" (as referred to in Para. 16), the strategic planning process will facilitate the prioritization of the numerous ideas and concepts for development of approaches for integrated sustainable urban transport in Punjab Province that will include:
    - a provincial vision of efficient mobility and improved air quality in urban areas with short, medium and long term goals;
    - specific objectives for accountable agencies for urban transport within the institutional framework from Output 1.5;
    - prioritization of cities where sustainable transport activities such as integrated BRT will be developed;
    - identification of sources of finance and subsidies to build and sustain all integrated BRT systems;
    - actions to ensure continuous policy and organizational development for urban transit; and
    - Actions to enhance and increase capacity of local institutions for transport planning, urban planning and traffic demand management measures.

    SUT policies will be formulated based on the results of the policy studies that were carried out. These will be presented to the provincial stakeholders for comments and further recommendations. The finalized recommended policies will be subject to the usual policy evaluation and approval processes of the relevant GOP agency, and through public hearing. The provincial SUT policies will be designed to provide the necessary drivers[35] for urban transport development, along with short, medium and long term targets. Promotional and lobbying activities will be carried out for the purpose of facilitating the approval of the recommended policies, where necessary and appropriate. The associated implementing rules and regulations (IRRs) will be developed, and evaluated. The IRRs will be used for the enforcement of the SUT policies. Further promotion of the approved and enforced Punjab provincial policy on the development, implementation and operation of sustainable urban

[34] http://www.urbanunit.gov.pk/downloads/rt-UTPS5C.pdf

[35] The Policy will include *inter-alia* ensuring coordination with all stakeholders through a lead agency, expanding transport system for all modes of transport (motor vehicles as well as NMVs and pedestrians), integration of land use and transport planning, standardizing and regulating transport and infrastructure services, encouraging appropriate technologies for improving efficiency of urban mobility, improving road user safety, and strengthening asset management.

transport systems will be designed and implemented. The first integrated urban transport plan will be approved by Year 4 with the plan being implemented during Year 5. *GEF support is required for the preparation and approval of the integrated urban transport plan;*

Outcome 2: An operational sustainable urban transport in Sindh Province

52. *Output 2.1: Feasibility plans and approved financing for integrating federal bus purchases with "integrated BRT plans" for cities in Sindh Province.* During Years 1 and 2, feasibility plans for the federal purchase of city buses, and the sustained operationalization of these buses in Karachi and other selected cities in Sindh Province will be prepared together with the Sindh Transport Department (STD). The features of such plans will be similar to that in Output 1.1 (i.e. integrated BRT routes with feeder lines; estimates of passenger loads; bus models on BRT and feeder routes; design of segregated bus lanes, platforms, fuelling depots, safe pedestrian walkways at interchange bus stops and organized parking spaces near bus stops; and a financial analysis to determine necessary fares and required subsidies). The feasibility plans will take into consideration the unique urban transport issues of Karachi and other participating cities in Sindh. In cooperation with the IPDF, assistance will be provided to the proponents of the plans in complying with the requirements of the financial institutions in order to facilitate public-private financing. In addition, strategic collaborations with the ECF will be made to use their financial infrastructure to manage revolving funds for financing the purchase of city buses by the private sector. *GEF support is required for the preparation of bankable feasibility plans for an integrated BRT and design of a scheme for financing city buses to the private sector;*

53. *Output 2.2: Strengthened institutional framework that enables sustainable urban transport development in Sindh Province.* During Years 2, 3 and 4, a new framework for Sindh Province (using lessons from Output 2.1 and sample draft frameworks from other jurisdictions such as Lahore and Punjab Province) for promoting sustainable urban transport at the provincial level will be prepared. With the Sindh Provincial Transport Department being formed in 2008, a new provincial institutional framework for urban transport development needs to be formulated in collaboration with the various city district governments in Sindh of which the CDGK is the largest. Using the experience from Output 2.1, a study will be conducted to determine, evaluate and select possible options for institutional arrangements concerning urban transport management in the province. In coordination with the Sindh Transport Department, an evaluation of the existing institutional framework of the provincial transport sector will be carried out to come up with recommendations on the establishment of the roles of a lead urban transport agency and its relationships with various other institutions involved in urban transport development. Based on the findings of the study, the specific responsibilities and accountability of each agency in the planning and budgeting allocations of SUT systems will be defined and delineated. Workshops will be organized to ensure appropriate consultations have been completed with all stakeholders for inputs and final approval of the framework. *GEF support is required for the technical assistance in carrying out the institutional strengthening activities and for funding of the workshops.*

54. *Output 2.3: A strategic plan for the development of sustainable urban transport in Sindh Province.* By Year 4, a strategic planning process will be initiated through workshops and informal meetings. Using the institutional framework from Output 2.2, a strategic planning process will be initiated and guided by PAKSTRAN experts to prioritize the numerous ideas and concepts for developing sustainable urban transport for cities in Sindh Province. Priorities will be compiled in a provincial strategic plan for urban transport in major Sindh cities that will include:

- a provincial vision of efficient mobility and improved air quality in urban areas with short, medium and long term goals;
- specific objectives to provide clear guidance for accountable agencies for urban transport within the institutional framework from Output 2.2;
- prioritization of cities where sustainable transport activities such as integrated BRT will be developed;

- identification of sources of finance and subsidies to build and sustain an integrated BRT system;
- actions to ensure continuous policy and organizational development for urban transit;
- actions to enhance and increase capacity of local institutions for transport planning, urban planning and traffic demand management measures.

The strategic plan will be presented to the provincial stakeholders for comments and further recommendations. The finalized plan will undergo the usual plan review and approval processes of the relevant GOP agency. Promotional and lobbying activities will be carried out for the purpose of facilitating the approval of the proposed strategic plan, where necessary and appropriate. Further promotion of the approved Sindh Province SUT strategic plan will be designed and implemented. The strategic plan is expected to be approved by the end of Year 4 with implementation of the plan to commence during Year 5. *GEF support is required for the preparation and approval of the strategic plan;*

55. *Output 2.4: Approved and enforced Sindh provincial policy that enables development and operation of sustainable urban transport systems.* The main activity will be to develop a provincial sustainable transport policy and the development of the implementing rules and regulations for such policy in Sindh province. In Years 4 and 5, a cross sectoral urban transport policy for Sindh will be developed and prepared using the improved institutional arrangements from Output 2.2 and strategic plans from Output 2.3. The Sindh provincial urban transport policy shall aim to provide the necessary drivers[36] for urban transport development, and provide short, medium and long term targets. The policy will be shared with the public for their comments and inputs using an approved consultation process. Based on the inputs received from the public hearings and consultations, the formulated policies and implementing rules and regulations (IRRs) will be finalized. Promotional and lobbying activities will be carried out for the purpose of facilitating the approval of the proposed policy and IRRs, where necessary and appropriate. Further promotion of the approved Sindh Province SUT policy will be designed and implemented. The formulated SUT policy (and its IRRs) is expected to be approved by Year 3 with enforcement to commence during Year 4. *GEF support is required for the preparation and facilitation work for seeking approval of the Sindh Province SUT policy and associated IRRs;*

56. *Output 2.5: An operational demonstration BRT system in Sindh Province.* Building on the experience gained from the Lahore BRT demonstration, as well as on the GOP's current program on the use of CNG buses, and to maximize the potential for GHG reductions from using a CNG bus fleet instead of CNG-fuelled private vehicles, a BRT demonstration system will also be designed for a selected city in the Sindh Province. To be able to deliver a successful demonstration, capacity building activities for the operational staff of the BRT demonstration will be carried out. As in the Lahore BRT demonstration, such activities are meant to ensure the delivery of a clear "proof of concept" of CNG bus fleet deployment (i.e., in a BRT system) for other cities in Pakistan. The capacity building will cover a wide number of stakeholders including mechanics and maintenance staff of the CNG bus fleet and CNG re-fueling stations.

Similarly in the Sindh BRT demonstration, a suitable M&E plan will be developed in order to ensure that the expected amounts of CNG savings from the CNG BRT demonstration are realized. Such plan will be used for monitoring how much CNG is utilized, the specific energy consumption of the BRT buses, as well as for gauging the public's acceptance of this transport scheme and its economics. A methodology will be designed for the measurement of specific energy and emission parameters. The utilization of such methodology as well as implementation of the M&E plan will form part of the capacity development under the BRT demonstration. *GEF support is required for all technical assistance activities (workshops and job shadowing) to the focal agency to create an operational demonstration BRT system*

[36] The Policy will include *inter-alia* ensuring coordination with all stakeholders through a lead agency, expanding transport system for all modes of transport (motor vehicles as well as NMVs and pedestrians), integration of land use and transport planning, standardizing and regulating transport and infrastructure services, encouraging appropriate technologies for improving efficiency of urban mobility, improving road user safety, and strengthening asset management.

Outcome 3: Improved energy efficiency in truck freight transport

57. *Output 3.1: Approved and Enforced Policies on Energy Efficiency in Truck Freight Transport.* Strategies will be formulated in cooperation with the MoIP for the implementation of the Trucking Policy that will improve energy efficiency of truck freight transport in Pakistan. The Trucking Policy identifies a number of focal areas that require strengthening to achieve sustained modernization and reform in the freight trucking industry in Pakistan[37]. To address these, the following activities will be carried out: a) Conduct of studies on applicable options for EE options for truck freight transport and policy regimes that will support these EE options; b) evaluation of the feasibility of these EE options from technical and policy perspectives; c) formulation of guidelines and technical standards for EE in truck freight transport; d) formulation of supporting policies and guidelines that will support the sustaining of EE initiatives; e) development of implementing rules and regulations to enforce the policies and technical standards; f) promotion of approved policies and guidelines; g) the practical application of technical standards with affected stakeholders; h) preparation of an 18-month implementation strategy under the proposed policy framework; and i) improvement of policies, guidelines, standards and regulations based on pilot project experiences and other projects (to be done during Years 3, 4 and 5). *GEF support is required for the necessary technical support in the implementation of these abovementioned activities.*

58. *Output 3.2: Completed pilots to implement strategy to modernize trucking fleet.* During Years 3, 4 and 5, in cooperation with the stakeholders, pilot projects will be designed, based on the policy framework developed (Output 3.1) and implemented over a 3-year period. The pilots will be implemented in a timely and effective manner, and sustained after GEF support is completed. The implementation of the pilots will be organized based on Output 3.1 and among these is the transformation of a fleet of old trucks to modern models in compliance with new implementing rules and regulations. The pilots will demonstrate the registration of new trucks under a revamped truck registration system; examination of truck fitness under a reformed vehicle examination system; and financing of new trucks under unique arrangements with commercial banks, insurance companies and relevant taxation agencies. *GEF support is required to lead, design and manage implementation of the pilots.*

59. *Output 3.3: Established private-public partnerships in the modernization of the trucking fleet.* The facilitation by MoIP of the formation of private-public partnerships (PPPs) to sustain the modernization of the trucking fleet is the main activity to deliver this output. Firstly, a viability study is required to inform MoIP of the real costs and benefits of modernizing the truck fleet[38] and to justify additional financial or subsidy incentives for the trucking industry to modernize to Euro II or IV standard vehicles. This study will form the basis of PPPs with various trucking associations in Pakistan. Secondly, a feasibility study of a truck modernization program will be carried out using lessons learned from Output 3.2, the outputs of the viability study and the analysis all costs and technical logistical support required for the exchange of trucks. Thirdly, the facilitation of PPPs between truck freight companies and MoIP using the viability and feasibility studies as guidance for the costs and benefits to both government and trucking stakeholders will be carried out. The preparation of the viability study is expected to commence by the end of Year 3 and be completed by Year 4. The feasibility study will be completed during Year 4. Facilitation of the PPPs will be completed during Year 5. *GEF*

[37] These focal areas include: i) the trucking sector being declared as a formal industry status by the GoP (facilitates the industry to obtain financial loans and insurance at competitive rates amongst other fiscal incentives; ii) strengthening of the motor vehicle registration system; iii) strengthening motor vehicle examination systems; iv) axle load management by strengthening weigh stations; v) driver licensing and training to reduce accidents and fuel consumption; vi) trailer manufacturing and separate registration; vii) trans-freight stations that are dedicated parking areas for trucks and drivers; viii) industrial estates for truck and bus body makers; and ix) improving and implementing "National Standards and Specifications for Trucks, Trailers and Other Vehicles Used in Road Freight Transport"

[38] Aside from the capital barrier towards the finance and purchase of a modern truck and the reduced operations costs, there are numerous benefits in modernizing the truck fleet. This will include economic benefits (from improved trade and increased employment), health cost benefits (from reduced air pollution), environmental benefits (from reduced fuel consumption and carbon emissions) and foreign exchange reserve benefits (from reduced hydrocarbon fuel imports).

support is required for the preparation of the viability study, feasibility study and the facilitation of PPPs;

Outcome 4: Increased public awareness and institutional capacity on sustainable transport concepts

60. *Output 4.1: Completed awareness raising campaigns on sustainable transport concepts.* A strong focused awareness campaign in the popular media to promote sustainable transport concepts in Pakistan's largest cities will be developed and implemented. Themes will be promoted in newspapers, television, radio and the Internet such as good driving habits, vehicle maintenance, the benefits of using public transport, the adverse impacts of climate change and the benefits of reduction of imported fossil fuel consumption. The location of the awareness campaign will be chosen to leverage PAKSTRAN efforts on sustainable transport in selected cities such as Lahore. *GEF support is required to plan and manage the awareness raising campaign throughout the 5-year duration of PAKSTRAN*;

61. *Output 4.2: Completed training program on strategic urban, land use and transportation planning conducted at various training, academic and vocational institutes in Pakistan.* Training programs in collaboration with various higher educational institutes throughout Pakistan that will target existing professionals in urban planning, city development and transport system planning will be designed. The training programs will focus on energy-integrated urban development planning, its impact on urban transport, and examples from growing urban centers outside of Pakistan that have successfully dealt with urban transport issues. *GEF support is required for design of the training program with higher educational institutes and the delivery of training programs to existing professionals;*

62. *Output 4.3: Completed workshops for sharing experiences on integrated BRT development and implementation of the Trucking Policy.* Periodic workshops will be held to report on the progress on the development of integrated BRT and Trucking Policy implementation amongst the numerous stakeholders, and to receive feedback on adaptively managing implementation. These workshops will serve as valuable training examples on strategic urban, land use and transportation planning. As such, these workshops will also be open to professionals in urban planning, city development and transport system planning. *GEF support is required for organizing and conducting these workshops, as well as in the provision of resource persons.*

63. Under the GEF supported alternative, demonstration planning and implementation efforts of integrated BRT systems will benefit from best international practices of holistic planning for BRT systems, and from independent monitoring and evaluation. The quality of demonstration implementation, and associated institutional strengthening and strategic planning for SUT in the major cities of Sindh and Punjab Provinces should facilitate the completion of BRT or SUT plans for another 2 cities in Pakistan and an 8% increase in the use of public transport systems in these cities.

64. Under the GEF supported alternative, interventions to modernize the trucking fleet will be pooled with proposed World Bank resources from the NTCIP project. The GEF project will result in properly planned, implemented, monitored, independently evaluated and publicized pilot demonstrations of trucking modernization in targeted cities throughout Pakistan. The pilots will demonstrate that modern trucks can improve their fuel efficiency by 30% over older models, and sustain their fuel efficiency through policies, rules and regulations strengthened through PAKSTRAN activities. Moreover, this should facilitate trucking modernization replication throughout Pakistan's largest cities through the formation of PPPs between trucking associations and the Government of Pakistan, planned investments for the modernization of over 2,000 trucks, and result in a 1% reduction of GHG emissions from the freight truck transport sector at the completion of the project.

65. The proposed GEF supported alternative will increase public awareness of sustainable transport through 5 awareness campaigns in at least 3 cities in Pakistan. It will also increase the knowledge of over 30 urban development and transport planning professionals on integrating transport planning and urban land use that promote sustainable transport

concepts. This will be achieved through the delivery of targeted technical courses at academic and technical institutes throughout Pakistan. This will provide domestic grassroots growth in the awareness of important sustainable transport issues and climate change in Pakistan.

Key Indicators, Risks and Assumptions

66. The project success indicators are shown in the Project Results Framework of this document. These indicators have annual target values, which will be monitored during the course of the PAKSTRAN project implementation.

67. The overall project risk is moderate. PAKSTRAN has been designed to complement and strengthen ongoing efforts in Pakistan to develop sustainable transport initiatives and to continue to facilitate close coordination and consultation between the relevant stakeholders in each of the proposed activities. Project activities will enhance local technical capacity to implement sustainable transport projects, clarify institutional responsibilities and strategic sustainable transport development; build effective awareness programs and training curriculum targeted to optimize knowledge diffusion on sustainable transport concepts; build the confidence of private investors and financing institutions to reduce risks of loans to finance urban transport projects; and develop policies and regulations to guide the sustainable development of holistically planned urban transport and a modernized trucking fleet. A major assumption for the success of PAKSTRAN is the commitment of all stakeholders involved to work towards the intended outcomes.

68. While all possible efforts have been made in the PAKSTRAN design to mitigate perceived project risks, there are inevitably some unavoidable residual risks that will have to be carefully monitored and managed to ensure project success. The most significant risk identified during the project formulation was the possible unfavorable investment climates for the purchase of energy efficient BRT buses and cargo trucks. Recommended mitigation measures are provided in detail in the "Offline Risk Log" in Annex 1.

Financial Modality

69. GEF resources will be used as technical assistance to remove barriers to sustainable transport initiatives in Pakistan, and to support activities that will sustain the development of sustainable transport initiatives. As such, GEF resources will be used to:
    - Mobilize stakeholders for activities where there have been no prior funding commitments; and
    - Add to resources committed from project partners to strengthen an activity.

70. Further details on the financial disbursement are covered under management arrangement section.

Cost Effectiveness: Global Benefits

71. The efforts to reduce transport-related energy consumption in the urban areas and to increase the fuel efficiency of commercial trucks in Pakistan will have long term impacts on GHG emissions. Cumulative, direct GHG reductions from the demonstration projects developed by PAKSTRAN will be 613,020 tonnes CO_2 over 20 years. The calculations for CO_2 savings assumes:

    - Emissions from private motor vehicles will be reduced if the demonstration BRT induces a modal transport switch to public transport; and
    - Emissions from old trucks will be reduced if equivalent modern trucks (with Euro II emissions controls) are used for cargo transport.

    At the GEF incremental cost of US$4,800,000, the cost of avoided CO_2 emissions will be about US$7.83 per tonne CO_2 over a 20-year period. If these projects are successful in demonstrating the means to induce transport modal switches to BRT and to modernize ageing truck fleets and the demonstrations are replicated, indirect GHG emission reductions

will reach 1,714,800 tonnes. Detailed CO_2 calculations and assumptions are presented in Annex 2.

Cost Effectiveness: National Benefits

72. The project will also provide a number of national benefits including:
    - Reducing expenditures of its foreign exchange reserves on the import of fossil fuels. A top priority of the GOP is to reduce its dependence on imported diesel fuels which are mainly used for commercial transport, both buses and trucks. Natural gas and petrol are also priorities to a reduced extent since Pakistan has some domestic gas reserves and refining capacity for the production of petrol. The fossil fuel price spikes of 2008 served as a warning that Pakistan is exposed global prices for fossil fuels;
    - Reduction of transport-related local air pollution. In particular, SO_x, NO_x and particulate matter will improve urban air quality and provide significant health benefits to a growing urban population;
    - Improved urban livability. Urban mobility will improve and provide social and economic benefits to Pakistan's largest cities; and
    - Improved trade competitiveness. By modernizing the trucking fleet to more fuel efficient models, Pakistan can better serve markets as a hub for transporting goods to regional markets.

Sustainability

73. The urban transport components of the project are to increase the use of sustainable forms of transport. With traffic congestion being severe in several cities in Pakistan, any successful measure that can demonstrate improved efficiency and quality of urban mobility and reduce air pollution would be most welcome and likely sustained; these measures would prove to be socially and politically popular with all levels of society.

74. Private sector involvement in public transport would contribute towards reducing dependence on the public budget and increase financial sustainability of any public transport initiative. The government would maintain investments in infrastructure that will support improved urban mobility such as dedicated bus lanes, synchronized traffic lighting, safe areas for pedestrian and bicycle transport and parking places. The Energy Conservation Fund (ECF) is a revolving loan fund from the FERTS project and under the administration of ENERCON that can be used as a sustainable funding mechanism. Other sources of revenue to reduce urban congestion such as congestion taxes, oil-petrol levies and other taxes can be assessed for its impact on project sustainability.

75. The modernization of the trucking fleets should be sustained due to driving factors of increasing fuel costs and decreasing of competitiveness of cargo freight services in Pakistan. The alternatives being proposed by the project will demonstrate the means for trucking fleet owners to modernize their fleets, reduce fuel costs, sustain good maintenance practices, and increase the efficiency and profitability of cargo transport by the trucking sector.

76. The capacity building efforts of the GEF project will identify capacity building needs based on international best practices involving delivery of capacity building that fully engages the beneficiaries with international and national practitioners in urban transport. This will contribute to the sustainability of the GEF interventions.

Replicability

77. The entire objective of conducting a demonstration is to provide useful lessons for replication, recognizing that the initiatives would be replicable as the needs in most cities of similar type are more or less the same. As such, the project will be setup to provide well designed, tightly managed and highly visible demonstrations. These demonstrations seek to build the potential for replication in other cities of Pakistan. A good demonstration will provide important lessons for replicated projects for other Pakistani cities and possibly elsewhere in the developing world.

PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: • **Institutional mechanisms for integrated environmental management strengthened and operational (JP Component 1: Strengthened and operational institutional mechanisms for integrated environmental management)** • **Urban actors have a better understanding of critical urban issues affecting slum dwellers and urban poor in cities including urban issues related to climate change (JP Component 4: Sustainable Urbanization)**
Country Programme Outcome Indicators: • **One UN-GoP Comprehensive Program to integrate principles of sustainable development into country policies and programs to reverse the loss of environment in line with MDG Target 7A** • **One BRT project and one truck fleet modernization pilot project implemented to support implementation of policy and regulatory framework** • **Technical and institutional capacity development of participating provincial and federal government agencies** • **Public awareness on urban transport and trucking policies and strategic plans** • **Policies. planning and implementation improves the living conditions of population in the demonstration region** • **Number of local, provincial and federal stakeholders involved and actively participating on the project** • **50,000 people benefiting from improved conditions as a result of better urban mobility** • **3 demonstration projects (two in BRT and one on trucking policy implementation) implemented** • **One community-based organization engaged in participatory monitoring of projects**
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): **2. Catalyzing environmental finance**
Applicable GEF Strategic Objective and Program: GEF-4 CC Strategic Program SP5: Promoting Sustainable Innovative Systems for Urban Transport (OP11)
Applicable GEF Expected Outcomes: Replication of sustainable transport measure that is operational and commercially viable
Applicable GEF Outcome Indicators: Ridership on new transport measures, overall financial sustainability of industries created

Strategy	Indicator	Baseline	Targets	Source of verification	Assumptions
Project Objective[39] Reduction of greenhouse gas (GHG) emissions associated with urban transportation	• Cumulative, direct GHG emission reductions in the urban transport sector compared to BAU scenario over a 20-year period, ktonnes • Cumulative, direct GHG emission reductions from a pilot scheme to modernize the trucking fleet compared to BAU scenario over a 10-year period, ktonnes	• 0 ktonnes CO_2[40] • 0 tonnes CO_2[41]	• 608 ktonnes CO_2 (direct reduction from BRT demonstrations) • 5 ktonnes CO_2 (direct reduction from truck modernization program)	• Reports of BRT demonstrations including surveys of ridership making transport modal switches from car to public transport • Reports from pilot truck modernization program on improved fuel efficiency	• Monitoring and evaluation activities planned under the project are fully supported and implemented • Continued Good support for the modernization of the trucking fleet to reduce air pollution and GHG emissions • Reliable data from surveys on modal transport switches and

[39] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

[40] No decline in GHG emissions due to lack of institutional coordination within the GoP to plan and implement transport initiatives such as integrated urban bus rapid transit and improving fuel efficiency in the trucking industry. No commitments for any BRT initiatives.

[41] No initiatives for any truck fleet modernization

Strategy	Indicator	Baseline	Targets	Source of verification	Assumptions
					fuel consumption of modern energy efficient trucks • Firm commitments from all stakeholders for the implementation of integrated BRT projects including financing of project • Firm commitments from all stakeholders to implement a truck modernization program
Outcome 1: Operational sustainable urban transport system in Punjab Province	• Number of bankable feasibility plans submitted for demonstration BRT project funding by Year 4[42] • Number of approved integrated BRT implementation plans for a selected city in Punjab Province by Year 3 • Number of financing institutions that commit financing assistance to city buses by Year 4 • Number of cities planning to implement BRT systems by Year 3 • Number of operational BRT demo systems by Year 5 • Percent increase in public transit ridership by Year 5 • Cumulative energy savings generated by BRT demonstration by end Year 5, toe • Cumulative GHG reductions from the BRT demo by end Year 5, tonnes CO2e • Number of provincial government agencies involved with planning of SUT projects by Year X • Number of strategic plans for holistically planned integrated urban transport by Year X	• 0[43]	• 2 feasibility studies for integrated BRT in two different cities in Punjab Province[44] • 2 approved implementation plans for a selected city in Punjab Province • 2 financial institutions commit to financing agreements for city buses • 2 cities in Punjab Province planning BRT • 1 operational BRT • 8% increase in public transit ridership • 1,000 toe of energy saved from BRT demonstration • 20,280 tonnes CO_{2e} reduced by the BRT demonstration • 5 Punjab provincial agencies planning SUT projects • 2 strategic plans for holistically planned integrated urban transport	• Feasibility plans for integrated BRT in a selected Punjabi city • Plans for implementing an integrated BRT system • Financial agreements for bus financing assistance • Infrastructure for a demonstration BRT system • Surveys monitoring transport modal switches from private cars to BRT system • Reports on government agency involvement from Department of Transport • Completed strategic plans for SUT development in 2 cities • APRs and PIRs	• Provincial government is willing to support BRT development including subsidizing the project • Full stakeholder support including existing bus operators • Sufficient capital is available for the replenishment of the ECF • Willingness of all stakeholders to use ECF as a modality for revolving finance • Availability of land for bus operations (i.e. maintenance and fuelling depots, bus stops and transfer areas)

[42] Proposals will be submitted for funding to the "Infrastructure Project Development Facility" (IPDF) managed by MoF and the ENERCON-managed "Environmental Conservation Fund" (ECF).

[43] Notwithstanding a number of plans, institutional arrangements and urban policies that are in place for the development of urban transport in Punjab Province, an integrated BRT project will not be implemented due to lack of capacity to prepare "bankable" sustainable urban transit projects.

[44] Feasibility plans for two different cities

Strategy	Indicator	Baseline	Targets	Source of verification	Assumptions
Outcome 2: Operational sustainable urban transport system in Sindh Province	• Number of bankable feasibility plans submitted for funding by Year 4[45] • Number of approved integrated BRT implementation plans for a selected city in Sindh Province by Year 5 • Number of financing institutions that commit financing assistance to city buses by Year 3 • Number of cities planning to implement BRT systems by Year 5 • Number of provincial government agencies involved with planning of SUT projects by Year 5 • Percent increase in public transit ridership by Year 5 • Cumulative energy savings generated by BRT pilot by end Year 5, toe • Cumulative GHG reductions from the BRT pilot by end Year 5, tonnes CO_{2e} • Number of strategic plans for holistically planned integrated urban transport by Year 5 • Number of provincial policies for developing sustainable urban transport for Sindh Province by Year 5	• 0[46]	• 1 bankable feasibility study • 1 approved integrated BRT implementation plan • 2 financial institutions with commitments to finance BRT systems • 2 cities planning SUT systems • 5 provincial agencies planning SUT projects • 4% increase in public transit ridership • 490 toe of energy saved from BRT demonstration • 10,140 tonnes CO_{2e} reduced by the BRT demonstration • 1 provincial strategic plan for 2 cities • 1 provincial policy on developing urban transport	• Feasibility plans for integrating federal bus purchases with integrated BRT plans for a city in Sindh Province • Strengthened institutional framework and strategic plans that enable BRT and SUT development in Sindh Province • APRs and PIRs • Project surveys monitoring transport modal switches from private cars to BRT system • Strategic plan that provides clarity to Sindh Provincial Government on development of SUT • Sindh provincial urban transport policy paper	• Provincial government is willing to support sustainable urban transport development including subsidizing the project • Political harmony amongst all stakeholders on SUT development • Sufficient capital is available for the replenishment of the ECF • Full stakeholder support including existing bus operators • Availability of land for bus operations (i.e. maintenance and fuelling depots, bus stops and transfer areas)
Outcome 3: Improved energy efficiency in truck freight transport	• Number of background studies completed to support Trucking Policy implementation by Year 3 • Number of implementing rules and regulations (IRRs) and implementing actions formulated and recommended for approval by Year 3 • Number of IRRs approved and enforced by Year 3 • Number of trucks involved with pilots	• 0[47]	• 10 background studies completed on supporting implementation of Trucking Policy • 5 implementing rules and regulations • 5 IRRs approved and enforced	• Documentation of the implementation strategy • Documentation of real costs and benefits of truck modernization and government intentions on adopting its recommendations Documentation on plans and implementation of	• Provincial governments are willing to implement trucking policy with the support of the federal government • Full stakeholder support including existing truck operators, their associations and truck body assemblers • Availability of sufficient funding from various

[45] Proposals will be submitted for funding to the "Infrastructure Project Development Facility" (IPDF) managed by MoF and the ENERCON-managed "Environmental Conservation Fund" (ECF).

[46] Notwithstanding the preparation of a number of mass transit projects in Sindh Province (including BRT for Karachi), there will be no progress on the development of sustainable urban transport projects due to the lack of clear institutional arrangements, strategic plans for implementation, a Provincial urban transport policy, and a lack of financing resources.

[47] A trucking policy to modernize the truck fleet has been accepted by the GoP and stakeholders. While the policy lists a number of actions to be taken, the policy will not be implemented as no implementation strategy exists. In addition, there will likely be no action taken to subsidize the trucking industry.

Strategy	Indicator	Baseline	Targets	Source of verification	Assumptions
	to demonstrate energy efficiency objectives of Policy by Year 4 • Cumulative energy savings generated from truck modernization pilots by Year 5, toe • Cumulative GHG reductions from truck modernization pilots by Year 5, tonnes CO_{2e} • Number of public-private partnerships for truck modernization by Year 5 • Number of trucks planned for involvement in replication of pilots by Year 5		• 50 trucks involved in pilot • 150 toe of energy saved from truck modernization pilots • 460 tonnes CO_{2eq} • 3 public-private partnerships • 2,000 trucks involved in plans for truck modernization	truck modernization pilots • Documentation of the management and progress of financing plans for trucking modernization • Monitoring reports on implementation of various policy actions • APRs and PIRs	resources
Outcome 4 Increased public awareness and institutional capacity on sustainable transport concepts	• Number of completed awareness raising campaigns programs by Year 5 • Total number of cities benefiting from awareness raising campaigns by Year 3 • Number of completed training course on strategic urban land use and sustainable urban transport planning by Year 2 • Number of city and provincial planners and students trained on LUP and SUTP by Year 5 • Number of educational institutes where LUP and SUTP courses are offered by Year 5 • Number of completed workshops on the implementation of the Trucking Policy by Year 5 • Number of completed workshops on integrated BRT development by Year 5	• 0[48]	• 5 awareness raising campaigns • 3 cities where awareness raising campaigns have been conducted • 8 training courses of strategic urban land use and sustainable urban transport planning • 30 city and provincial planners and students trained • 4 educational institutes where LUP and SUTP courses offered • 8 workshops on Trucking Policy implementation completed • 8 workshops on integrated BRT development	• Feedback communications from clients of Information Center • Documentation of the approved urban transport awareness-raising program, and the program implementation results and evaluation • Awareness surveys indicating positive attitudes towards adoption of sustainable urban transport concepts and vehicle energy efficiency issues • Minutes of workshops conducted	• Relevant stakeholders and target groups are interested in participating and cooperating in the design, development and implementation of program

[48] Limited public and stakeholder awareness of concepts in sustainable transport in civil society and academia; no awareness raising or training programs to increase the knowledge of sustainable transport and the overall benefits of adopting these concepts; lack of coordinated research on the current baseline for urban transport and motor vehicle energy efficiency; and fragmented efforts by existing institutions with limited outreach to disseminate information on sustainable transport.

TOTAL BUDGET AND WORK PLAN

Award ID:				00058561		**Project ID:** 00072773						
Award Title:				PIMS 3953 CC FP: Pakistan Sustainable Transport Project								
Business Unit:				PAK 10								
Project Title:				PIMS 3953 CC FP: Pakistan Sustainable Transport Project								
PIMS				3953								
Implementing Partner (Executing Agency)				ENERCON								
GEF Outcome/Atlas Activity	**Responsible Party/ Implementing Agent**	**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)**	**Total (USD)**	**See Budget Note:**
OUTCOME 1: Operational sustainable urban transport system in Punjab Province				71200	International Consultants	28,000	33,000	43,000	18,000	8,000	130,000	
				71300	Local Consultants	77,080	77,080	69,080	64,080	64,080	351,400	
				72100	Contractual Services	50,000	70,000	215,000	200,000	100,000	635,000	
				75700	Training, Workshops and Confer	19,940	19,940	19,940	19,940	19,940	99,700	
				74200	Audio Visual & Print Prod Costs	19,940	19,940	19,940	19,940	19,940	99,700	
				71600	Travel	20,000	10,000	20,000	0	0	50,000	
				72500	Office Supplies	5,000	5,000	5,000	0	0	15,000	
		62000	GEF	74500	Miscellaneous	25,000	5,000	0	0	0	30,000	
				71200	International Consultants	10,000	10,000	10,000			30,000	
				71300	Local Consultants	40,000	40,000	40,000	25,000	25,000	170,000	
				72100	Contractual Services		45,000	50,000	25,000	25,000	145,000	
	P&D Department Government of Punjab			71600	Travel		5,000	5,000	5,000	5,000	20,000	
				72500	Office Supplies	25,000	10,000	10,000	10,000	5,000	60,000	
		30000	UNDP	74500	Miscellaneous	20,000	15,000	10,000	10,000	10,000	65,000	
					Total GEF Outcome 1	244,960	239,960	391,960	321,960	211,960	1,410,800	

					Total Outcome 1	**339,960**	**364,960**	**516,960**	**396,960**	**281,960**	**1,900,800**	
OUTCOME 2: Operational sustainable urban transport system in Sindh Province				71200	International Consultants	28,000	33,000	43,000	18,000	8,000	130,000	
				71300	Local Consultants	77,080	77,080	69,080	64,080	64,080	351,400	
				72100	Contractual Services	50,000	50,000	80,000	120,000	60,000	360,000	
				75700	Training, Workshops and Confer	19,940	19,940	19,940	19,940	19,940	99,700	
				74200	Audio Visual & Print Prod Costs	19,940	19,940	19,940	19,940	19,940	99,700	
				71600	Travel	20,000	10,000	20,000	5,000	5,000	60,000	
				72500	Office Supplies	5,000	5,000	5,000	5,000	5,000	25,000	
		62000	GEF	74500	Miscellaneous	15,000	5,600	5,000	5,000	10,000	40,600	
				71200	International Consultants		20,000	20,000	10,000	20,000	70,000	
				71300	Local Consultants	50,000	80,000	70,000	50,000	45,000	295,000	
				72100	Contractual Services	20,000	45,000	50,000	25,000	25,000	165,000	
	Transport Department, Government of Sindh			71600	Travel		5,000	5,000	5,000	5,000	20,000	
				72500	Office Supplies	25,000	10,000	10,000	10,000	5,000	60,000	
		30000	UNDP	74500	Miscellaneous	20,000	15,000	10,000	10,000	10,000	65,000	
					Total GEF Outcome 2	234,960	220,560	261,960	256,960	191,960	1,166,400	
					Total Outcome 2	**349,960**	**395,560**	**426,960**	**366,960**	**301,960**	**1,841,400**	
				71200	International Consultants	34,000	34,000	34,000	39,000	39,000	180,000	
OUTCOME 3:				71300	Local Consultants	60,080	60,080	60,080	60,080	60,080	300,400	
Improved energy efficiency in truck freight transport				72100	Contractual Services	200,000	179,400	125,000	100,000	55,000	659,400	
				71600	Travel	20,000	20,000	10,000	10,000	15,000	75,000	
	MOIP	**62000**	GEF	72500	Office Supplies	5,000	5,000	5,000	5,000	5,000	25,000	

				74500	Miscellaneous	25,000	25,000	15,000	15,000	15,000	95,000	
				71200	International Consultants			20,000	20,000	10,000	50,000	
				71300	Local Consultants		30,000	65,000	65,000	80,000	240,000	
				72100	Contractual Services	125,000	140,000	140,000	80,000		485,000	
				71600	Travel			10,000	10,000	10,000	30,000	
				72500	Office Supplies		5,000	5,000	5,000	5,000	20,000	
		30000	UNDP	74500	Miscellaneous		20,000	20,000		10,000	50,000	
					Total GEF Outcome 3	344,080	323,480	249,080	229,080	189,080	1,334,800	
					Total Outcome 3	**469,080**	**518,480**	**509,080**	**409,080**	**304,080**	**2,209,800**	
OUTCOME 4:				71200	International Consultants						0	
Increased public awareness and institutional capacity on sustainable transport concepts				71300	Local Consultants						0	
				72100	Contractual Services	114,000	156,000	156,000	156,000	156,000	738,000	
				71600	Travel		5,000	5,000	5,000	5,000	20,000	
				72500	Office Supplies		5,000	5,000	5,000	5,000	20,000	
		62000	GEF	74500	Miscellaneous		10,000	15,000	15,000	10,000	50,000	
				71200	International Consultants						0	
				71300	Local Consultants	50,000	50,000	50,000	50,000	50,000	250,000	
				72100	Contractual Services	50,000	100,000	150,000	100,000	100,000	500,000	
				71600	Travel	5,000	5,000	5,000	5,000	5,000	25,000	
				72500	Office Supplies	5,000	5,000	5,000	5,000	5,000	25,000	
	ENERCON/ IUCN	**30000**	UNDP	74500	Miscellaneous		25,000	25,000	25,000	25,000	100,000	
					Total GEF Outcome 4	114,000	176,000	181,000	181,000	176,000	828,000	

					Total Outcome 4	**224,000**	**361,000**	**416,000**	**366,000**	**361,000**	**1,728,000**	
Project management unit	**ENERCON**			71200	International Consultants						0	
				71300	Local Consultants	10,000	10,000	10,000	10,000	10,000	50,000	
		62000	GEF	72500	Travel	2,000	2,000	2,000	2,000	2,000	10,000	
		30000	UNDP	72500	Office Supplies	25,000	15,000	10,000	10,000		60,000	
					Total GEF Project Management	12,000	12,000	12,000	12,000	12,000	60,000	
Total GEF						**950,000**	**972,000**	**1,096,000**	**1,001,000**	**781,000**	**4,800,000**	
Total UNDP						**470,000**	**695,000**	**795,000**	**560,000**	**480,000**	**3,000,000**	
Grand Total for Project						**1,420,000**	**1,667,000**	**1,891,000**	**1,561,000**	**1,261,000**	**7,800,000**	

	Amount Year 1	**Amount Year 2**	**Amount Year 3**	**Amount Year 4**	**Amount Year 5**	**Total**
GEF	950,000	972,000	1,096,000	1,001,000	781,000	4,800,000
UNDP	470,000	695,000	795,000	560,000	480,000	3,000,000
World Bank	1,000,000	1,000,000			0	2,000,000
JICA	500,000	1,500,000	300,000		0	2,300,000
Government of Pakistan	12,800,000	12,800,000	12,800,000	12,800,000	12,800,000	64,000,000
Participating Provinces and Cities	1,056,000	216,000	216,000	216,000	216,000	1,920,000
ADB/World Bank Hard Loan						0
TOTAL	16,776,000	17,183,000	15,207,000	14,577,000	14,277,000	78,020,000

MANAGEMENT ARRANGEMENTS

78. Management arrangements have been structured to enable effective oversight and coordination while ensuring that individual components are implemented in an autonomous and efficient manner with coordinated reporting. NEX is the preferred execution with other execution arrangements to be considered exceptionally to accommodate the requirements of the specific components.

UNDP Support Services

79. UNDP will provide support in establishment and operationalization of project management unit and component management

Collaborative Arrangements with Related Projects

80. Collaborative arrangements will be made with the ENERCON-managed federal CNG bus program. PAKSTRAN will work closely with the program to maximize the likelihood that the CNG buses from the program will provide sustained and improved urban transit services.

81. Collaborative arrangements will be made with the "Islamabad-Rawalpindi Master Transport Plan" funded by the Capital Development Authority. PAKSTRAN will need to assess the value of augmenting CDA resources to strengthen this master transport plan.

82. There are other potential collaborative arrangements that will need to be made for related projects that are yet to be finalized. This includes:
    - The JICA-funded "Updated Master Transport Plan for Lahore City". The outcomes of this transport plan are important to PAKSTRAN insofar as the location of any demonstration BRT project. PAKSTRAN will work closely with the PjPG P&D Department to coordinate the preferred BRT corridor for development;
    - The World Bank's "Second Trade and Transport Facilitation Project" (Project ID: P101684) to augment their funding resources for the "trucking modernization sector" component.

Prior Obligations and Prerequisites

83. There are no prior obligations and prerequisites.

Audit Arrangements

84. Audits will be conducted following UNDP Financial Regulations and Rules and related audit policies.

Inputs To Be Provided by Partners

85. **Project Board** will provide the project oversight and strategic adviseto the project. PB is responsible for making management decisions for PAKSTRAN, in particular when guidance is required by the Project Manager. The Project Board will play a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. Based on the approved Annual Work Plan, the Project Board will also consider and approve the quarterly plans and any essential deviations from the original plans. The project Board will be chaired by Secretary, Ministry of Environment, and would have members including NPD (ENERCON), Economic Affairs Division (EAD), UNDP, Member (Infrastructure) Planning Commission, NTRC (Ministry of Communications), HDIP (under the

Ministry of Petroleum & Natural Resources), Secretary Ministry of Industry Production & Special Initiatives, PEPA (Ministry of Environment), Secretary Punjab P&D Department, Secretary Sindh Transport Department, IUCN- Pakistan, ,), JICA, the World Bank and ADB.

Project Board should meet at least once a year in the start of the every year to approve the annual work plan and review the progress of the preceding year.

86. To ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDPand EAD...

87. Potential members of the Project Board are reviewed and recommended for approval chair of the PB . Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

- An Executive will be from the Ministry of Environment to represent the project ownership and to chair the group;
- The Senior Supplier will be UNDP who represents the interests of the parties concerned, provides funding for specific cost sharing projects and technical expertise to PAKSTRAN, and whose primary role is to provide operational guidance for PAKSTRAN and provide a quarterly review and approval of the work plan and budget. To facilitate the implementing partners in managing the project, UNDP will chair a much smaller and more functional Project Management Group, in a participatory approach, with inclusion of the key implementing partners and the beneficiaries. The GEF Operational Focal Point (Secretary, MoE) may appoint a representative in the PMU to follow its proceedings and advice, as required. The Project Management Group will work with the approved work plan by project board.
- The Senior Beneficiary will be the Punjab and Sindh Provincial Governments (for the urban transport components), the MoIPSI (for the implementation of the trucking policy), and IUCN (for awareness raising and curriculum development). The primary function of these Senior Beneficiaries within the Board is to ensure the realization of project results for their respective components.

88. The **Project Management Unit** (PMU): Owing to the diverse nature of the planned PAKSTRAN activities, PAKSTRAN management arrangements will require a unique approach to effectively manage activities in more than three cities, initially Islamabad/Rawalpindi, Lahore and Karachi. As such, management arrangements for PAKSTRAN will require central coordination in Islamabad through ENERCON under the Ministry of Environment through the Project Management Unit (PMU). PMU functions include:

- Coordinate with responsible parties implementing the specific outputs for consolidation if the annual work plan and progress reports for presentation to Project Board (PB) for approval. it will be responsible for results-based management and reporting of the project. The PMU will provide a clearing house mechanism information, communication, monitoring and evaluation and will coordinate with the implementing parties for the consolidation of the annual work plan, project progress and financial reports for PB.

- Facilitate the agreements with the 4 partners and operationalize the CIUs. Build Collaborative Arrangements with related initiatives as detailed out under section "Collaborative Arrangements with Related Projects" with relevant stakeholders.

- Act as a secretariat to the Project Board and coordination with all the stakeholders.

The PMU will be headed by **Project Manager** who will be responsible for day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility will be to ensure that PAKSTRAN produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

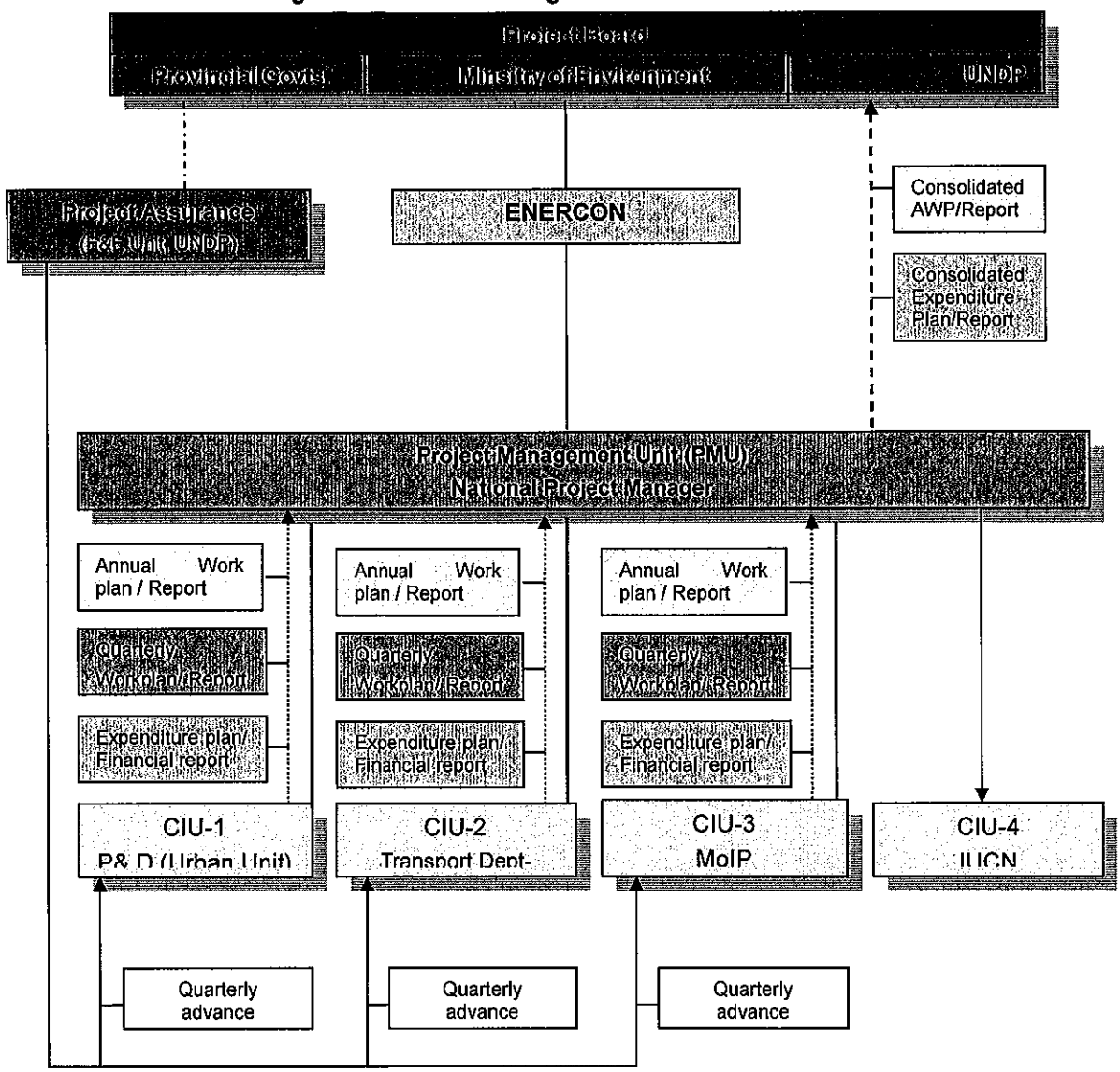
Each implementing/ responsible partner will designate/appoint Project Director to manage the activities of the designated component and to coordinate with PMU in work planning, monitoring and reporting

89. Each CIU will have a **Component Manager** responsible for implementing their component with coordination with the Project Manager.

90. A Programme Officer within the Energy & Environment Unit in the CO will assume the **Project Assurance** role in supporting the Project Board Executive by performing objective and independent project oversight and monitoring functions.

91. The NIM organizational structure is shown on Figure 2.

Figure 2: PAKSTRAN Organization Structure



92. The PjPG P&D Department will be providing office space in Lahore for the CIU for the Punjab Urban Transport component. They will also make arrangements for meetings and provide in-kind contributions for coordination with participating agencies including the District Coordination Office, the Transport Department and the Lahore Transport Company.

93. The SPG Transport Department will provide office space in Karachi for the CIU for the Sindh Urban Transport component. They will make arrangements for meetings and provide in-kind contributions for coordination amongst participating Sindh-based agencies including the CDGK (Karachi Mass Transit Cell) and other cities in Sindh Province participating in PAKSTRAN strategic planning sessions.

94. MoIPSI will provide office space in Islamabad for the CIU that will oversee the truck modernization component. They will also make arrangements for meetings with participating trucking associations in Lahore or Karachi whenever required.

95. The proposed project will be implemented for 5 years. The project will start in the second quarter of 2010 and will conclude at the end of the fourth quarter on 31 March 2015.

96. To accord proper acknowledgement to GEF for providing funding, a GEF logo will appear on all relevant GEF project publications. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should also be present in all publications along with GEF logo.

FINANCIAL ARRANGEMENT

97. PMU will be setup in ENERCON which will have separate funds for management of the project in a coordinated manner and will be responsible for required financial management.

98. On the approval of the project annual work plan, the responsible parties will request advance funds based on submission of quarterly work plan and report to UNDP consolidated and reviewed by PMU. After review UNDP will release funds to the implementing partners for the implementation of work plans.

MONITORING FRAMEWORK AND EVALUATION

99. Monitoring and evaluation will be conducted in accordance with standard UNDP policies and procedures. The project will be monitored through the following M&E activities as detailed in the following paragraphs and M&E Work Plan and Budget Table.

Project Start

100. A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

101. The Inception Workshop should address a number of key issues including:

- Assisting all partners to fully understand and take ownership of the project. The workshop should detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team. The roles, functions, and responsibilities within the project's decision-making structures will be discussed including reporting and communication lines, and conflict resolution mechanisms. Terms of Reference for project staff will be discussed again as needed;
- Finalizing the first annual work plan (AWP) based on the project results framework and the relevant GEF Tracking Tool if appropriate. The indicators, targets and their means of verification will be reviewed and agreed upon, as well as assumptions and risks being re-checked;
- Providing a detailed overview of reporting, monitoring and evaluation (M&E) requirements. There should be agreement on the M&E work plan, budget and schedule;
- discussing financial reporting procedures and obligations, and arrangements for annual audit;
- Planning and scheduling Project Board meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

102. An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

M&E Work Plan and Budget

[illegible]	[illegible]	[illegible]	[illegible]
Inception Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Component Implementation Units (CIUs)	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and CIU teams ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and CIU teams	None	Quarterly
Mid-term Evaluation	▪ Project manager and CIU teams ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and CIU teams ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL COST Excluding project team staff time and UNDP staff and travel expenses		US$ 135,600 (2.8% of total budget)	

Within the annual cycle

103.

- On a quarterly basis, a quality assessment shall record progress towards the completion of key results, based on quality criteria and methods captured in the Quality Management table below.
- An Issue Log shall be activated in Atlas and updated by the Project Manager to facilitate tracking and resolution of potential problems or requests for change.
- Based on the initial risk analysis submitted (see annex 1), a risk log shall be activated in Atlas and regularly updated by reviewing the external environment that may affect the project implementation.
- Based on the above information recorded in Atlas, a Project Progress Reports (PPR) shall be submitted by the Project Manager to the Project Board through Project Assurance, using the standard report format available in the Executive Snapshot.
- a project Lesson-learned log shall be activated and regularly updated to ensure on-going learning and adaptation within the organization, and to facilitate the preparation of the Lessons-learned Report at the end of the project
- a Monitoring Schedule Plan shall be activated in Atlas and updated to track key management actions/events

Annually

104. The **Annual Project Review/Project Implementation Reports (APR/PIR)** will be prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

105. The APR/PIR includes, but is not limited to, reporting on:
    - progress made toward project objective and project outcomes, each with indicators, baseline data and end-of-project targets (cumulative);
    - project outputs delivered per project outcome (annual);
    - lessons learned and good practices;
    - AWP and other expenditure reports;
    - risk and adaptive management;
    - ATLAS QPR;
    - Portfolio level indicators (most focal areas on an annual basis).

Periodic Monitoring through Site Visits

106. UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-Term of Project Cycle

107. The project will undergo an independent **Mid-Term Evaluation (MTE)** at the mid-point of project implementation, November 2012. The MTE will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of PAKSTRANs term. The organization, terms of reference and timing of the MTE will be decided after consultation between the parties to the project document. The Terms of Reference for the MTE will be prepared by the

UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

108. The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project

109. An independent **Final Evaluation** will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of PAKSTRANs results as initially planned (and as corrected after the MTE, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

110. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC). The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

111. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and Knowledge Sharing

112. Results from the project will be disseminated within and beyond the project intervention zone 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, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. There will also be a two-way flow of information between this project and other projects of a similar focus.

LEGAL CONTEXT

113. This document together with the CPAP signed by the Government of Pakistan and UNDP which is incorporated by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA) and all CPAP provisions apply to this document.

114. 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. The implementing partner shall:

    a. put in place an appropriate security plan and maintain the security plan, taking into account 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 this agreement.

115. 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/Docs/sc/committees/1267/1267ListEng.htm.

This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

ANNEXES

Annex 1: Risk Analysis

OFFLINE RISK LOG

Project Title: Pakistan Sustainable Transport Project					Project ID: 00072773	Date: August 15, 2009	
ID	Description	Date identified	Type	Impact & Probability	Countermeasures / Mgmt response	Owner	Submitted, updated by
1	Lack of ongoing, long-term provincial government support for integrated BRT in Punjab Province	August 2009	Political	The risk would prevent the project from delivering on its objectives for Outcome 1 P = 2 I = 5	Strengthening urban transport policy, strong institutional agreement with all levels of government and civil society, securing financial commitments for implementing integrated BRT	Project manager	Submitted by Project Proponent, updated by Project Manager
2	Lack of ongoing, long-term provincial government support for integrated BRT in Sindh Province	August 2009	Political	The risk would prevent the project from delivering on its objectives for Outcome 2. P = 3 I = 5	Strengthening urban transport policy, strong institutional agreement with all levels of government and civil society, securing financial commitments for implementing integrated BRT	Project manager	Submitted by Project Proponent, updated by Project Manager
3	Unfavorable investment climate for BRT and bus purchases	August 2009	Financial	The risk is closely connected with the federal bus purchase program. Prior to the commencement of the project, ENERCON have been attempting for several years to facilitate purchases of CNG bus by the private sector. The project's	The project will work closely with the program to assist in creating a more favorable climate for bus purchases by the private sector. In addition, project designs will also include holistic integrated bus route	Project manager	Submitted by Project Proponent, updated by Project Manager

				initial assessment of the investment conditions for the buses was poor with private sector firms assuming large risks including lack of CNG fuelling stations, land for maintenance depots, risk of congested bus routes, vagueness of subsidy support and lack of a hedge against higher fuel costs. P = 3 I = 5	designs with the intention of ensuring sustained and improved bus services and to reduce risks to private sector in the purchase of the CNG buses.		
4	Unfavorable investment climate for energy efficient truck purchases	August 2009	Financial	There is little doubt that most commercial truck operators will require financial assistance to modernize their trucks. As part of government's role to assist SMEs to modernize their assets, it will need to create the favorable investment climate by understanding the extent of subsidy support for a truck modernization program. Without this, the unfavorable investment climate will persist. P = 3 I = 5	The project will work to estimate the real costs and benefits of a truck modernization program that will enable government to estimate the required subsidy support. In addition, the Project will use its network of donor contacts to solicit support for financing a revolving loan instrument with favorable payback mechanisms to increase the attractiveness of purchasing a fuel efficient truck	Project manager	Submitted by Project Proponent, updated by Project Manager

Annex 2: Detailed CO_2 Calculations and Assumptions

Direct Emission Reductions
Direct GHG emission reductions that are attributable to PAKSTRAN stem from the successful completion of the three demonstrations that will be carried out under the project by Year 5.

For estimating GHG reductions from PAKSTRAN, the first demonstration is assumed to be a BRT project in Lahore along the Ferozpur Road corridor from Kalma Chowk to Lahore City Hall, length of 7.5 km. Key assumptions used in the GHG emission reduction calculations include:

- BRT capacity is 20,000 passengers per hour;
- 25% of passengers are those who switched from private cars to BRT;
- Transport modal switch means 5,000 cars are parked daily and their owners use BRT instead;
- Each car has a 60 liter CNG tank containing 8 kg of CNG;
- Natural gas has 53 MJ/kg energy value;
- Each 60 l CNG tank has 424 MJ of energy;
- Natural gas emits 14.4 tonnes C/TJ (at point of use);
- Each 60 l CNG tank has 0.0061 tonnes C;
- Each 60 l CNG tank has 0.224 tonnes CO_2;
- Average SEC of a CNG-fuelled private car is 18.8 passenger-km/kg CNG
- Average SEC of a CNG-fuelled BRT bus is 75 passenger-km/kg CNG
- 1 CNG-fuelled BRT bus (40 seats) is equivalent to 4 CNG-fuelled private cars (in terms of CNG consumption)
- 0.8 kg CNG saved from non-use of 1 CNG-fuelled private car per day
- 16 kg CNG saved from non-use of 1 CNG-fuelled private car per month
- 192 kg CNG saved from non-use of 1 CNG-fuelled private car per year
- 5.4 tonnes CO_2 emission reduction from CNG savings of 1 CNG-fuelled private car per year
- *Average useful life of BRT system is 20 years*

This demo project is expected to displace 5,000 CNG-fuelled private cars. Based on that, the annual CNG savings would be around 960,000 kgs. The corresponding annual CO_2 emission reduction is expected to be about 20,280 tonnes. Consequently, the cumulative, direct GHG reductions from the BRT demonstration in Punjab Province are estimated at 405,600 tonnes of CO_2 over 20 years.

Annual Reduction: (5,000 cars * 5.4 tonnes CO_2/car/year) – (5,000 passengers/40 seats x 0.224 tonnes CO_2/day/bus x 20 days/month x 12 mos/yr) = 20,280 tonnes CO_2/year

Cumulative Reduction: 20,280 tonnes CO_2/year x 20 years = 405,600 tonnes CO_2

The second demonstration is in Sindh Province. As the same technology and infrastructure will be used and the existing transport system is very similar to that of Punjab Province, the same set of assumptions used in the calculation of CO2 emission reductions above apply for this BRT demonstration in Sindh Province. The BRT demonstration in Sindh Province will displace about 2,500 cars, resulting in annual direct GHG savings of 13,500 tonnes CO_2 or 270,000 tonnes of CO_2 over the 20 year useful life of the BRT system.

Annual Reduction: (2,500 cars * 5.4 tonnes CO_2/car/year) - (2,500 passengers/40 seats x 0.224 tonnes CO_2/day/bus x 20 days/month x 12 mos/yr) = 10,140 tonnes CO_2/year.

Cumulative Reduction: 10,140 tonnes CO_2/year x 20 years = 202,800 tonnes CO_2

Overall, for the two BRT demonstrations, the following are the annual and cumulative CO2 emission reductions:

Annual Direct CO_2 Emission Reduction: 20,280 + 10,140 = 30,420 tonnes CO_2

Cumulative Direct CO_2 Emission Reduction: 30,420 x 20 = 608,400 tonnes CO_2

The third demonstration is a truck modernization initiative involving a fleet of 50 Bedford trucks. Key assumptions used in the GHG emission reduction calculations include:

- An old Bedford truck consumes 35 liters of diesel per 100 km;
- Fuel saved with new (Bedford) trucks is 10 liters per 100 km driven;
- Each week, a Bedford truck drives 800 km average;
- Each week, a Bedford truck saves 80 liters of diesel (compared to an old inefficient one);
- Each year, a new Bedford truck saves 4000 liters of diesel;
- 1.0 liter of diesel = 0.63 kg carbon = 2.31 kg CO_2;
- Each year, a Bedford truck saves 9,240 kg or 9.24 tonnes CO_2;
- *Average useful life of Bedford truck is 10 years.*

Annual Reduction: 50 trucks x 9.24 tonnes CO_2/truck/year = 462 tonnes CO_2/year

Cumulative Reduction: 462 tonnes CO_2/year x 10 years = 4,620 tonnes CO_2

Therefore, the total direct GHG emission reductions from these three demonstrations attributable to PAKSTRAN come to 613,020 tonnes of CO_2 over 20 years.

Indirect Emission Reductions

Through the lessons learnt from the demonstration BRT, and the enabling environment that will be created under PAKSTRAN, it is expected that the design, development and implementation of SUT systems (including BRT systems) in other cities will be facilitated. PAKSTRAN is expected to influence provincial and city authorities to consider and implement SUT systems and measures. In this respect, any CO_2 emission reductions from these efforts by local authorities in the urban centers of the country in the future can be considered as indirect CO_2 emission reductions.

As a conservative estimate, it is expected that a BRT system will be implemented in one other city in Pakistan (possibly Rawalpindi/Islamabad or Karachi) during the ten year influence period following completion of PAKSTRAN. As this will be a full-fledged system as opposed to a demonstration, it is assumed that 20,000 cars will be displaced, representing a replication factor of four compared to the first demonstration project. Therefore, the indirect emission reductions from the BRT/SUT projects can be calculated as follows: CO_2 indirect = 405,600 x 4 = 1,622,400 tonnes of CO_2

Similarly, it is envisaged that through the experiences and lessons learnt from the truck modernization demonstration under PAKSTRAN, similar activities will be carried out in other cities in Pakistan through public-private partnerships (PPPs). Experiences from and capacity built in PPP in truck fleet modernization are expected to influence the design and implementation of such PPPs after the completion of PAKSTRAN. As a conservative estimate, a PPP-funded truck modernization scheme involving 1,000 trucks is expected as a replication of the PAKSTRAN demonstration. Applying a replication factor of 20, the estimated indirect CO_2 emission reductions from trucking fleet improvements amount to 92,400 tonnes of CO_2 (4,620 tCO_2 x RF of 20).

Therefore, the total indirect GHG emission reductions from PAKSTRAN add up to 1,714,800 tonnes of CO_2.

Direct and indirect emission reductions are provided in the following table.

Estimate of Direct and Indirect GHG Emission Reductions from PAKSTRAN Interventions

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
BRT Demonstration in Punjab	20,280	20,280	20,280	20,280	20,280	20,280	20,280	20,280	20,280	20,280	**223,080 over 20 years**
BRT Demonstration in Sindh	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140	10,140	**111,540 over 20 years**
BRT Replication (indirect)		20,280	20,280	20,280	20,280	20,280	20,280	20,280	20,280	20,280	**202,800 over 20 years**
Truck Modernization (demo phase)	462	462	462	462	462	462	462	462	462	462	**4,620 over 10 years**
Truck Modernization Replication (indirect)		9,240	9,240	9,240	9,240	9,240	9,240	9,240	9,240	9,240	**92,400 over 10 years**
Total Direct	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**30,882**	**613,020 over 20 years**
Total Indirect		**29,520**	**29,520**	**29,520**	**29,520**	**29,520**	**29,520**	**29,520**	**29,520**	**29,520**	**1,714,800 for 20 years**
Total Transport GHG emissions*	51,800,000	54,390,000	57,109,500	59,964,975	62,963,224	66,111,385	69,416,954	72,887,802	76,532,192	80,358,802	
End of PESTRAN →										10 years after PESTRAN completion →	

* 38.6 million tonnes GHG in 2009 (see Para 19 in Prodoc)

Annex 3: Agreements

Letters of financial commitment

GEF OFP letter

Attached separately

Annex 4: Terms of Reference:

Regular Project Staff

1. Post Title: Project Manager

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

Duty Station: Islamabad

Salary band: NC-9

Duties and Responsibilities:

Under the overall direction of the Project Board (PB) and reporting to the National Project Director (NPD) the project Manager (PM) would be responsible for the following tasks:

- Manage assistance to the project administratively, financially, logistically, professionally and technically according to standard PCOM regulations;
- Prepare AWP, seek PB approval, manage implementation of AWP and prepare required reports for submission to PB and UNDP;
- Coordinate and consolidate project work plans and progress reports from all implementing partners
- Engage and network with stakeholders and partners to produce project outputs in a participatory manner;
- Keep track and maintain accounts of the project funds in line with the relevant guidelines of UNDP /PCOM;
- Prepare and submit regular periodic reports regarding progress of implementation to UNDP and NPD;
- Hiring and coordinating with consultants. In this regards prepare detailed Terms of Reference for recruiting consultants as well as develop Request for Proposals for professional and contractual services;
- Organize PB meetings and prepare required documentation for the PB.
- Assign responsibilities and deliverables to project staff in consultation with NPD and monitor progress to ensure timely submission of project deliverables.
- Monitor events as determined in the Monitoring & Communication Plan, and update the plan as required;
- Manage requests for the provision of financial resources by UNDP, using advance of funds, direct payments, or reimbursement using the FACE (Fund Authorization and Certificate of Expenditures);
- Manage and monitor the project risks as initially identified in the Project , submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;
- Be responsible for managing issues and requests for change by maintaining an Issues Log.
- Prepare the Project Quarterly Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;
- Prepare Final Project Review Reports to be submitted to the Project Board and the Outcome Board;

Qualifications and Experience:

The candidate should possess a Masters degree in Management, Environment and Energy, Social Sciences or related discipline, with over 10 years of relevant project management and implementation experience. Demonstrated experience in applying Results Based Management tools in managing complex donor funded projects or the projects under the National/Provincial Governments would be essential.

The candidate should have strong negotiation, communication and writing skills.

2. **Post Title: Component Managers (CM) – three (one for each CIU for Outcomes 1 to 3):**

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

Duty Station: Islamabad, Karachi, Lahore

Salary band: NC-9

Duties and Responsibilities: The incumbent will be responsible for implementation of the Outcomes 1, 2 or 3, including assistance to mobilize all component inputs, supervise CIU staff, consultants and oversight of sub-contractors. The CM will be the leader of the Component Team (CT). The CM shall liaise with the government, UNDP, and relevant stakeholders for the specific component. She/he will be specifically responsible for:

- Overall management of the component, prepare quarterly and annual work plans and progress report for the relevant component.
- Working closely with PMU stakeholders to ensure delivery of outputs and outcomes as per project document and work plan,
- Ensuring technical, legal and institutional coordination of the component in close collaboration with the PM,
- Assisting in mobilizing all component inputs in accordance with UNDP procedures and GEF principles,
- Finalizing the ToR for the consultants and subcontractors and coordinate with the PM for recruitment, procurement and contracting,
- Supervising and coordinating the work of all component staff, consultants and sub-contractors,
- Ensuring management of component funds consistent with UNDP requirements, and budget planning and control,
- assisting PM in the preparation of timely submissions of monthly reports, quarterly consolidated financial reports, quarterly consolidated progress reports, annual, mid-term and terminal reports, and other reports as may be required by UNDP;
- Assisting PM in the submission of progress reports and key issue report to the Project Board,
- Assisting in the regular input to UNDP corporate system ATLAS for financial and programme management on component progress, financial status and various logs,
- Arranging component audits for each fiscal year
- Undertaking field visits to ensure quality of work.

Qualifications and Experience: The incumbent should have a Master degree or Masters in energy/environment MBA, Engineering, social science or other relevant academic discipline and profession qualifications with at least ten (10) years professional experience, with at least 10 years of relevant project management and implementation experience. Demonstrated experience in applying Results Based Management tools in managing complex donor funded projects or the projects under the National/Provincial Governments would be essential.

3. **Post Title**: **Monitoring & Evaluation Officer (MEO):**

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

Duty Station: Islamabad

Salary band: NC-7

Duties and Responsibilities

He/She will report directly to the Project Manager (NPM) and will be part of the Project Management Unit (PMU). The M& E officer, in coordination with the project manager, will be responsible for the following:

- Understand and follow the UNDP Monitoring and Evaluation Guidelines
- Clarify and respond to the core information needs of central project management, the Project Board, funding agencies and the cooperating institution/s.
- Develop the overall framework for project M&E, for example, annual project reviews, participatory impact assessments, process monitoring, operations monitoring and lessons-learned mechanisms
- Help refine for implementation the project R&R, in the areas of the objective hierarchy, indicators and monitoring mechanisms.
- Guide the process for identifying and designing the key indicators for each component, to record and report physical progress against the AWP. Also the process for designing the format of such progress reports.
- Guide the process for identifying the key performance questions and parameters for monitoring project performance and comparing it to targets. Design the format for such performance reports.
- With stakeholders, set out the framework and procedures for the evaluation of project activities.
- Based on the AWP and in particular the programme budgets, design the framework for the physical and process monitoring of project activities.
- Guide staff and implementing partners in preparing their progress reports. Together, analyse these reports in terms of problems and actions needed. Prepare consolidated progress reports for project management to submit to the relevant bodies, in accordance with approved reporting formats and timing.
- Review monitoring reports, analyse them for impact evaluation and to identify the causes of potential bottlenecks in project implementation.

Qualifications

The candidate should possess a Masters degree in Management, Social Sciences or related discipline, with 5-7 years of experience in formulating, monitoring and evaluating development projects; Should have expert knowledge of the development landscape, government systems and sound understanding of administrative justice issues; excellent report writing skills and computer skills for data analysis; and Ability to work in a complex and multi-stakeholders environment. The candidate should ideally have knowledge of the logical framework approach and other strategic planning approaches, M&E methods and approaches including quantitative, qualitative and participatory; and planning and implementation of M&E systems.

S/he should be able to work independently with minimum supervision and be able to deliver on time. Awareness of and commitment to issues of gender equality, inclusion of minorities and community participation is essential.

4. **Post Title: Research Officers – six (two for each CIU for Outcomes 1 to 3 on need basis):**

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

Duty Station: Islamabad, Karachi, Lahore

Salary band: NC-7

Duties and Responsibilities: The incumbent will be responsible to provide overall technical assistance under the guidance of their respective component managers She/he will:

- assist with initial and informal stakeholder consultations,
- collect and analyze preliminary information and data. Provide advanced word processing support by creating complex spreadsheets, maintaining databases and creating high quality reports, presentations, and other documents;
- assist in arranging meetings and workshops,
- assist in the preparation of reports,
- assist in preparation of work plans and budgets, and
- maintain ongoing communications with stakeholders.
- Assist the Project/ Component Manager in project coordination and monitoring by keeping track of the project work plan and reports;
- Understand and assist in managing project outputs, activities, project controls and draft correspondence as and when required;
- Assist in compiling and developing project work plans;
- Assist in coordinating meeting of the Project Board, including preparation of agenda, invitations, and drafting minutes of the meetings;
- Assist in organization of project workshop and seminars, including preparation of proceedings and short reports; and
- Any other task assigned by the project/ component manager.

Qualifications and Experience: The incumbent should have at least a Bachelor degree in a technical discipline from a recognized university (i.e. geography, engineering, economics, physics, and social sciences). She/he should have at least 3 years relevant working experience with foreign aided projects or international development or organizations. Computer proficiency in MS Office (Word, Excel and PowerPoint) and other common software is a prerequisite. Ability to collect data, analyze data, write basic reports in English is a basic requirement. Ability to effectively interact with a wide variety of stakeholders and knowledge of UNDP project implementation procedures, including procurement, disbursements, and reporting and monitoring is considered an asset. Fluency both in written and spoken English and Urdu is required.

5. **Post Title: Admin and Finance Assistants: (One PMU and one each CIU)**

Project Title: Pakistan Sustainable Transport Project (PAKSTRAN)

Duty Station: Islamabad, Karachi, Lahore

Salary band: NC-5

Duties and Responsibilities

- Ensure the implementation of UNDP Financial and Admin related policies in the Project. Prepare and maintain quarterly advances and financial reports and keep a track of all funds released by the PMU/ CIU.
- Prepare necessary documentation for quarterly advances and their settlement in line with the UNDP standard financial procedures.
- Maintain ledger of financial commitments and advances, ensure settlement of advances in accordance with agreed contract.
- Prepare payments requests/travel claims with the supporting documentation and liaison with UNDP for payment follow-ups; Handle all financial matters of the meetings, workshops and seminars organized under the project;
- Maintain project petty expenses and ensure entries in petty cash register, maintain general ledger to keep record of project accounts.
- Provide support to the PMU to prepare tender documents, disseminate, prepare bids tabulation and ensure quality and quantity of goods before delivery; receive and check invoices from the suppliers and initiate payment requests.
- Assist in inventory management of both expendable and non-expendable project items. Also responsible for the project file management i.e. to maintain an accessible filing system in the project.
- Prepare Cash Payment Vouchers, Bank Payment Vouchers, and Journal Vouchers together with complete supporting documentation in support to every financial transaction.
- Act as focal person for yearly project audit.
- Perform any other related duty as and when required.

Qualification & skills

The candidate should possess a Bachelors degree preferable in Management Sciences (MBA - Finance, M.Com, CA, Statistics), with minimum seven to ten years of experience in financial management of GoP/NGOs or development assistance work. Knowledge of computers, including basic hardware maintenance and use of recent accounting software. Expertise in project formulation and implementation will be an added advantage.

The candidate should have strong interpersonal skills and excellent command of English language.

Key Short-term Consultants (On need basis)

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6. International Consultant: Chief Technical Advisor for Components 1, 2 and 3

- Provide management oversight for project as required and recommend actions that focus work plans on achieving key milestones in a timely manner;
- Recommend special expertise to be deployed on the Project to assist in its achievement of key milestones
- Provide the interface between Project team and key specialist consultants, both domestic and international when appropriate.

7. International Consultant: Urban Transit Planner for Components 1 and 2

- Provide oversight and guidance for the holistic planning of integrated bus rapid transit systems;
- Recommend key actions for data and information collection and stakeholder consultations;
- Contribute towards demonstration BRT route design and its holistic aspects such as feeder routes, economic development at transit points.

8. International Consultant: Urban Transit Financial Specialist for Components 1 and 2

- Closely examine baseline revenues and operational expenses for current urban transit operations in selected cities;

- Assist in the formulation of an operations-revenue model for a reformed integrated bus rapid transit system;
- Determine the net effect of various revenue levels into an integrated bus rapid transit system and required subsidy levels.

9. International Consultant: Policy Specialist for Components 1 and 2

- Provide overview of current urban transit or related policies;
- Recommend amendment of existing urban transit policies or drafting of new policies in collaboration with responsible senior provincial government officers;
- Assist in the amendment of existing or preparation of new urban transit policies for Sindh and Punjab provinces using strategic plans and streamlined institutional arrangements.

10. International Consultant: Commercial Vehicle Specialist – Component 3

- Identify and provide technical overview of energy efficient trucks that can be procured by current commercial trucking operators;
- Participate in stakeholder consultations on adoption of energy efficient trucking models, financing schemes and monitoring of fuel savings
- Identify strategies to maximize adoption of energy efficient trucks in the design of a trucking modernization program;
- Guide design of a commercial motor vehicle regulatory system using international best practices and examples.

11. National Consultant: Institutional Strengthening Specialist – Components 1 and 2

- Provide an institutional baseline for the development of urban transport;
- Consult with relevant institutions and government officers on reforming institutional arrangements for developing urban transport at the provincial government level;
- Recommend institutional streamlining actions that has the consensus with relevant government agencies that can effectively develop urban transport policies and projects

12. National Consultant: Urban Transit Planner – Components 1 and 2

- Provide guidance to the international urban transport planner on local nuances to the development of urban transport projects;
- Assist in the strategic planning discussions on planning urban transit strategies;
- Assist in the preparation of strategic plans and implementation plans under the guidance of the international urban transport planner.

13. National Consultant: Strategic Planning Facilitator – Components 1 and 2

- In consultation with international and local project personnel, prepare agendas for strategic planning sessions on urban transport and trucking sector modernization;
- Serve as the key facilitator in strategic planning sessions on urban transport development;
- Provide summary of key outcomes and steps forward emanating from the strategic planning sessions.

Detailed TORs of the national and international consultants will be developed during the Project Inception period, in the first 3 months after project start-up, by the Project Coordinator in consultation with UNDP and the implementing partners.