NATIONAL INFRASTRUCTURE PLAN

2017-2021

(28 September 2016)

Overview

Afghanistan's future economic growth, employment and social development is dependent on improving the country's economic performance, productivity, competitiveness and connectivity. The Afghanistan National Peace and Development Framework (ANPDF) outlines the core strategies to achieve this through planning and targeted infrastructure investment, human capital development, and enhanced regional connectivity. This to be undertaken while maintaining a stable security and governance environment.

While investments have been made, the country's growth prospects continue to be constrained by: poor connectivity (inadequate infrastructure for energy, transport (roads/ rail, urban)), and ICT; limited energy supply (regional and domestic) and access; limited operations and maintenance funding leading to poor infrastructure; lower agricultural productivity (inadequate irrigation systems investment and rehabilitation, and technology access) and delayed mineral resource development. The ongoing barriers to regional market integration impact on transit and trade; and human capital and skill gaps are limiting labor productivity. Institutional capacity and incomplete policy and regulatory reforms and ongoing security conflicts affect costs, efficiency and competitiveness.

The growth prospects for the economy are predominantly in agriculture and mining, and will require infrastructure and human capital investment. The economy remains agriculturally based, employing the majority of the rural population. The business and service sector is important, and is dominated by family based small and medium enterprises. The opportunity exists to increase productivity and domestic production, develop product value added and products for import substitution, and increase exports with improved skills, market access and connectivity. Agriculture sector investment has the greatest potential to generate long-term employment (on farm, rural non-farm and in supporting industry) and reduce poverty. The mining sector has the greatest potential for generating growth and revenue and will require large private sector investment, and a large number of skilled staff (10,000 to 20, 000). The planned investments will support these resource sectors, the required human capital skills, regional energy and transit (ICT technologies) that have revenue potential.

Afghanistan faces major skill gaps in human capital. The labour market is challenging, with up to 400,000 new entrants (across unskilled to skilled participants) each year. Of those employed only 21 percent of all employed persons are in salaried public and private employment, or as employers, with the remaining 79 percent of the workforce deemed to be in vulnerable or less secure employment. The high levels of adult illiteracy (with high variance by gender, and rural and urban areas) significantly constrains the adult population's access to information, skills advancement and personal development. It indicates the challenge facing Afghanistan in fully engaging its human capital to improve productivity.

While skill and education levels have improved, quantitative data on labor market demand is limited. The studies undertaken indicate that education has increased human capital, labor skills, employment prospects and income level. In addition to the economic benefits there are significant social benefits from education (improved health, hygiene and child mortality rates, living conditions and civic commitment).

Significant human capital shortfalls remain, and to enhance labor market skills and capacity, the education sector will assess and strengthen linkages with industry, employers and SMEs, to improve the targeting and competency of skilled graduates to meet market demands. This will require review of approaches and course structures, particularly for TVET to improve effectiveness and performance of both the formal TVET and the traditional systems. Given the government fiscal constraints, opportunities for public-private partnerships and sponsorships with industry sectors to develop targeted skill training will be pursued.

The regional connectivity, and the effectiveness of the regional networks for movement of goods, services, people and knowledge, is an essential element for the country and region's future economic growth, employment, and stability. The economic integration frameworks will deliver on the region's trade, transport and transit potential. The government is working directly, and through a range of regional forums to: improve trade policies; facilitate trade and transit; invest in infrastructure and connectivity; create the right regional business environment; and strengthen regional economic institutions.

Afghanistan's regional cooperation will bring specific benefits in terms of: economies of scale to increase local supply capacity and improve access to markets; integrated or harmonized treatment of trans-boundary issues such as trade, regulatory frameworks and policies, and regional infrastructure; and management of shared natural resources. Particular opportunities, requiring investment exist in energy, transport systems, freight and logistic supply chains, energy supply and high-speed telecommunications, which will create linkages across the region to external markets.

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Abbreviations and Acronyms

ACAA	Afghan Civil Aviation Authority
ACAI	Afghanistan Civil Aviation Institute
ACCI	Afghanistan Chamber of Commerce and Industries
ACDR	Afghanistan Center for Commercial Dispute Resolution
AfRA	Afghanistan Railway Authority
AISA	Afghanistan Investment Support Agency
ANA	Afghan National Army
ANPDF	Afghanistan National Peace and Development Framework
APPF	Afghan Public Protection Force
ATRA	Afghanistan Telecommunications Regulatory Authority
BCPS	Boarder Control Points
CAREC	Central Asia Regional Economic Cooperation
CASA	Central Asia South Asia
DABS	Da Afghanistan Breshna Sherkat
DAD	Development Assistance Database
EA	Execution Agency
GDP	Gross Domestic Product
IA	Implementation Agency
ICAO	International Civil Aviation Organization
ICT	Information and Communications Technology
NPP	National Priority Programs
IDLG	Independent Directorate of Local Governance
MAIL	Ministry of Agriculture, Irrigation and Livestock
MEW	Ministry of Energy of Water
MoCI	Ministry of Commerce and Industries
MoF	Ministry of Finance
MoI	Ministry of Interior
MoICT	Ministry of Communications and Information Technology
MoMP	Ministry of Mines and Petroleum
MoPW	Ministry of Public Works
MRRD	Ministry of Rural Rehabilitation and Development
MTEF	Medium Term Expenditure Framework
MUDA	Ministry of Urban Development Affairs
NEPS	North East Power System
NUG	National Unity Government
O&M	Operations and Maintenance
OECD	Organization of Economic Cooperation and Development
OFC	Optics Fiber Cable
PMO	Project Management Office
PPP	Public Private Partnership
SEPS	South East Power System
UN	United Nations

Executive Summary

The National Infrastructure Plan (NIP) and investment pipeline for 2017-2021 focuses on the efficient planning, delivery and operation of infrastructure at the national and sector level, which will improve performance and deliver improved efficiency, productivity and competitiveness. The NIP will assist in achieving the government's Afghanistan National Peace and Development Framework (ANPDF) vision, as these priority infrastructure investments combined with human capital development and enhanced regional connectivity, provide the essential building blocks for Afghanistan's future economic growth, employment and social development.

The NIP will provide:

- improved planning, implementation and delivery of the infrastructure pipeline, policy/ regulatory and institutional reforms;
- better utilization of the fiscal resources dedicated to infrastructure, and development of opportunities for increased public-private partnerships (PPPs) and private sector investment;
- strengthened monitoring and performance (with identified benchmarks) and annual reporting systems.

Current Situation-Key Infrastructure Gaps (Section 3). Infrastructure remains a critical constraint. While significant infrastructure investments and improvements have been achieved since 2002 there are still major gaps constraining growth due to: limited energy supply and access; poor transport and ICT connectivity; incomplete water–irrigation systems lowering agricultural productivity; poor urban livability (housing/ access to services); delayed mineral resource development; barriers to regional market integration; incomplete policy and regulatory reforms; institutional capacity and human skill constraints; ongoing security conflicts; and limited operations and maintenance funding for existing infrastructure.

The current infrastructure sector portfolio, has large ongoing project commitments, and is characterized with numerous projects facing significant delays, and poor performance due to: inadequate planning, appraisal and design; procurement, contracting and implementation delays; inadequate action and mitigation measures to deal with the security situation and contractor site access; lack of pro-active project management; and PMO and institutional capacity constraints.

The government strategy is to improve infrastructure investment efficiency. It plans to implement an improved planning process in 2017, for project assessment applying a standard appraisal methodology for selection and ranking, implementation and reporting.

The country's on-ongoing fragility and security environment affects growth at all levels, as does the effects of systemic corruption. To improve NIP investment efficiency and cost effectiveness, government will be pro-active in tackling corruption through implementation of stronger government anti-corruption measures.

Infrastructure Financing and Pipeline (Sections 4 and 5). The NIP investment pipeline for 2017-2021 outlines the proposed level of new investments at the sector level that will develop and expand the country's economic base, and deliver the

ANPDF vision and NPP outcomes. These investments are outlined at the sector level below, and in summary form in Annex 1.

The investment pipeline has a financing constraint. An initial base of $800 million per year was assumed, using the current level of new commitments that consist of approximately $600 million on budget (development partner and government discretionary funds) and indicatively $200 million off-budget. The opportunities to increase funding are outlined in Section 4 (low interest loans, PPPs, mobilizing national and other private sector investors, improving project cost efficiency), and on that basis the investment pipeline has used an indicative revised figure of approximately $1 billion per year. With some of the investments listed there is the possibility of PPP or leveraged private sector engagement. These opportunities will be pursued. The projects that are listed, including the indicative project costs, are for approval in 2017 to 2021. Ongoing projects (on-budget and off-budget) already have their committed funds, and are listed separately in Annex 3 by ministry and agency.

The indicative pipeline as outlined in Annex 1 is for investments totalling in excess of $5 billion over the five year period. Some potential loan projects, and projects using regional funds are included in Table 1. This pipeline is to be reviewed, and there may be some adjustment in identified potential investments. The potential funding sources/ financing partners listed in the Table (development partners, government, loans, private investors) requires further consultation.

To maximize the opportunity to increase funding through leveraging existing funds, and facilitating private sector engagement, the Government as a priority will ensure the legal and regulatory measures are endorsed and adopted. Within the new NIP projects, there are bankable projects, for which leveraging private sector engagement is a prospect.

Energy Sector (Section 6). The new energy investments will improve energy access and connectivity, by strengthening national grid network integration, and expanding national energy generation. The grid network integration will be achieved through synchronizing the separate power supplies and linking the isolated transmission systems and islands, increasing capacity through transmission reinforcement and expansion, and distribution network development. The national energy generation will be achieved with strategic investments in prioritized feasible hydropower/ multipurpose dams and in renewable solar energy plants.

Transport Sector (Section 7). Integrated transport network infrastructure investments, systematically planned and implemented, are focused on facilitating the country's economic growth and development, through expanding access to domestic, regional and international markets and social services, increasing employment, and spurring trade, transit and logistics. This will involve rail linkages and road investments, including completing the ring road, the border road connections, Salang Tunnel and access roads, and road operations and maintenance programs; Kabul ring road/ urban transport; civil aviation and trade facilitation, dry ports and transport logistics.

Water Resources/ Irrigation (Section 8). Agriculture is a key growth sector for economy, employment and improved productivity. These investments cover

rehabilitation of existing and new irrigation schemes, irrigation intake canals, water storage reservoirs for rainfed agriculture, and irrigated agriculture. The irrigation investments have been ranked across the five major river systems in the country.

Extractive Industry Development (Section 9). The focus is on private investment with a public sector potential role in provision of supporting infrastructure, and enabling environment.

Urban Sector (Section 10). The investment focus is on housing, in six major cities of Afghanistan (Kabul, Mazar, Herat, Jalalabad, Kandahar, and Kunduz), with the urban transport included under the transport sector. Technical support is for planning, development and service delivery: municipal institutional capacity to deliver quality services; city and urban development planning; regional development strategies and plans; municipal and rural area planning; development zones, and resource corridor development; and special economic zone potentials (with the opportunity to utilize the large air-force bases).

ICT (Section 11). The expansion in the information and communication technology (ICT) sector will support economic growth and development, through the country wide connectivity, improved efficiency of the government, and provide an impetus for further private sector growth. The focus is on private investment with a public sector engagement with the proposed digital CASA and fiber optics networks in Afghanistan, which is detailed under regional connectivity.

Regional Connectivity (Section 12). The NIP will improve regional connectivity with efficient infrastructure delivery, and connect Afghans to jobs, goods to markets and Afghanistan to the region. This regional connectivity will be achieved through improved transport systems, freight and logistic supply chains, energy supply and high-speed telecommunications. A number of the regional projects will directly generate revenue for the Government through transit fees.

Moving Energy. Afghanistan will serve as the utility corridor connecting the energy-rich Central Asian nations to energy-poor South Asia. There are three projects that are currently in the pipeline: TAP 500 kV transmission line that would initially move 2000 MW from Turkmenistan to Pakistan via Western Afghanistan and could eventually carry up to 4000 MW; TAPI gas pipeline that will transport natural gas from Turkmenistan to Pakistan and India via Afghanistan; and CASA 1000 transmission lines that will move over 1000 MW (Megawatts) of electricity from Kyrgyzstan and Tajikistan to Pakistan via Afghanistan.

Moving Goods to Markets. Moving goods and merchandize across Afghanistan to the region is a top priority. The NIP transport sector priorities reflect the importance of the regional trade connectivity Afghanistan's proposed railway linkages connecting to other neighboring countries will provide new opportunities. The national priority is completion of the ring road, and the regional connections. Three of the six Central Asian Regional Economic Cooperation (CAREC) corridors have a major link in Afghanistan with the national highways, and existing railway connections. Trade facilitation and transport logistics are a Government priority.

Moving Data. The future with data transfer opportunities, as currently roughly half of the world's Internet traffic is between Asia and Europe. As part of the TAPI gas pipeline Afghanistan will be installing fiber optics that will connect India, Pakistan, Afghanistan, and Turkmenistan. The proposed digital CASA Afghanistan project and fiber optic networks will involve digital connectivity, under PPP frameworks to finance domestic and cross-border fiber optics infrastructure which will increase Afghanistan's and other CASA countries' access and integration into the regional and global economy, with regionally integrated, secure and affordable digital infrastructure, including the expansion of e-Government services and digital job opportunities.

Additionally, as part of the TASEM project, the above fiber will be connected under the Caspian Sea to Port of Baku and then to Italy. In other words, Afghanistan can be the pathway to provide a shorter and more reliable data communication route between Europe in Asia. The connectivity projects have the potential to generate significant transit revenues, this is particularly the case with the proposed data movement (TASEM and Digital CASA) which could raise several hundred million dollars in the long-term, as could TAP generating amounts of $200 million or more, while CASA 1000 transit fees are indicated to be $40 million.

Infrastructure Delivery Systems (Section 13). Government will improve the skills/ expertise and capacity to plan, manage, finance, implement and monitor the infrastructure pipeline. This improved efficiency in existing project assessment, planning, procurement, project management and reporting systems will be achieved through: review and adjustment in procurement and contracting methods (discontinue design and build, use detailed design, turn key and fixed price contracts), focus on increasing national contractor engagement in the sectors where expertise exists, and associated with this adjust the size of contracting packages; working with industry to identify approaches to reduce construction and lifecycle costs and contract delivery time; reducing and eradicating corruption; identifying any key skills gaps in the supplier/ national contractor market, and working with the local institutions to develop and implement programs to build national skills/ expertise and capacity to win contracts, supply goods, and invest; and strengthening project management skills.

Reducing and eradicating corruption. Given the scale of the infrastructure sector investments and the level of procurement involved, corruption is a systemic issue. Government is committed to pro-actively tackle corruption through implementation of stronger government anti-corruption measures and convictions. These measures will involve strengthening the integrity of the government financial systems, stronger oversight of procurement procedures to ensure transparency, and a range of legal/ regulatory actions to ensure there is a strong and effective legal framework to deal with the corruption. Implementation of a number of these time bound actions will be undertaken during 2017-2018. Government will have a set of key anti-corruption benchmarks in place by 2017.

Managing project implementation in a changing security environment. A number of approaches have been used. While some have worked, including strong community engagement (and with local leaders), others have not resulted in improved security for the contractors and site access. A number of the approaches have not provided the incentives needed to resolve the problem, and have been at high cost. A

more systemic approach is required for the development of security plans and for interventions when a project site has to stop work.

On major projects of national importance, National Security Council engagement will be sought at the earliest stage. With the security plans for site access, there will be a structured approach on revised schedules and cost implications, to be completed with executing agency, the PMO and supervising engineers. Project site security management is very high cost and where the security environment is such that the problem cannot be resolved, to minimize further unnecessary expenditure by Government, through cost over-runs by contractors, supervising engineers and the PMO, decisions will be taken in consultation with the funding agency to de-scope a project. This action will enable funds to the transferred and utilized for other priority projects that will be implemented and benefit the country.

Government will implement a number of key private sector reform actions that will remove barriers and provide the incentives for private sector and PPP investment in the infrastructure sector.

Monitoring and Reporting (Section 14). Improved monitoring and reporting systems to cover the pipeline investment projects, delivery and performance status. More effective monitoring and reporting (executing agency/ implementing agency action and response to monthly/ quarterly/ half yearly reports), and pro-active mechanisms (with high level government engagement) will be established to resolve problems with immediate actions. Given the poor performance with the current infrastructure portfolio, there will be higher levels of government ongoing monitoring of portfolio status. Monitoring project timelines, with a focus on lead times for approvals on key decision steps on procurement, contracts and implementation actions to be jointly monitored by the line ministry and the development partner.

Implement stronger monitoring and reporting systems from line ministries to Ministry of Finance (MOF)/ Ministry of Economy (MOE) or other agencies. Government to review effectiveness of establishing a large infrastructure project monitoring unit (largest 10 or 20 projects) under MOF/ other ministry to result in more pro-active action when required due to procurement and implementation delays.

Government will monitor the impact of the security environment changes on project implementation and delays, strengthen audit systems and third party audit, in particular for large infrastructure projects. The third party audits will be undertaken by the government/ development partner to provide additional asset/ quality assurance on the completion of assets/ work. This approach will be applied particularly to projects in less secure areas.

Agreed institutional and enabling policy reform frameworks will be monitored, with results based funding for implementation of planned reforms, and achievement of outputs on time. An incentive framework will be prepared by government, with oversight by MOF to encourage pro-active decision making for timely completion of projects.

1. Introduction

In Afghanistan strategic prioritized infrastructure investments will provide economic and social benefits, support growth and employment, and by increasing connectivity, improve efficiency, productivity and competitiveness. The country's economic growth potential will be optimized through prioritized infrastructure investments, coordinated human capital development and enhanced regional connectivity.

The National Infrastructure Plan (NIP) and construction pipeline is based on:

- improved planning, implementation and delivery of the infrastructure pipeline, policy/ regulatory and institutional reforms;
- better utilization of the fiscal resources dedicated to infrastructure, and development of opportunities for increased public-private partnerships (PPPs) and private sector investment;
- strengthened monitoring and performance (with identified benchmarks) and annual reporting systems.

This plan and the proposed pipeline cover the next 5 years in detail (2017-2021). It is the short and medium term part of the longer term infrastructure development for the next 20 years. Based on national principles of good governance, the NIP will also enable the Government to better use existing and additional infrastructure. It includes technically, socially, and economically assessed investments, as well as horizon initiatives that will require further development and rigorous assessment. To fully achieve this goal will require regulatory and governance reform in key sectors.

The Government objective is to deliver these consumer services cost effectively, by moving from working solely at the level of the individual infrastructure project to the efficient operation of the infrastructure at the sector level. This will require elevating the focus to issues of sector policy, pipeline planning, standardization of designs, and reforms to procurement and tendering processes. Where feasible, the Government wants PPPs and private sector investment in infrastructure. Given the infrastructure needs and the fiscal constraints, new modalities to leverage private investment for bankable projects will be actively sought. The Government will ensure that the enabling legal and regulatory environment is in place for PPPs and private sector engagement to facilitate this investment.

Delivering infrastructure efficiently will overcome Afghanistan's legacy of spatial fragmentation. It will connect Afghans to jobs, goods to markets, and Afghanistan to the region and beyond. This connectivity and integration will be achieved through transport systems, freight and logistic supply chains, cross-border energy supply and transit, and high speed telecommunications.

The absence of a globally accepted definition of infrastructure, with both the OECD and UN attempting to produce unified standards, has resulted in national classification systems for data organization. This has limited the effectiveness of comparisons and benchmarking of infrastructure and productivity at local, regional and global levels. In addition, and equally important are the changes in the concept, range and classification of infrastructure, responding to changing technologies and needs, which have produced different combinations and types of infrastructure.

In Afghanistan, as there are no universally agreed upon definitions for infrastructure, the infrastructure classification adopted is one that closely aligns with ANPDF. The infrastructure classifications used are based on the following: Network Infrastructure, Utilities, Public Infrastructure, Urban Development and Housing, and Commercial/Manufacturing. This classification system importantly covers both public and private infrastructure investment. The categories within the classifications are outlined below:

Network Infrastructure

- Transport (roads, dry ports, aviation and railways and services);
- Communication Infrastructure (telecommunications, IT development and ICT and postal services.

Utilities

- Energy (renewables, coal, hydrocarbon, pipelines and transmission lines);
- Water (dams (energy and irrigation), water supply, sewers and storm drainage, irrigation systems, aquifers);
- Mining- extractive resources.

Urban Development and Housing

- Public;
- Private.

Public Facilities

- Government Facilities;
- Defense and Security;
- Healthcare;
- Educational;
- National Monuments and Parks;.
- Disaster management and response (flood control, landslide control, earthquake, fire).

Commercial/ Manufacturing

- Commercial, processing, distribution and sales.

The NPPs, under the Infrastructure Development Council, cover infrastructure and connectivity, energy, national mineral and resource development programs and urban development. The NPP for private sector development is under the High Economic Council, the NPP for comprehensive agricultural development is under the High Council for Land and Water, and the NPP for human capital development is under the Human Development Council.

The infrastructure investment in the NIP is presented in the following sections under: transport, ICT, energy, water resource-irrigation, extractive industry development, urban development and regional connectivity. Regional connectivity is an umbrella multi-category grouping that integrates all investments within the other categories that have regional impacts. The NIP does not include the infrastructure investment for public facilities as these are covered under separate national priority programs and separate budget categories. The ministry project pipelines in Annex 3 are presented using the above classification and categories.

The classification used also closely aligns with the Afghanistan National Development Budget category, infrastructure and natural resources, which include all relevant ministers and agencies undertaking the infrastructure investments outlined above. The exception is the Ministry of Agriculture, Irrigation and Livestock (MAIL) irrigation infrastructure that is under a separate category. In the infrastructure budget expenditures presented in the NIP this MAIL expenditure is included.

2. Infrastructure Development Framework

The Afghanistan Government's vision to move from aid dependency towards self reliance is outlined in the Afghanistan National Peace and Development Framework (ANPDF), and it is based on building a productive and broad-based economy, creating jobs, ending corruption and violence, and building a society that lives under the rule of law.

The ANPDF vision will be achieved through the Government's National Priority Programs (NPPs). NPPs are outcome-based development strategies, often involving multiple ministries that are the means for national leaders to implement operational programs. Achieving the desired level of economic growth, increased employment and social development will require strategic investment in infrastructure, human resources, quality service delivery and technology, a well regulated financial sector, functioning judiciary/ legal system and a secure environment.

The government has strengthened the NPPs and inter-sector coordination through the relevant higher-level councils (for example, the Infrastructure Council) to capture the collective impact of coordinated infrastructure development, and to achieve maximum positive impact. Refer Annex 6 for more detail on utilizing collective impact in infrastructure development. The government realized that a multi-ministry and sector based approach is the only effective way to tackle complex social and economic challenges, as present in infrastructure development planning.

This approach requires line ministries to have a sector vision, which is operationalized through sector plans that have a common agenda and agreed sector outputs and outcomes for performance monitoring. The plans and the activities implemented will be mutually reinforcing, and to be successful will require regular open communication to strengthen the common agenda and motivation, and avoid slippage back into a single ministry focus. The effectiveness of this communication and agenda will be assisted by supporting backbone organizations, that can serve as coordinating bodies. The specific higher-level councils, such as the Infrastructure Council, can provide this role.

Harnessing this collective impact, with strategically linked and phased infrastructure interventions will provide the potential for achieving exponential gains and growth, in excess to that gained from implementing the interventions in isolation.

The economy currently has low economic growth rates. It continues to be agriculturally based, with wheat, horticulture and livestock being the dominant commodities. As Figure 1 illustrates, the agricultural sector accounted for approximately 24 percent of gross domestic product (GDP) in 2014. It provides livelihoods for the majority of the rural population. In terms of GDP shares in 2014, transport and communication accounted for 27 percent, construction (13 percent), manufacturing (10 percent), trade (8 percent), public administration (13 percent) and other 5 percent. In 1393 (2014), the growth came from slight expansion in industries from a construction increase (2.4 percent), and in services (2.2 percent). There was a slight slowdown in manufacturing (2.5 percent).

Agriculture and mining are the two key sectors with the potential to increase economic growth. Agriculture sector investment and development will increase productivity, incomes, improve livelihoods and employment. It has the greatest potential in the long-term for generating employment through household on-farm, rural non-farm and in supporting industry employment. Estimates indicate this could be the equivalent to 1.3 million full-time jobs in ten years.

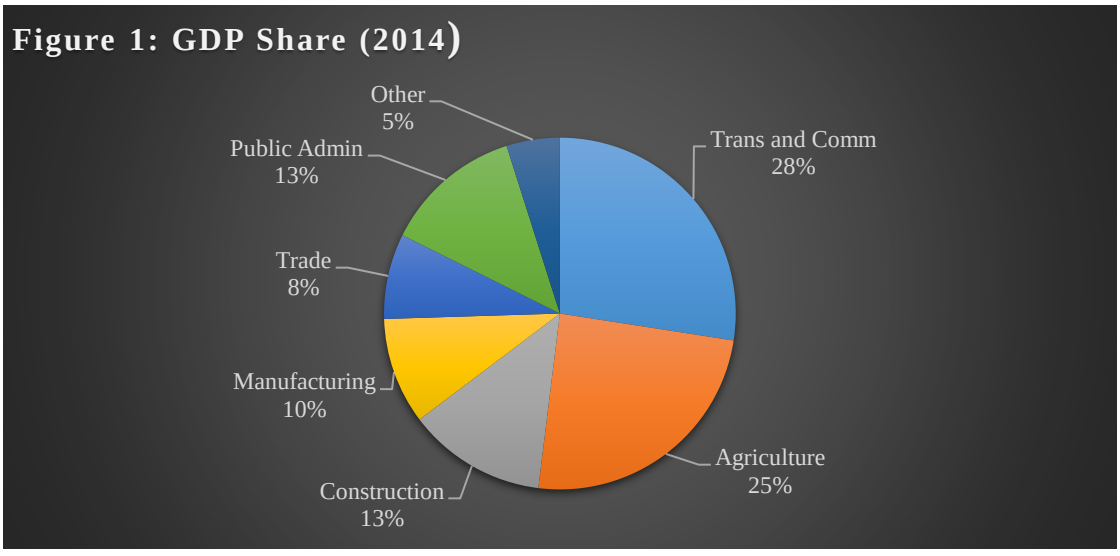
The mining sector has the greatest potential for generating growth and revenue. It will require large capital investment by the private sector ($10 billion to $15 billion), and some public sector investment for supporting infrastructure. Estimates indicate that it could generate 10,000 to 20,000 jobs directly, and including related infrastructure and indirect employment effects up to 100,000 in the longer term. The government revenue estimates will depend on the number and scale of mining investments, and range from $0.7 billion to $1.5 billion at full development. The mining investments also offer the potential for leverage with other economic growth activities. This potential has been assessed and viable resource corridors could be developed. The planning and sequencing of agriculture and mining investments will be critical in determining the economic growth achievements.

Afghanistan has a high population growth rate, with approximately 400,000 entering the labor market each year. This number of new participants is not able to be absorbed into the labor force. The poverty rate in 2014 was 39 percent. A further challenge to the economy is the number of potential Afghan returnees, estimated at up to 4 million, who on their return would significantly increase pressures on housing, services and face limited employment opportunities.

The government budget is characterized with large ongoing security expenditure, and fiscal constraints with a heavy reliance on the international community to finance the development budget and part of the operational budget.

The ANPDF actions to be implemented through the NIP and NPPs over the next five years, will determine whether the country succeeds in moving forward. The Government is very aware that these actions have measurable deliverables, and it will demonstrate to its international partners, that it is implementing the key building blocks to support self-reliance. These improved processes that the Government establishes will be resilient, and able to respond to external factors and shocks.

Figure 1: GDP Share (2014)



3. Current Situation - Key Infrastructure Gaps

Infrastructure remains a critical constraint to economic growth, employment and social development. While significant investments and improvements have been achieved since 2002 there are still major gaps. Afghanistan faces lower country growth prospects as it deals with:

- limited energy supply and access;
- poor transport and ICT connectivity;
- poorly functioning/ incomplete water–irrigation systems lowers agricultural productivity;
- poor urban liveability (housing/ access to services);
- delayed mineral resource development;
- barriers to regional market integration;
- incomplete policy and regulatory reforms;
- institutional capacity and human skill constraints;
- ongoing security conflicts;
- limited operations and maintenance funding for existing infrastructure.

To achieve the benefits from infrastructure investment, an integrated package of policy/ regulatory reform, increased institutional capacity and human skill development will be undertaken.

Overarching and affecting all investments is the country's on-ongoing fragility and security environment, which affects growth at all levels, as do the effects of systemic corruption. The country's infrastructure needs to be resilient and able to operate in less secure environments, and at times in areas where there is ongoing conflict. For these NIP investments to be efficient and cost effective, corruption will be pro-actively tackled by government, through implementation of stronger government anti-corruption measures and convictions.

3.1 Current Status of Infrastructure Portfolio

The current infrastructure sector portfolio, has ongoing project commitments totaling over $6 billion in 2016. The portfolio is characterized with numerous projects facing significant delays, and poor performance. These are due to:

- inadequate planning/ appraisal and design;
- procurement/ contracting delays;
- major project implementation delays which have resulted in low disbursement, contract extensions and cost variations;
- inadequate action and mitigation measures to deal with the security situation and contractor site access;
- lack of pro-active project management, performance based monitoring and reporting systems;
- PMO and institutional absorption capacity constraints.

The improved NIP delivery systems, which are outlined in section 13, will address these shortfalls.

4. Infrastructure Financing

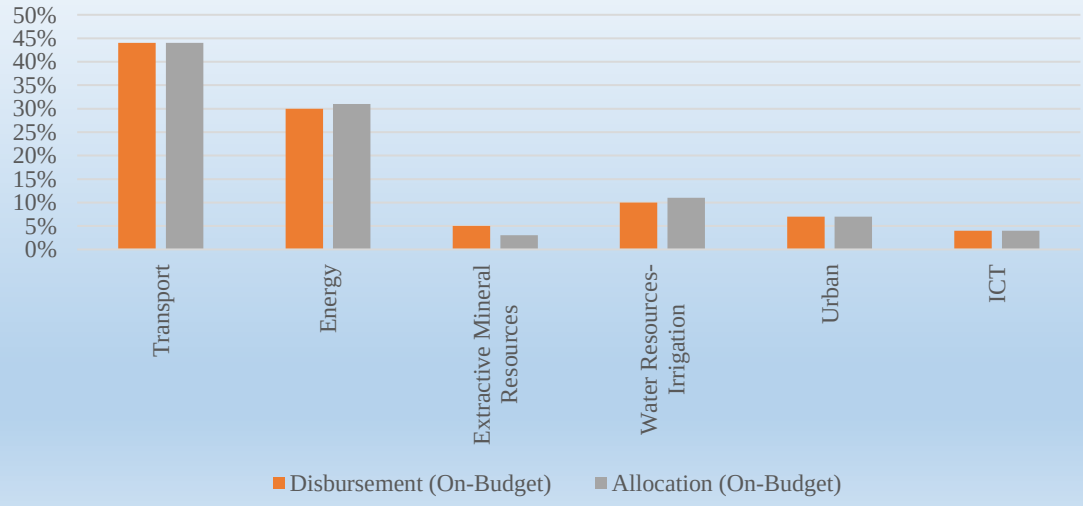
4.1 Current Infrastructure Funding.

Infrastructure investment in the Government's 2016 development budget, as per the NIP sector coverage, was $1273 million and accounted for approximately 50 percent of the total development budget. Of this total allocation, approximately $597 million is new funding commitments (for ongoing and new projects) in 2016, and the remainder ($675 million) is the carry-over of unspent funds that were committed in previous years. As per the budget process, the project funds are committed for a particular year, as detailed in the approved project implementation schedule (ie. for contract awards and disbursements) and should there be any delays with implementation and the funds are not utilized in that year, they will be carried forward to the following year. The large carry forward, in part explains why development budget expenditures are often in the 40 to 50 percent range.

The on-budget infrastructure allocation (annual new commitments) has ranged from $659 million to $597 million over the period 2013-2016. The on-budget funding is predominantly development partner non-discretionary project financing, with the remaining funds being government discretionary financing.

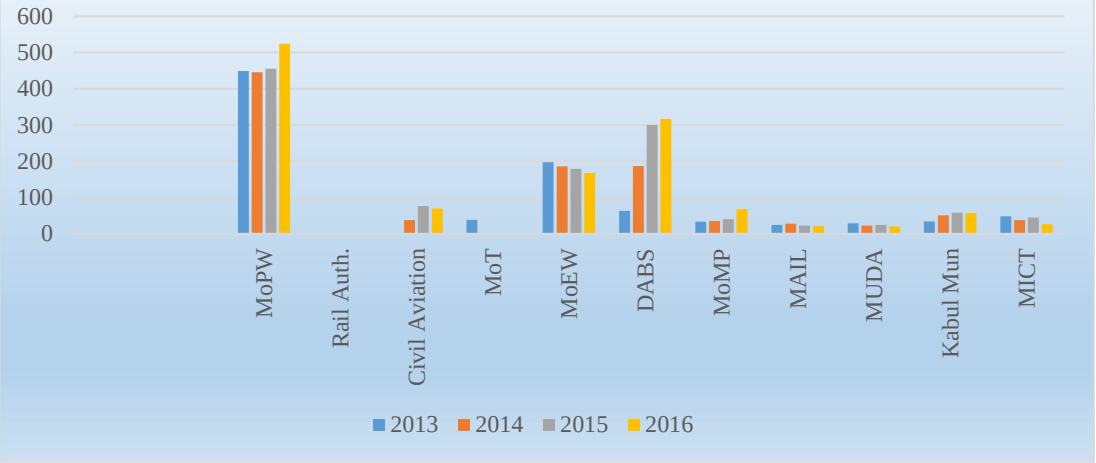
In terms of the sector allocation of on-budget development funds, using 2015 budget allocation and disbursement figures, as detailed in Figure 2, the sector allocation is dominated by transport (44%) and energy (31%), followed by water resource-irrigation (11%), urban (7%), ICT (4%) and extractive industries (3%). With sector disbursements transport (44%) and energy (30%) dominate, water resource-irrigation (10%), urban (7%), extractive industries (5%) and ICT (4%).

Figure 2: Infrastructure Sector Development Budget Allocation & Disbursement (2015) by Sector (% of Infrastructure Sector Total)



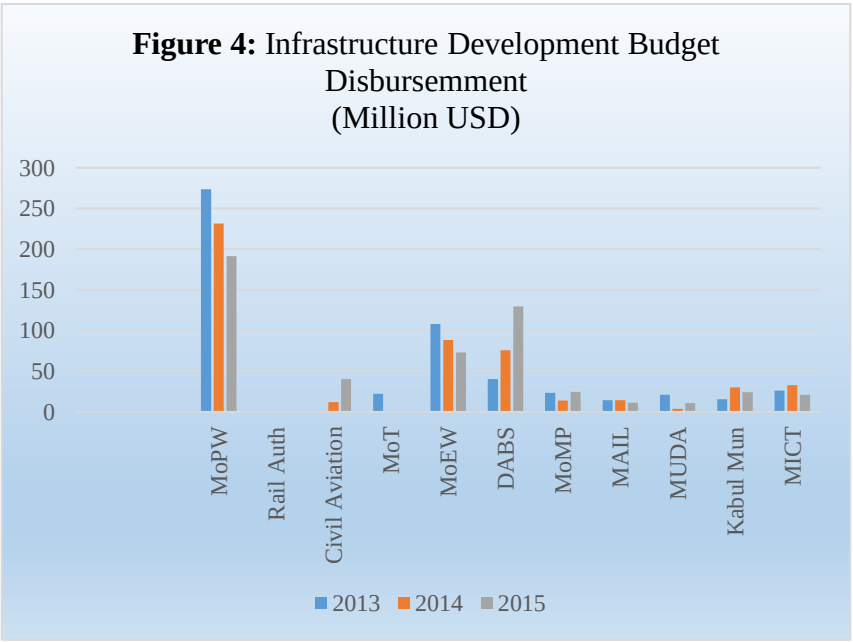
The focus on transport and energy infrastructure investment since 2002 represents the government priority to improve connectivity and consumer access to energy. These investments providing critical building blocks for economic growth and social development. Completion of the ring road is ongoing, and remains a national and

Figure 3: Infrastructure Development Budget Allocation
(Million USD)



regional priority, as does increasing energy access as only 28 percent of the population is connected to the network. Within the ministries and agencies at the sector level, the development budget allocations (2013-2016) and disbursements (2013-2015) by ministry and agency illustrate some implementation trends. Refer Figures 3 and 4 respectively. With MPW while the budget allocation has remained constant, with an increase in 2016, there has been a significant decline in the Ministry of Public Works (MPW) disbursements over the period (2013-2015). This decline, in part reflects the large project contract advance payments made in the early years (2013), though the other key reason for the lower disbursement is the delay in project implementation, due to contractors being unable to access site or complete works on sections of the site project due to security issues and restrictions.

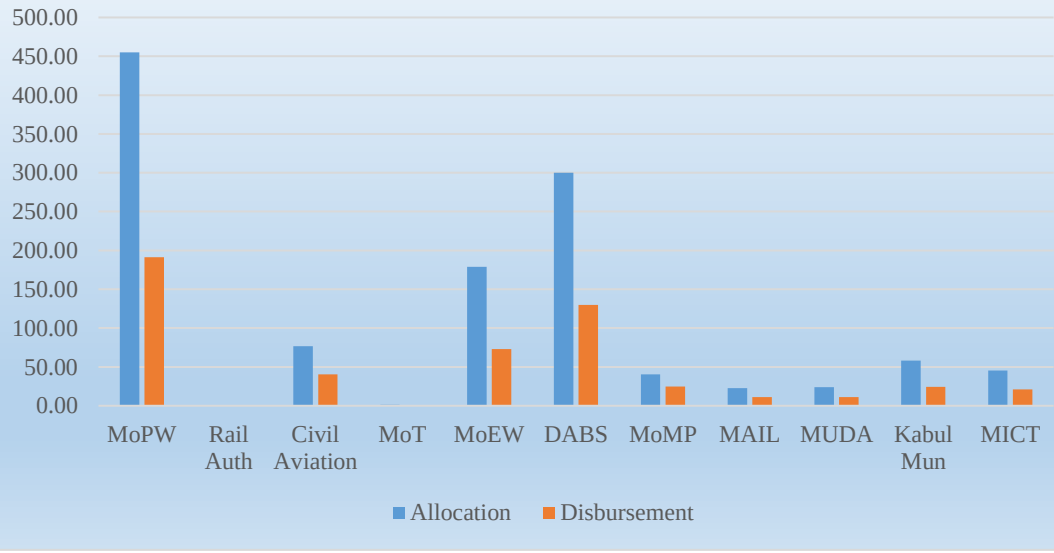
Figure 4: Infrastructure Development Budget Disbursemment
(Million USD)



This is delaying work and completion on a number of project road sections. The lengthy procurement time is also a factor for the low disbursement in the initial years of project implementation. Similar issues are affecting energy sector project implementation, and resulting in long delays in project completion.

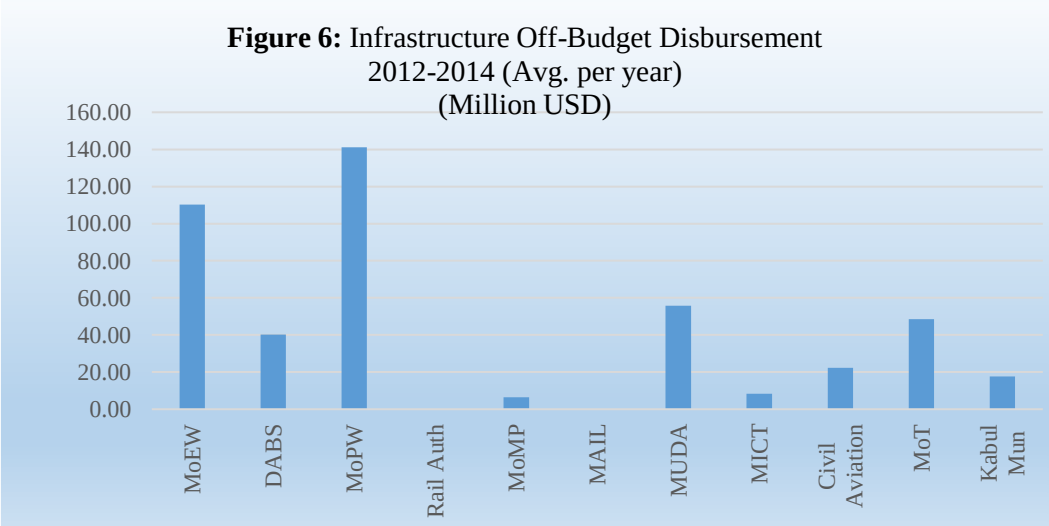
The 2015 budget allocation and disbursement numbers by ministry and agency (refer Figure 5) reinforce the dominance of the transport and energy sectors, and the disbursement percentages due to the large carry forward from previous years.

Figure 5: Infrastructure Development Budget Allocation & Disbursement (2015)
(Million USD)



The off-budget infrastructure investment is difficult to accurately estimate. The MOF donor assistance database (DAD) is estimated for the 2012-2014 period at the infrastructure ministry level, and while not complete, indicates disbursement of $1352 million over the 3 year period (or an average of $450 million per year). It is anticipated that the off-budget commitments and disbursement will have reduced significantly with the completion of all bar one USAID off-budget infrastructure projects (the road maintenance is remaining), and with the closure of the provincial reconstruction teams which were funding local infrastructure projects. Refer Figure 6. Currently the main off-budget development partners in infrastructure are India, JICA, France and Germany/ KfW. An indicative estimate of $200 million per year is considered a conservative estimate of new commitments on off-budget funding.

Figure 6: Infrastructure Off-Budget Disbursement 2012-2014 (Avg. per year)
(Million USD)



4.2 Future NIP Funding (2017-2021)

In terms of future infrastructure funding an indicative annual figure is $800 million per year, which would reflect the current $600 million per year of new on-budget commitments and the estimate of $200 million of off-budget. This will need to be verified with the key development partners. This estimate provides an initial funding ceiling, and is based on the maintenance of development partner support at current levels, and that the government discretionary development budget support will continue at existing levels. Given the Government's fiscal constraints, and using the Ministry of Finance Medium Term Expenditure Framework (MTEF) projection, this would appear to be a realistic base.

To increase the infrastructure funding and resource availability, there are opportunities through:

- **Increasing funding sources**
  - developing new sources of funding, with new development partners (ie. Gulf States);
  - mobilizing national private sector investment;
  - mobilizing investment from the Afghanistan diaspora;
  - leverage the existing infrastructure funds to establish PPPs, and private sector investment;
  - source long-term low interest loans for financially viable investments, in line with Afghanistan's debt sustainability capacity.

- **Improving project cost efficiency and portfolio performance**
  - improving quality at entry filters;
  - improving cost effectiveness and cost efficiency in project procurement and contracting;
  - portfolio review, with cancelling and de-scoping of non performing projects, or those projects in highly insecure areas that are unable to proceed, with the funds re-allocated.

- **Leveraging Funds.** To maximize the opportunity to increase funding through leveraging existing funds, and facilitating private sector engagement, the Government as a priority will ensure the legal and regulatory measures are endorsed and adopted. Within the new NIP projects there will be a sub-set of projects, bankable projects, for which leveraging private sector engagement is a prospect.

Improve Aid Effectiveness. To improve harmonization and aid effectiveness, the Government wants development partners to provide their funding on-budget. The full benefits of the improved prioritization will be achieved with associated coordinated improvements in the government absorptive capacity and monitoring systems. For those development partners unable to fund on-budget, the government requests that all projects be fully aligned with sector priorities, and endorsed by the line ministry and MOF.

Government Revenues. While the potential government revenue increase from the extractive mining industry is now expected to be delayed to at least the end of NIP period, the infrastructure investments and policy/ regulatory reforms will increase government revenue through the economic growth, increase in business activity and employment, and from transit fees. In addition, the sustainable O&M systems that

will be developed to support road, water resource-irrigation and energy infrastructure, will have user charges adopted that are based on cost recovery, with equity criteria.

Given the current infrastructure sector identified priority projects, which greatly exceed available funding resources, selection criteria were applied to determine ranking, and where trade-offs across sectors were required. At this stage while the selection criteria is to adopted, a more descriptive and qualitative approach is applied. In 2017 the systems will be in place to make the assessment quantitative. The NIP pipeline is outlined in Annex 1.

In addition to the sector assessments in Section 6 to 12 of the NIP, the underlying ministry infrastructure plans that link into these sector level assessments and priorities are included in the annexes. Annex 2 is the executive summaries of the ministries proposed infrastructure plans, and Annex 3 is a summary of ongoing projects, and proposed new projects. The list of ministry proposed projects is lengthy, and greatly exceeds funding resources.

5. Infrastructure Pipeline

The pipeline includes ongoing projects and new priority projects. With new projects there will be the opportunity to have those that are publically funded and those for which there is the potential of PPP engagement. The selection of the new projects to be included in the NIP, with the sector priorities identified and detailed in the following sections (6 to 12) on each of the sectors (transport, energy, urban, water resource-irrigation, extractive industries, ICT and regional connectivity).

Government strategy is to improve infrastructure investment efficiency. It plans to implement an improved planning process in 2017 for project assessment, selection, implementation and reporting. Assessments that apply a standard appraisal methodology (economic efficiency, equity (impact distribution aspects), sustainability and compatibility), and development partners will be requested to ensure that their project proposals will meet the required standard.

The selection criteria to be used in ranking / prioritizing the NIP infrastructure (is to be finalized) and from 2017 is expected to cover the following: economic (viability) and social benefits (direct and indirect); income growth, employment and poverty reduction; sustainability (technical, institutional, social (including do no harm principles), financial, and environmental); security risk environment/ management plan (any security cost implication to be added into project cost); project status (state of preparation, implementation period); regional balance and regional connectivity; opportunities for PPP or private sector engagement.

The environmental impact assessment regulatory and legislative requirements are outlined in Annex 5.

The indicative estimates for the next five years will be used to provide an initial funding resource ceiling for the pipeline, to cover ongoing projects (which have funding gaps) and new projects. The fiscal ceiling analysis will use a base scenario (as indicated in Section 4 of $800 million per year) and an option with a higher ceiling (ie. $1 billion per year).

The NIP pipeline for 2017-2021 is detailed in Annex 1. Ongoing projects with committed funding are detailed in Annex 3.

The NIP pipeline selection supports the government's wider agenda to improve economic growth and social benefits, employment and reduce poverty. As part of the selection, given the fiscal constraints and security environment, the NIP pipeline investments are being assessed to ensure the returns to Afghanistan can be optimized. In terms of future investments, this may result in some adjustment in funding allocation across sectors.

Given the performance of current infrastructure sector projects, it is important that there is a period of consolidation, where government, line ministries and development partners as required, work to resolve critical project issues, and incentives are developed, and in place for project completion.

While the infrastructure investment has improved roads, railways, irrigation, energy and other government services, the responsible line ministries have not had O&M systems in place or adequate financial resources allocated in the government budget to maintain these investments. Limited human resource capacity, with inadequate trained skilled staff to manage, supervise and operate ministry maintenance systems, is a further constraint, and a factor in the inadequate performance monitoring and governance of O&M expenditures. Refer Annex 4 for details. In the last few years, the government with development partner support has started increasing budget O&M allocations, though they remain significantly less than required.

Government in adopting a new O&M approach for sustainable infrastructure maintenance will develop appropriate approaches (corrective, preventative and predictive) for the different types of infrastructure based on the infrastructure/ equipment age, technical requirements, skilled staffing and contract capacity available, and the financial resources for O&M. These maintenance systems will necessitate large O&M expenditure increases. Current estimates are that $200 million per year is required for the existing infrastructure. The provision of O&M funds will be a core activity in the NIP pipeline.

For Afghanistan to obtain the benefits from the investment, there needs to be timely project completion. Currently there is over $6 billion of approved and funded infrastructure projects (on-budget). Given the slow implementation, any further investment in those sectors with large portfolios of funded projects and delayed implementation will be carefully reviewed by government, with the involvement of MOF and the Infrastructure Council. Future sector investment will be based on performance benchmarks to be agreed in 2017.

6. Energy Sector

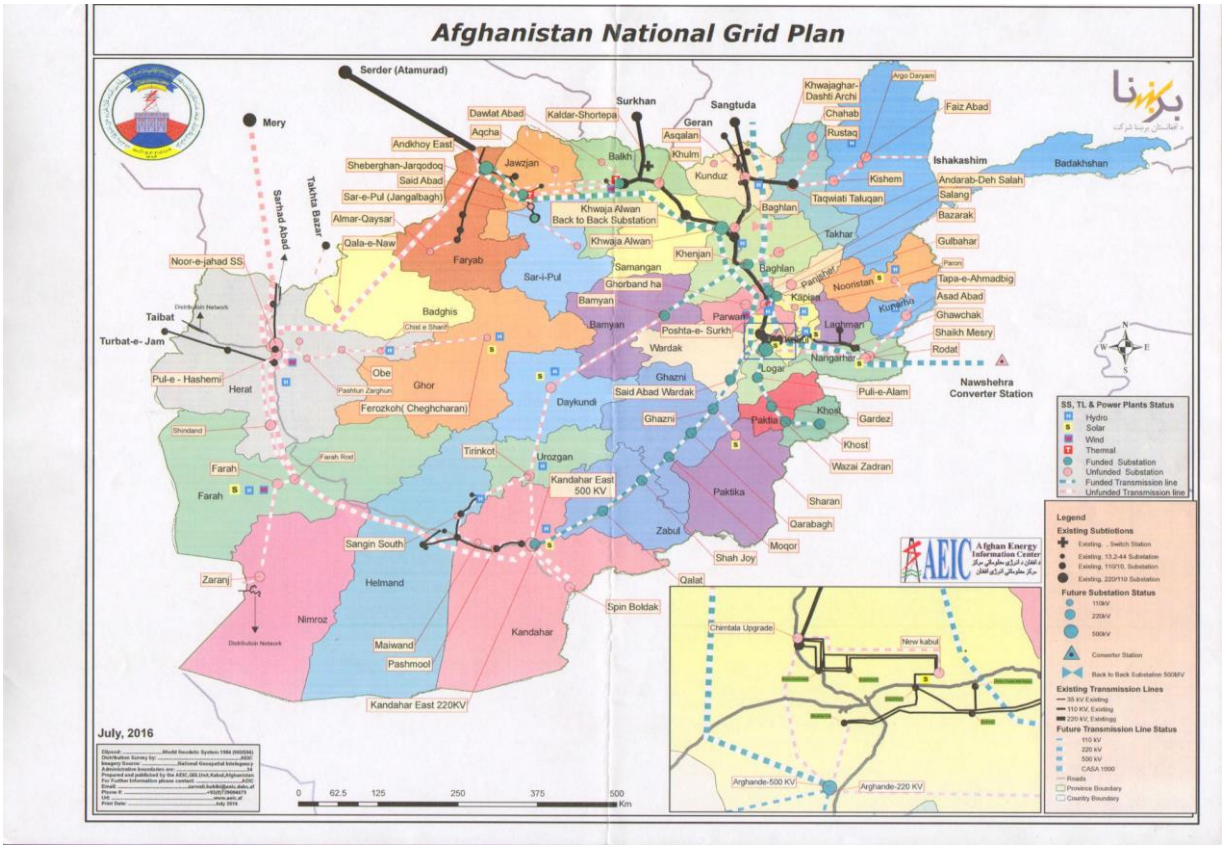
6.1 Overview

Given that Afghanistan has significant water (hydro-power), hydrocarbon (gas, coal) and renewable resources opportunities exist to expand domestic power production. While there have been significant achievements since 2002 in rehabilitation and establishment of essential energy infrastructure (transmission, sub-station and distribution systems and the provision of power (in large part by regional energy purchases), the scale of the required infrastructure work to be completed remains large, as does the challenge of providing financial and technically sustainable systems. Currently the energy sector is characterized by low levels of access and supply, with over 70 percent of the power supply imported. The recent completion of the Salma multi-purpose dam is an example of the future domestic potential.

The Afghanistan National Integrated Energy Policy and National Energy Supply Program focuses on the country's needs in the short and long-term, with targets for electricity supply, energy efficiency, and renewable energy sector, energy institutions and private sector participation, capacity and regulatory framework development.

The sector master plans and national priority programs have identified the key projects, policy, regulatory and institutional frameworks required to support economic growth and social development. The plans position Afghanistan as a strategic partner in regional energy trade (CASA 1000, TAP and TAPI) with opportunities to generate revenue. New energy policies have been adopted, and the establishment of DABS was a critical step in developing the framework for improved energy service delivery.

Figure 7: Afghanistan National Grid Plan



The national grid, as outlined in Figure 7, is a government priority. Key elements of the integrated network are already funded and projects are ongoing, while other parts have been prioritized for funding over the next five years. Only 28 percent of the population has access to power. With increasing demand, and to provide energy security, the government needs to increase energy supply, through increasing imported power capacity (Uzbekistan transmission line is operating at full capacity, with the earliest a new line would to be operational is in 2019), and by developing national power supplies. This will require large investments in generation development and network integration, transmission reinforcement and development. For those rural and remote areas where provision of grid power is likely to be very high cost, off-grid energy generation, though solar, wind and other sources will be developed.

Kabul is facing power shortages at key periods of the year, and the transmission line to Kabul is at full capacity. In addressing the sequencing of investments for an integrated network it is important that the investments are fully assessed, so the cost of the power generated from different sources (hydro, carbon, renewable) and the affordability of covering this cost is evaluated in the feasibility studies. With thermal power there is the requirement for new wells for the plant at Sherbergan to have the required supply, and the cost of the power. For coal plants, the complexity of construction and operation and cost is an issue. For renewables (decentralized (off-grid) and as part of the grid network) there are sound prospects, and solar (10 MW) and wind plants are planned for 2016. These options will need to be fully assessed. A number of feasibility studies have been prepared for large network generation investments, these will need to be reviewed and updated. One consideration will be the long construction periods, given that most hydropower plants will require ten or more years.

6.2 Delivery Mechanisms/ Strategies

- **Improving Access, Expansion and New Supply: Investments in new capacity and energy infrastructure:** New supplies and systems must be fully assessed and prioritized, and efforts focused on a limited number of large projects. Government to develop alternative supplies such as wind/ solar or reducing consumption alongside the more traditional methods.
- **Increased Efficiency in Existing Operations:** System efficiency, reducing current high commercial and technical losses. Using compact fluorescent light bulbs.
- **Improved Sector Governance and Public-Private Partnership Promotion**: The success of the energy sector depends critically on mobilizing the private sector. Building efficiently operating energy companies (DABS, Afghan Gas Enterprise), working in a regulated environment. Establishing a multi-sector regulator.
- **Harness the inter-sector synergies, with improved coordination and capacity development**: Coordination among the Government entities to increase and maximize the synergies, and coordination between the Government and the development community strengthened.
- **Rural Energy versus Rural Electrification:** Options to provide affordable supply to rural Afghans, given household incomes. Harnessing the role of rural energy to support opportunities for economic activities, that will raise rural incomes.
- **Positioning Afghanistan as a strategic partner in the regional energy market.**
- **Improving portfolio delivery performance.**

6.3 Priority Projects and Programs

The funding requirements of the sector priority investments exceed resources, with new modalities and financing including PPP and private sector engagement required. The new prioritized projects will be fully assessed, and ranked to ensure that energy investments provide optimal returns to the country, and will support domestic, commercial and industrial development. To indicate the scale of the investment required, the power sector masterplan, indicated an investment for 2015 to 2020 of $1.47 billion, covering generation development, major transmission projects, and transmission development within the provinces.

The level of ongoing energy sector investment is large, with DABS indicating a fully funded forward program of over $800 million. For MEW on the energy component the funding level is lower, and the investments focus on hydropower and multi-purpose (irrigation and hydropower) projects.

New

National grid network: new transmission and sub-station projects, and distribution systems, Turkmenistan-Afghanistan-Pakistan (TAP) 500kv transmission line and interconnectors, north east power system (NEPS) and south east power system (SEPS) interconnectors, and prioritized domestic power generation plants (to be detailed).

Planned initial progressing on CASA 1000 and TAPI.

The Kabul-Kunar River Basin (KKRB) is a major potential source of hydropower in Afghanistan, and it is a Government priority, as it will supply both the domestic market and provide a potential future source of energy for regional sale to Pakistan. A feasibility study to assess viability hydropower investments in KKRB, to rank the investments, and prepare an investment plan, and for the initially selected investments undertake a detailed design of the initial investments is prioritized for 2017, indicatively $20 million.

National energy generation projects, the final listing to be determined based on review and updating of existing feasibility studies as outlined above for KKRB, and for other schemes covering hydropower, multipurpose schemes, coal, thermal and renewable plants. The review and ranking of projects for the NIP to be endorsed by the Supreme Council on Land and Water. Based on initial studies, the following are potentially viable, hydropower and multipurpose are larger schemes, with the latter providing water for irrigation and other uses, so potentially greater employment impacts, while solar is smaller in scale. The indicative funding allocation for the new power generation over the next five years is listed at $400 million, given the funding constraints.

Ongoing

Refer Annex 3 for listing of ongoing projects.

Project Preparatory Studies/ Other

- Feasibility studies required on all new and proposed projects
- Integrated network system with optimization modeling, to fully assess sources and network connectivity

6.4 Institutional, Policy and Regulatory Actions

- Efficient operating energy companies (DABS, Afghan Gas Enterprise), working in a regulated environment.
- Establish a multi-sector regulator.
- Establish the Electricity Board as the regulatory agency, for tariffs and licensing.
- Establish pricing systems, based on a cost recovery framework, which is socially equitable.

Refer Annex 2 and 3 for further details on the energy sector infrastructure strategies and plans prepared by DABS, MEW, MMP, and on-going and proposed projects respectively.

7. Transport Sector

7.1 Overview

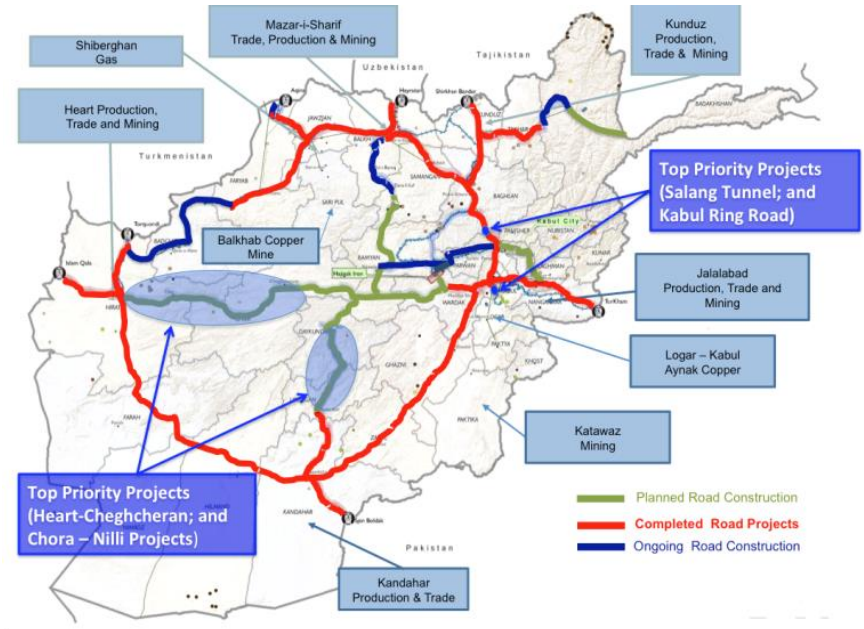
Integrated transport network infrastructure investments, systematically planned and implemented, will reduce user transport costs, expand access to domestic and regional markets and social services, increase employment, spur trade and logistics, and promote social integration. The investments are focused on facilitating the country's economic growth and development. Afghanistan's strategic location presents opportunities to be a transport nexus providing access to trade along north-south and east-west Asian corridors, throughout the region.

The difficulty is to develop and maintain such a network in a cost-efficient way, given the country's scarce resources, and the need for economic growth. At the same time, the country is confronted with a growing demand for regional access and trade, as it is located strategically to serve the transit needs of its neighbors. These concerns are relevant to all modes of transport.

The Transport Sector Masterplan (2006), the NPPs and the 2016 Masterplan Update (that is currently in preparation), provide the planning and policy framework for the transport sector. While the sector is predominantly road focused, other transport modalities, in particular rail, have been assessed. The Afghanistan Railway Authority (AfRA) is established, one line is completed and operating, border rail lines with Iran are almost completed, and national plans developed for over 5000 km by 2030.

Despite significant investment since 2002 and expansion in the road systems, especially the ring road, Afghanistan's transport sector has chronic operational and institutional bottlenecks, primarily the result of: (i) poor strategic construction and periodic maintenance planning; (ii) limited institutional capacity and sector coordination across agencies; (iii) lack of regulatory enforcement and cost recovery for maintenance funding; (iv) limited number of quality contractors and consultants in the private sector; and (v) unsatisfactory project and contract management capacity. These bottlenecks are further affected by the security conditions, and have delayed road works, raised domestic transport costs, constrained regional cooperation and integration opportunities, and undercut the country's competitiveness.

Figure 8: Afghanistan Ring Road Map

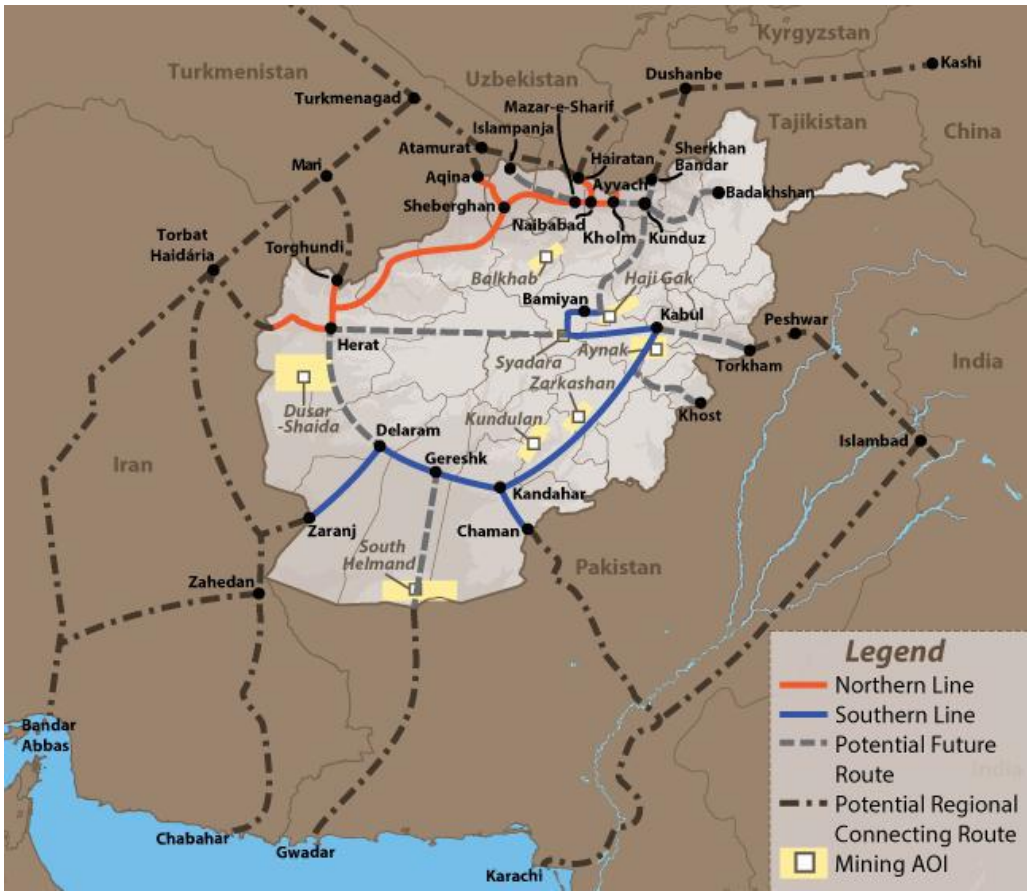


The current status of the ring road, sections completed, those ongoing and planned is outlined in Figure 8. Key resources and potential extractive mining opportunities are also identified. In developing the transport sector connectivity, there is a need to ensure the feasibility of the investments given the high O&M costs incurred. With the rail/ road assessment of the trade-offs in terms of future bulk commodity movement, and cost effectiveness is part of any feasibility study. In prioritizing new roads, rigorous assessment is required on the economic and social benefits, to ensure the investment will generate growth and employment.

The government is reviewing its' approach to extractive industry development, and is considering the government's role in terms of provision of the supporting infrastructure (transport, energy) as part of the government package to be provided on a cost recovery basis, with the private sector undertaking the mine infrastructure development and operation. The optimal package mix is likely to be location and commodity specific.

Rail. To harness the opportunities with integrated transport systems, considerable attention has been given to establishing a national railway network, therefore a comprehensive Afghanistan National Railway Plan has been designed to utilize Afghanistan strategic location and establish the country as a regional transportation hub. The plan addresses the transportation needs of the mining sector, commodity movement and will provide support to agricultural development. The railway network is a new initiative, and AfRA is currently seeking funding resources from development partners and others for the implementation of the Afghanistan National Railway Plan. Like other transport modalities it is adversely affected by the security situation. The long-term national railway plan is outlined in Figure 9.

Figure 9: Afghanistan National Railway Plan



The completion of the Hairatan to Mazar-e-Sharif rail link (106 km with 75 km operating and 31 km loop lines) in 2011 marked the beginning of railway operations in Afghanistan. The line is under the process of being ISO certified by the end of 2016. The country's central position in Asia and its rich mineral resources, when developed in the future, will generate traffic of bulk commodities over long distances that are suitable for efficient railway operations. It will warrant detailed assessment and development of a more extensive railway network. Until this happens, the short line is unlikely to become economically or financially viable. The Government through the AfRA has recently extended the 5-year operating concession, which in 2012 had been awarded to SE Sogdiana Trans, a subsidiary of Uzbekistan Railways. The cost of O&M is financed from freight revenues. Any potential deficit to be paid by the government.

Further rail links are being proposed in Herat. The railway line from Iran to Herat is divided into 5 sections. Two sections are located in Iran, section 1, (Khwaf to Sangan) 43 km completed, and section 2 (Sangan to Shamtigh (Chah-e-Sorkh)) 35 km are completed. The section 3, starts from the border in Islam Qala, from Shamtigh (Chah-e-Sorkh) to Joye Now (Rozanak), work is ongoing on this 62 km section, the embankment of this section is completed and sleepers are being laid.

The two remaining sections Joye Now (Rozanak) to Rabati Paryan, 43 km and Rabati Paryan to Herat Airport, 44 km are the rail line extensions for which a feasibility study has been completed, and there is the possibility of Italian government financing. In this document these two sections are referred to as the Islam Qala line extension (Joye Now to Herat). There is an ongoing feasibility study on a Herat to Torghundi line. Also a new line is proposed from Aqina to Andkhoy.

Civil Aviation. The international airports of Kabul and Herat are compliant with the standards of the International Civil Aviation Organization (ICAO), whereas Mazar-e-Sharif, Jalalabad, and Kandahar are not but will be upgraded shortly. Air transport in Afghanistan is provided by several national and international carriers, with Kabul International Airport being the country's busiest airport. The country's airports are outlined in Figure 10. A key challenge faced by Afghanistan civil aviation has been the transfer of responsibilities and services from the international military coalition to Afghanistan government authorities. Twenty three airports have been transferred to the ACAA. The transition of the four main international Airports (Hamid Karzai, Kandahar, Herat and Mazar) and Jalalabad has been postponed due to delay in transfer from the Resolute Support mission to government. The Government passed a civil aviation law in 2013, and the Afghanistan Civil Aviation Authority (ACAA) was established in 2014. However, the target for ACAA to achieve full operational capability by October 2014 was not achieved. A significant landmark towards a self-sustaining aviation sector was the handing over in 2015 of airspace and air traffic control to ACAA.

Ongoing constraints are: inadequate investment in infrastructure and facilities; poor maintenance of existing facilities; and a low level of private sector involvement in areas well suited for the private sector. ACAA has yet to introduce competitive salaries to be able to attract and retain qualified staff. Many of the staff do not meet the qualification standards of ICAO. The Afghanistan Civil Aviation Institute (ACAI) has been created to facilitate the transition process and to develop human resources

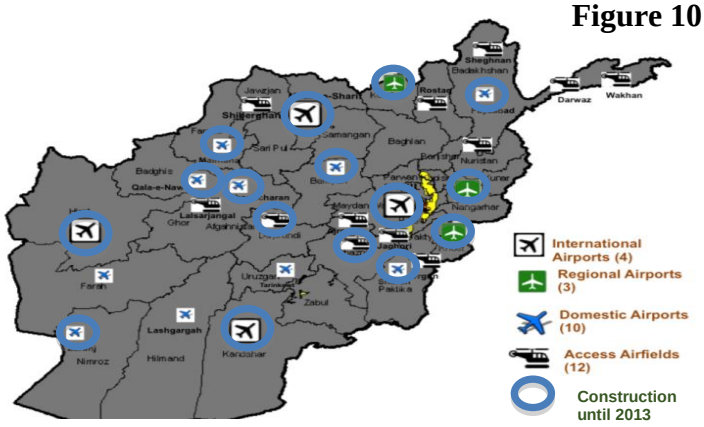
for ACAA's long term requirements. ACAI will continue to rely on foreign experts to (i) recruit, train and certify Afghan aviation employees, (ii) maintain ICAO compliant practices and procedures, and (iii) ensure that ACAA has adequate oversight capability. To sustain ACAI over the next five years, funding of infrastructure, human resources, and airspace management has to be secured. A substantial portion of the required funds will come from overflight fees imposed on international carriers that cross Afghanistan-controlled airspace. In 2015 the government increased overflight aviation fees by 25 percent, and MOF collected $36.5 million.

The Ministry of Transport (MOT) has some regulatory responsibility for transport service standards, and inspection of freight/ cargo transportation, and passenger services. It is seeking to improve passenger and freight terminal services, with such infrastructure investments in the provinces having a potentially strong PPP focus.

Afghanistan's fragile and conflicted affected situation remains the overriding concern in the transport sector. The transport strategy and program are sensitive to this situation. For the ongoing investment required, stable and predictable financial support is required from development partners. Further, in order to create the environment for efficient and sustainable infrastructure and transport operations, a unified development partner approach is needed to support government on the required policy reforms and sector restructuring.

While resource allocations to the transport sector have steadily increased over the past years, maintenance continues to be underfunded. Unless the past allocation pattern is reversed, the situation is likely to worsen with new assets being added to the network. The current sustainability issues indicate inadequate sector governance, including financing mechanisms, institutions, and sector planning. These shortfalls are being corrected in this national infrastructure plan.

Figure 10: Civil Aviation Map



7.2 Delivery Mechanisms/ Strategies

- **Improved sector selection and investment. Rigorous network planning and prioritization,** using standardized assessment methodologies, to apply to all sustainable transport sector investments.
- **Sustainable transport systems with efficient service delivery, and cost recovery. Maintaining Afghanistan's roads will require a higher funding level, and until cost recovery systems are in place this will require explicit funding for maintenance, and for operation of a road asset management system.**

- **Civil aviation maintenance and commercial operation with private sector participation.**
- **Developing framework and systems for increased engagement of PPPs and private sector, in management and operation of transport sector services.**
- **Expanded use of national contractors. Afghan road contractors to play a greater role in the construction and delivery of internationally funded road works.** Contracts for construction, reconstruction and periodic maintenance of regional, national, and provincial roads have been a captive market for international contractors, who have sub-contracted national firms. Yet, there are national contractors capable of working on larger road contracts, and they are currently contracting work. The contract industry has underutilized these capacities and capabilities. To facilitate qualified national contractors' access to this work, development partners may need to modify the eligibility criteria in their procurement procedures, in particular lowering the annual cash flow requirements, and tender the contracts as smaller packages. This change will not involve any delay in procurement or work completion timelines.
- **Improved project management. Increasing the pool of skilled Afghan project managers, to support efficient contract performance and completion.**
- **Improved performance of Afghanistan's transport and trade logistics.** The performance of Afghanistan's transport and logistics sector is still impeded by:
    - cumbersome procedures, weak standards and regulations, slow progress on computerization, and lack of trade finance, cold storage facilities, and insurance. The high cost of transport logistics reduces the country's trade competitiveness. In addition to improving the operations at border crossing points;
    - need to remove barriers to regional trade and cooperation, develop multimodal hubs and logistics centers, and improve the quality of the transport infrastructure.

7.3 Priority Projects and Programs

The funding requirements of the sector priority investments exceed resources, with new modalities and financing including PPP and private sector engagement required. Feasibility studies will be undertaken on all new prioritized transport projects, and the proposals will be assessed fully within an integrated transport sector framework. These project investment components to develop efficient transport systems, will be ranked, to ensure that transport investments provide optimal returns to the country, and will support domestic, commercial and industrial development.

Road Priorities are:

- Salang Tunnel and its access road (feasibility study and detailed design (approved 2016, expected completion 2018) and for construction, an indicative cost $1 billion;
- Completion of the remaining section of the Ring Road, financing gap of $100 million;
- Connector roads to border crossing points, two of the seven crossings have been prioritized for this period (Herat-Islam Qala, Andhkoy-Aqini), with indicative total costing of $150 million;
- O&M programs for national and tertiary roads – Road Authority Fund, indicative cost $160 million per year.

Rail Priorities:

- To be determined, with large system investment based on feasibility with mining development and bulk commodity movement;

- Short rail sections that will feed into the larger system. Herat – Torghondi (which will link Turkmenistan and Iran) feasibility study to be completed December 2016, indicative cost $320 million; and the feasibility study is completed on the extension to the Islam Qala rail line, Joye Now to Herat airport, (awaiting government approval, with a proposed option of Italian loan funding combined with other co-financing;
- Aqina – Andkhoy rail link, proposed project with Turkmenistan Government, subject to approval, expected in 2016;
- Andkhoy – Sheberghan - Mazir-e-Sharif - Kunduz - Sherkhan Bandar, feasibility study completed, indicative $1.5 billion. With mining development spurs could be constructed linking into this line;
- The individual components of the railway plan will be assessed as links in a larger system. On their own, they would have limited economic merits. The line that adds critical mass to the network is a Herat – Kunduz line, which is proposed to become the backbone of AfRA's Northern Line. The proposed leg from Andkhoy –Herat would be a high cost investment and constructed in very difficult terrain. An alternative short-term measure to establish this link, could be the option of an Aqina- Torghondi link in Turkmenistan, with feasibility to be assessed.
- The rail investment feasibility studies are ongoing for the northern line, and any investment will be assessed as a component of the overall transport network;
- Aqina station to be inaugurated in December 2016, and a dry port facility at Aqina has been assessed, and is under consideration with the private sector, based on a PPP modality.

Urban Program Priorities: construction of the Kabul Ring Road, urban BRT corridors, public transport, traffic engineering and intelligent transport systems, plans for social mitigation of adverse impacts, and public education campaigns to improve compliance with traffic rules and awareness of safety hazards. Indicative costing $160 million.

Civil Aviation Priorities: Airport O&M funding, MLAT Radar System and other technical equipment O&M funding, indicative cost $30 million.

Trade facilitation and transport logistics priority projects include improvements to border crossing points (BCPs) and the development of multi-modal hubs, dry ports and logistics centers. A number of private companies have expressed interest in dry port development, and these proposals have been submitted to government, and are likely to involve a PPP partnership, with Ministry of Commerce and Industry (MOCI) or the Customs Department, MOF. Assessment will need to be undertaken on the feasibility of the dry ports at the various border locations (ie. for example at Hairatan, Torghondi, Aqina, Shir Khan Bandar, Spin Boldak, Torkhan). While specific investments have yet to be specified and their priority determined, indicative estimates of the investment package is $120 million.

Ongoing

Refer Annex 3 for listing of ongoing projects.

Project Preparatory Studies/ Other

Capacity development to be undertaken on:

- **Road Asset Management System** to allocate scarce financial resources for the operation and maintenance of its road assets in an optimal manner, that will ensure sustainability of the road assets;
- **Strategic and operational support to AfRA** to define the business model for railway operations and to address key strategic business issues, based on a concrete action plan for capacity development, being financed under an EU program (2016-2018);
- **Master Plan for Kabul Urban Transport** to include urban infrastructure and public transport, compliance with land use regulations and traffic rules, and mitigation of any potential social impact caused by restructuring and modernizing public transport services.

Refer Annex 2 for details on the transport sector ministry and agency infrastructure strategies and plans.

7.4 Institutional, Policy and Regulatory

Rationalizing regulatory responsibilities for the transport sector:

- Currently these functions are fragmented and an apex institution for planning and policy is required. Several government ministries are involved in the operation and regulation of the transport sector and there is a need for integrating transport sector responsibilities.
- Key sector reforms are currently underway in the road sector, with a proposed road sector institutional reform (August 2016). This would involve: the establishment of an autonomous Road Authority (for development, operations and management of the road network); the creation of a dedicated Road Fund for financing road O&M; a Transport Infrastructure Institute for capacity skill development in road infrastructure management, and a restructured Ministry of Public Works (MoPW) with a leadership role in roads policy, strategy, funding and regulations. Indicative timelines for these to be approved by Cabinet and Parliament is 2017.
- AfRA has been established, and the regulations are to being finalized and approved.
- Trade facilitation update procedures, standards and regulations, improve progress on computerization, on trade finance and insurance.
- Remove barriers to regional cooperation.

8. Water Resource/ Irrigation Sector

1. Overview

Since 2002 government with the support of the development partners, has made significant investments in the sustainable development, expansion and management of water resources and irrigation infrastructures. While many of these investments were undertaken on an emergency basis, and not linked to broader development programs, they have resulted in substantial improvements in the available irrigation infrastructure, human resources, and institutional development in the public and private sectors. The scale of the required infrastructure work to be completed remains large, as does the management of financial and technically sustainable systems including O&M for large scale, medium and smaller schemes.

Irrigation is the backbone of agriculture in Afghanistan, with more than 85 percent of production dependent on irrigated agriculture, and it plays a key role in increasing agricultural production and productivity, contributing to food security, improving livelihoods, reducing poverty and increasing rural employment. The agriculture sector is one of the two key growth sectors in the economy, and accounts for approximately 59 Percent of employment in Afghanistan, and is significant in the socio-economic development of the country. The sector continues to face constraints that restrict further growth: underdeveloped markets, public and private sector partners lack capacities to implement, irrigation potential remains underdeveloped, there are shortages of improved inputs, and key areas of the enabling environment (policy, regulatory and institutional) require improvement.

The National Agricultural Development Framework (2016-2021) outlines the current situation of agriculture infrastructure, including irrigation sector and market-based infrastructure and their linkages with agricultural productivity. The funding requirements of the priority investments exceed current resources, with new modalities and financing sought through PPPs and private sector investment.

A ten-year (2016-2025) investment program, National Irrigation Program (2016 draft), has been prepared by Ministry of Agriculture Irrigation and Livestock (MAIL). The development objective of the program is to increase production and productivity through enhanced irrigation and improved practices, which will be achieved through three main components: irrigation physical works; enhanced irrigated agriculture and institutional strengthening (public and private). The key program outputs are: rehabilitation of 900,000 ha with a productivity increase of 50 percent or more; expansion with 120,000 ha of new land under irrigation through construction of canals, water harvesting structures and small irrigation storage reservoir.

The productivity improvement will be achieved through improved technology, market based commodity value chains, and the supporting logistics (public and private entities). Strengthening the capacity of Irrigation Directorate of the Ministry of Agriculture Irrigation and Livestock (MAIL), creating effective irrigation related legal and policy frameworks, and establishing effective coordination mechanisms with local institution and other organizations will provide an effective framework.

The program includes funding for O&M, which is currently not in place, and is an

issue with the larger infrastructure, as are water fees and the need for cost recovery criteria especially for the larger schemes. The ten-year program outlines an investment plan of approximately $1.5 billion, expanding from $145 million in 2016 to $180 million in 2020.

Institutional responsibility for irrigation is spread across three ministries of MEW, MAIL and MRRD. The Water Law does not precisely define the roles of each ministry and this has resulted in confusion and overlapping roles, especially between MEW and MAIL. Key aspects of the Water Law are outlined in Annex 5.

8.2 Delivery Mechanisms/ Strategies

- Investment on irrigation rehabilitation and new irrigation schemes;
- Sustainable management and operation of canal systems through establishment and strengthening of irrigation associations;
- Sustainable O&M funding; and
- Obtain the full productivity improvement from the irrigation investment through improved technology; market based commodity value chains, and the supporting logistics, with engagement of the public and private sector.

8.3 Priority Projects and Programs

The National Irrigation Program (2016 draft), which is a ten-year program (2016-2025), which outlines an investment plan of approximately $1.5 billion, expanding from $145 million in 2016 to $180 million in 2020. Indicative investment for the prioritized projects over five years is $650 million.

Ongoing Projects

Refer Annex 3 for listing of ongoing projects.

8.4 Institutional, Policy and Regulatory

A priority is to review the Water Law (2009) to clearly define water management and irrigation institutional responsibilities, and associated irrigation regulations. To streamline these responsibilities, one proposal is that all single purpose irrigation projects be the responsibility of MAIL. Large multi-purpose dams would be a MEW responsibility, with the canals and the distribution systems a MAIL function.

The irrigation regulations to be prepared will focus on:

- defining responsibilities of each of the sector ministries relevant departments;
- defining irrigation standards such as crop water requirements for various stages of crop development in 6 agro-climatic zones;
- developing standards for construction and accompanying drainage systems;
- protection of irrigation water and its infrastructure from pollution;
- protection of irrigation network, and water riparian rights.

9. Extractive Industry Development

9.1 Overview

Mineral resources development and the revenue generated for the economy and government make this industry potentially one of the two major economic growth centers for the economy. A number of potential large resources that are viable for development (for various commodities) have been identified, and few of them (Aynak, Afghan-Tajik, AmuDarya) have already been awarded to private sector while others (Hajigak Iron, Totimaidan Oil and Gas block) are in the tender process. If these projects are developed and managed successfully, they will generate significant revenue for government, and economic growth and employment opportunities.

The timing and scale of this revenue stream is dependent on investment and resource prices. While low iron ore prices are expected to affect the feasibility of the Hajigak development, with the other commodities (ie. copper, gold,) the price movement should not adversely affect the commercial potential. The initial timeframe for contract award, exploration and investment construction has slipped, and combined with the security environment is expected to result in further delay in investment.

The medium and long term economic development potential of the mineral and hydrocarbon sectors is greater than any other sector in Afghanistan's economy. To unlock this potential the country has adopted a new market driven policy direction, transferring exploration and mine development of the country's natural resources from the state to the private sector. Large private investments will be required. Government revenue will be derived from mining taxes, royalties, surface rents and licensing fees. The mining industry is expected to generate employment and accelerate development in rural areas. An integrated cross-sectorial approach will be adopted for extractive mining development, with the associated supporting infrastructure investment (ie. road, rail, power). This investment will also be used to support development of resource corridors to leverage further growth.

Key constraints are: security issues; lack of investor confidence; weak investment climate; insufficiently developed formal regulatory environment (especially with small-scale and artisanal mining) that hinders potential competitiveness; ministry institutional/ organizational capacity; lack of community engagement, and the private sector investment for the development of extractive mining.

The government to finalize: the current review of extractive industry policy, the status of the 10-11 identified potential mining areas, with any contract review/ amendment should that be required, and a decision and an action plan on the future development of the extractive industry development. This may include:

- Finalization of the pending tender process for Totimaidan Oil and Gas and Hajigak Iron Ore Projects;
- Resolution of contract issues on Amu Darya, Afghan-Tajik and Aynak;
- Improvement in SOE's business environment: reform Afghan Gas, Northern Coal, Jabal Seraj Cement and Northern Fertilizer and Power Plants Enterprises, with private investment partners sought.

9.2 Delivery Mechanisms/ Strategies

- Develop and implement a commercially based regulatory environment (and regulatory institution with the capacity) to maintain international standards;
- Remove and address barriers that are limiting the investment climate for the private sector;
- Facilitate private sector participation.

9.3 Priority Projects and Programs

Focus is on private investment with a public sector potential role in provision of supporting infrastructure, and enabling environment.

9.4 Institutional, Policy and Regulatory

- Develop regulatory environment, and remove address barriers that are limiting the investment climate for the private sector;
- Recent reviews of the sector have identified a range of institutional reforms that need to be implemented if Afghanistan is to attract the investment necessary to provide economic benefits to the government and the people of the country. A central recommendation contained in these sector analyses is that restructuring and reform of the Ministry of Mines and Petroleum (MMP), as a part of the transition from state led to private sector led development.

10. Urban Sector

10.1 Overview

Since 2002 there has been rapid population increase and growth in urban areas and cities, in particular in Kabul, and in rural areas across Afghanistan. This growth has been undertaken, generally in the absence of urban planning, and has led to poor livability, with poorly integrated urban transport systems and services. Unfortunately, this growth was coupled with several problems; with lateral and informal growth in the major cities has been one of the main challenges in this regard. The limited capacity of the Afghan government urban authorities to control and to provide the necessary framework for this rapid growth resulted in about 70% informal urban growth, without standard urban services and facilities. While considerable investment has been made in a range of water supply services and in infrastructure, the O&M is lacking which means the systems are not sustainable.

A number of government agencies have responsibility for urban services, the Ministry of Urban Development Affairs (MUDA), Independent Directorate of Local Government (IDLG), Water Corporations and Kabul Municipality. While the urban authorities in Afghanistan have been able to develop and update the master plans of cities, as well as some pertaining laws and regulations, the management, implementation and enforcement of these plans has been variable. The MUDA has recently initiated housing projects in partnership with the private sector, though given the housing shortfall, the scale and approach would need to rapidly expand.

As per the National Unity Government's (NUG) commitments, the private sector will have a larger involvement in the economic development of Afghanistan, and particularly in urban development. MUDA is currently preparing policies and by-laws to regulate PPPs in its' projects. Once approved, these regulations and by-laws will pave the way for greater private sector engagement as will address most of the current challenges and ambiguities faced both by the government and private sector when undertaking housing project investments.

Key housing project challenges are: the land and land disputes and land grabbing; dealing with urban slums (removal/ compensation/ relocation); design technologies and disaster mitigation. Urban planning issues have arisen in Afghanistan's six major cities (Kabul, Kandahar, Jalalabad, Herat, Mazar and Kundoz) that have master plans, but lack sector plans and detailed plans. These plans will be developed.

10.2 Delivery Mechanisms/ Strategies

Urban management strategies to involve:

- Development, approval and implementation of the National Urban Policy;
- Development of urban and regional plans for major urban, and rural areas;
- Preparing plans for the regional development strategies for all the zones;
- Strengthening the capacity of municipalities;
- Improving revenue and capacity building programs in thirty four provinces and major cities;
- Developing urban development plans, including plans for infrastructure investments for twenty five major cities;

- Develop and enhance institutional capacity supported by educational plans, institutional reforms for effective governance in the country's thirty four provinces and major cities;
- Private sector engagement and investment and PPP modalities.

10.3 Priority Projects and Programs

In the six major cities of Afghanistan (Kabul, Mazar, Herat, Jalalabad, Kandahar, and Kunduz), the MUDA has prioritized six housing projects in each of these cities. The total number of housing apartments will reach up to 10,000 units and will require an estimated budget of USD 600 million. In addition, these projects will substantially boost the skilled/ management and non-skilled labor demand during construction, and by will improve the livelihoods of housing occupants.

Development and Special Economic Zones. An integrated development approach will be used when assessing regional growth strategies and planning, to enable identification of key areas where synergies exist, and there is the potential for market and industry development, with forward and backward linkages. Also to assess future potential for these area to evolve into resource corridors (linked to the extractive industry) or more broadly into development zones (with industry and services). As these regional growth plans and corridors develop, there is the opportunity to assess the feasibility of establishing development authorities for the management of these areas. Also assessments to be undertaken on the feasibility of utilizing the large air-force bases in Helmand and Kandahar for special economic zone development.

New/ Ongoing projects

- Housing projects (PPPs) as outlined above;
- Urban transport systems (Kabul) detailed under transport sector;
- Water supply and energy services (public and private investment).

Capacity for policy planning, development and service delivery:

- Municipal institutional capacity to deliver quality services;
- City and urban development planning;
- Regional development strategies and plans;
- Municipal and rural area planning;
- Development zones, and resource corridor development;
- Special Economic Area Potentials.

10.4 Institutional, Policy and Regulatory

Refer to the above strategies which outline a number of policy actions.

11. Information Communications and Technology Sector

11.1 Overview

The communications revolution has been a major success story in Afghanistan. The growth of the ICT sector has had significant impact on economic growth and development. It has connected the whole country, improved efficiency of the government, and provided impetus to private sector growth.

The E-Afghanistan National Priority Program aims to fulfill this goal by create a modern and efficient Information and Telecommunications sector and e-government to enhance the effectiveness, efficiency and transparency of the public sector, provide equitable access for social services, develop a vibrant private sector, and create a connected and productive society.

The Government has approved an open access policy for data that removes the Government's monopoly in providing fiber connectivity and will allow private entities to make investments in enhancing connectivity across the country. This should significantly reduce the cost of internet connectivity, increase speed and bandwidth, as well as connect a significantly large number of citizens to the Internet. Better data connectivity will serve as a vehicle for proving e-government services to the citizens.

The expansion in the information and communication technology (ICT) sector will support economic growth and development, through the country wide connectivity, improved efficiency of the government, and provide an impetus for further private sector growth. The OFC will provide a key output in achieving these results.

11.2 Delivery Mechanisms/ Strategies

- Expand Telecommunication Network to provide the physical backbone to the ICT Sector by creating the necessary infrastructure;
- E-Government to provide value added service in the government using ICT to increase efficiency, effectiveness and transparency in Government;
- M-Government to provide government services using mobile telephony and increase efficiency and effectiveness of government services;
- Postal sector modernization to improve its reach and service delivery;
- Strengthen the Ministry to meet the current and future challenges and undertake its role as a facilitator, regulator and policy-maker efficiently and effectively.

11.3 Priority Projects and Programs

The projects will be developed by the private sector. The proposed digital CASA project and the Faizabad-Wakhan Corridor-Kashgar (P.R.China) Fiber Optics Network project are detailed under regional connectivity.

11.4 Institutional, Policy and Regulatory

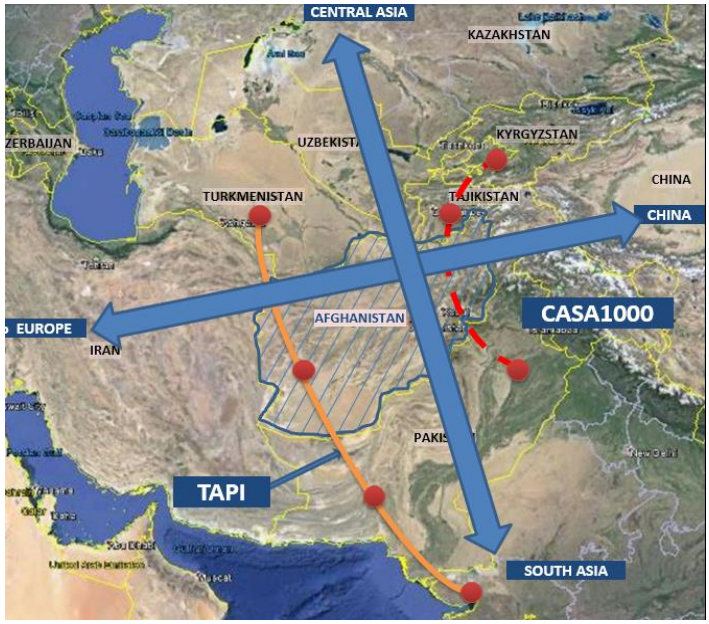
- Strengthen of Legal, Regulatory, Policy and Institutional Frameworks to create the enabling environment for the working of the ICT Sector.

12. Regional Connectivity

12.1 Overview

The NIP will improve regional connectivity with efficient infrastructure delivery, and connect Afghans to jobs, goods to markets and Afghanistan to the region. This regional connectivity will be achieved through improved transport systems, freight and logistic supply chains, energy supply and high-speed telecommunications. Regional connectivity and economic integration is a core component of the ANPDF and is a priority across the NIP sectors, given its' potential to increase economic growth and employment, improve competitiveness, facilitate growth in domestic and export industries, and generate income. Also, a number of the regional projects will directly generate revenue for the Government through transit fees.

Figure 11: Geographical Dividend of Afghanistan



Given the enormous geopolitical shift in the region, Afghanistan is now in a unique position to utilize its geographic dividends and serve as the regional hub connecting between Central Asia and South Asia as well as connecting China to Europe in an east-westerly direction. Refer Figure 11. The NIP investments to support regional opportunities also have strong domestic returns and benefits, and focus on the following:

Figure 12: Movement of Energy

Moving Energy. Afghanistan will serve as the utility corridor connecting the energy-rich Central Asian nations to energy-poor South Asia. Refer Figure 12. There are three projects that are currently in the pipeline: TAP transmission line that would initially move 2000 MW from Turkmenistan to Pakistan via Western Afghanistan and could eventually carry up to 4000 MW; the TAPI gas pipeline

that will transport natural gas from Turkmenistan to Pakistan and India via Afghanistan; CASA 1000 transmission lines that will move over 1000 MW (Megawatts) of electricity from Kyrgyzstan and Tajikistan to Pakistan via Afghanistan. These three projects are building on earlier work, and are the next stage for utilizing such bulk energy transfers regionally.

The three projects will require large investments, with TAP an indicative cost of $500 million, TAPI the indicative cost is $12.5 billion, with $7 billion to be sourced from the private sector. For CASA 1000 the indicative cost is $1.17 billion.

As an example of the opportunities that may exist, Pakistan is expected to need more than 15,000 MW of additional electricity needs in the coming decade, and one of the most economically viable and environmentally sustainable sources of supply for this forecast demand would be such bulk power transfers from Central Asia via Afghanistan to Pakistan.

Moving Goods to Markets. Moving goods and merchandize across Afghanistan to the region is a top priority. The NIP transport sector priorities reflect the importance of the regional trade connectivity, and national priority of completing the ring road. Three of the six Central Asian Regional Economic Cooperation (CAREC) corridors have a major link in Afghanistan synchronous with the national highways. In addition, with the announcement of China's "One Belt One Road" Afghanistan will be along the corridor connecting from Tajikistan via Sher Khan Bandar to Bandar Islam Qala connecting with Iran. Similarly, later this year the Turkmen railroad will reach Afghanistan border of Aqina paving the way for Lapis Lazuli Corridor where it offers an alternate route for goods from China as well as imports and exports from Afghanistan to get to Europe via Turkmenistan and the Caspian Sea. Afghanistan's proposed railroad beltway, and connecting to other neighboring countries will provide new opportunities.

The government has prioritized the following regional rail investments:

- **Turkmenistan-Afghanistan-Iran line**, short rail sections that feed into a larger network, extensions of the Islam Qala line extension (from Joye Now) to Herat, and the Torghondi-Herat link, which connects into the Lapis Lazuli route. The Torghondi to Herat feasibility study, funded by ADB and JICA, will be completed in December 2016, and the indicative cost for this line is $320 million. The extension to the Islam Qala rail link extension (Joye Now to Herat), and a feasibility study is complete, with the indicative investment cost of $165 million.
- A**qina to Andkhoy** rail link; this a proposed project with the Turkmenistan Government, subject to Government of Afghanistan approval, which is expected in 2016.
- **Northern Line (Turkmenistan-Afghanistan-Tajikistan) rail link connecting Andkhoy – Sheberghan - Mazir-e-Sharif - Kunduz - Sherkhan Bandar**. This line would link to China through Tajikistan. The feasibility study for the 650 km line, was funded under the ADB supported Transport Network Development Investment Program Tranche 1, and completed in 2015. The estimated indicative investment required was $1.5 billion. The feasibility study indicated that viability is dependent on carriage of large bulk commodities (ie. minerals and oil). When mining development occurs in the north, rail spurs could be constructed linking into this northern line. With mining development there will be the opportunity to leverage the public sector investment.

The national railway plan, has identified opportunities that exist for railway spurs to Pakistan via Torkham and Spinboldak Ports, the movement of goods to and from Pakistan to Central Asian countries could be greatly facilitated. Similarly, with the development of Charbahar and Gwodar Ports Afghanistan can provide the most economical route for Central Asian countries to reach international markets and to connect with the Arabian Peninsula and beyond both for imports and exports.

Trade facilitation and transport logistics are a Government priority, as outlined in ANPDF, transport sector masterplan update, and in the CAREC Transport and Trade Facilitation Strategy 2020. To improve the country's trade competitiveness and lower the cost of transport logistics for the regional connectivity, priority projects to support the large infrastructure investments will include: improvements to BCPs and the development of multi-modal hubs, dry ports and logistics centers. In addition, there will need to be further Government and regional action to remove barriers to regional trade and cooperation. The Government will improve standardization of procedures, and regulations, computerization, and address other constraints to market development and growth (lack of trade finance, cold storage facilities, and insurance). The high cost of transport logistics reduces the country's trade competitiveness.

Moving Data. The future is with data transfer opportunities, as currently roughly half of the world's Internet traffic is between Asia and Europe. It consists of approximately 15 terra-byte per second using the maritime fiber that spans under the Mediterranean, passing the Suez Canal and the Red Sea, the Arabian Peninsula, along the Indian Subcontinent, and wrapping around to Asian markets. This current pathway have several problems first, maritime cables are more prone to maintenance, damage, and many entities being able to harness the cable. Secondly, given the long pathway it takes roughly 130 milliseconds.

The digital CASA program and the fiber optics networks will increase internet connectivity by catalyzing private sector investment in infrastructure and modernizing relevant policies and regulatory frameworks. Currently internet penetration remains low across the CASA countries, despite high levels of mobile cellular penetration, in part due to high costs. The government's recent approval of a open access policy to remove the existing monopoly, will enable telecommunication companies to actively invest and where necessary form PPPs, which will result in lower costs and expanded user services and access.

As part of the TAPI gas pipeline Afghanistan will be installing fiber that will connect India, Pakistan, Afghanistan, and Turkmenistan. Additionally, as part of the TASEM project, the above fiber will be connected under the Caspian Sea to Port of Baku and then to Italy. In other words, Afghanistan can be the pathway to provide a shorter and more reliable data communication route between Europe in Asia that can potentially reduce the transmission time by over 30 milliseconds. Moreover, the route will offer an alternate pathway to Trans-Siberian fiber. Finally, the recent World Bank project, the Digital CASA, is improving internet connectivity for Afghanistan and the five Central Asian nations namely Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Turkmenistan and provides new horizon for regional data interconnectivity.

The vision with the development of TAPI and associated fiber optics installation, TAP, the ring road completion and border connectivity, and the railways corridors

along the western part of Afghanistan, will provide the country with a prime utility and energy corridor between Central Asia and Southeast Asia.

The connectivity projects have the potential to generate significant transit revenues, this is particularly the case with the proposed data movement (TASEM and Digital CASA) which could raise several hundred million dollars in the long-term, as could TAP generating amounts of $200 million or more, while CASA 1000 transit fees are indicated to be $40 million.

12.2 Delivery Mechanisms/ Strategies, Priority Projects and Programs, Institutional, Policy and Regulatory Reforms

These are outlined under the relevant NIP sectors.

13. Infrastructure Delivery Systems

Improving the skills/ expertise and capacity to plan, manage, finance, implement and monitor the infrastructure pipeline. This to involve government improving the efficiency of existing project assessment, planning, procurement, project management and reporting systems:

- **reviewing procurement and contracting methods** (discontinue design and build, use detailed design, turn key and fixed price contracts), focus on increasing national contractor engagement in the sectors where expertise exists, and associated with this adjust the size of contracting packages;
- **working with industry** to identify approaches to reduce construction and lifecycle costs and contract delivery time;
- **reducing and eradicating corruption**;
- **identifying any key skills gaps in the supplier/ national contractor market**, and working with the local institutions to develop and implement programs to build national skills/ expertise and capacity to win contracts, supply goods, and invest;
- **strengthening project management skills.**

Project assessment and planning. Standard prioritization processes will be developed and adopted, detailing the preliminary steps, stages of preparation for approval and budget incorporation, and preparation of feasible project designs with flexible modalities for the environment.

Procurement and Contract Methods. reviewing procurement and contract award methods (use the flexibility within the existing FIDIC and other contract frameworks). Afghanistan's experience is that design and build projects have not worked and have resulted in high cost projects, with large cost contract variations and lengthy delays. The Government will prepare detailed engineering designs for tendering, and use of turn key contracts where appropriate (ie sector specific with energy), and options for use of fixed price contracts and the feasibility to use penalty/ bonus clauses to facilitate timely completion. Working with industry to identify approaches to reduce construction and lifecycle costs and contract delivery time, which can be incorporated in design and bid documentation.

Improving Procurement and Bid Documents. Will use a number of approaches: with pre-qualification of bidders; increasing the use of national contractors; adjusting the scope for flexibility in size of packages; reviewing technical qualifications, and if need for joint venture where skilled technologies and inputs are required, with the stipulation that national contractor be partners; adjustments in financial requirements/ bank guarantee requirement to facilitate national contractor engagement.

Reducing and eradicating corruption. Given the scale of the infrastructure sector investments and the level of procurement involved, corruption is a systemic issue. The government is committed to pro-actively tackle corruption through implementation of stronger government anti-corruption measures and convictions. These measures will involve strengthening the integrity of the Government financial systems, stronger oversight of procurement procedures to ensure transparency, and a range of legal/ regulatory actions to ensure there is a strong and effective legal framework to deal with the corruption. Implementation of a number of time bound actions will be undertaken during 2017-2018: implementation of the national anti-corruption legal framework and action plan; passing the laws criminalizing

corruption; expanding public disclosure of asset declarations to cover law enforcement, improved customs and tax administration; expanding the use of electronic payments and e-procurement to line ministries; strengthening of the Supreme Audit Office; and updating Afghanistan's public expenditure and accountability measurements for fiduciary risk assessment. The government will have a set of key anti-corruption benchmarks in place by 2017, and these are expected to include the number of convictions achieved.

Identifying any key skills gaps in the supplier/ national contractor market, and working with the local institutions to develop and implement programs to build national skills/ expertise and capacity to win contracts, supply goods, and invest.

Managing project implementation in a changing security environment. A number of approaches have been used. While some have worked, including strong community engagement (and with local leaders), others have not resulted in improved security for the contractors and site access. The approaches have covered: strong community ownership/ engagement (community funds under project); government provision of security services (local/ APPF/ ANA) not adequate provision; and project funded provision of government services, payments to MoI for provision of staff (APPF) or providing a security line for security in the contract budget (use local district police), or embedding the security costs in the contract costs. While contractors have hired local militia, concerns have been raised on the incentives that such financing provides. A number of these approaches have not provided the incentives needed to resolve the problem, and have been high cost.

A more systemic approach is required for the development of security plans and for interventions when a project site has to stop work. On major projects of national importance, National Security Council engagement will be sought at the earliest stage. With the security plans for site access, there needs to be a systematic approach on revised schedules and cost implications, to be completed with executing agency, the project management office (PMO) and supervising engineers.

Project site security management is very high cost and where the security environment is such that the problem cannot be resolved, to minimize further unnecessary expenditure by Government, through cost over-runs by contractors unable to work (cost escalations and extensions), by the supervising engineers (contract extensions) and the PMO (staffing costs), decisions will be taken in consultation with the funding agency to de-scope project. This action will enable funds to the transferred and utilized for other priority projects that will be implemented and benefit the country.

Private Sector Reform Actions. A number of key actions need to be implemented by government that will remove barriers and provide the incentives for private sector and PPP investment in the infrastructure sector. These reform actions are economy wide**,** and are required to create an efficient enabling environment that will facilitate private sector investment, increase business activity, and competitiveness.

The central PPP Unit (CPPPU) is established in the Ministry of Finance. The PPP Policy and PPP Regulations have been approved by Cabinet. The CPPPU is coordinating with key sector ministries to identify and prepare projects according to

the framework outlined in the regulations. A long list of projects has been screened, with a number recommended to proceed to concept registration under the regulations. In the identified pipeline potential infrastructure PPPs opportunities have been identified with MUHA (housing), MAIL (storage facilities), MMP (energy), IDLG (local utilities), and MEW (renewable energy). Further work on these opportunities is to be undertaken by the CPPPU team.

The economy wide actions, outlined below, will remove uncertainty and support development of an efficient business environment, and are broad in scope:

- **Commercial Dispute Resolution.** The Government to confirm and commit via judicial circular that: the judiciary system will recognize the ACDR as a forum for the resolution of commercial disputes: the Government will respect the independence of the arbitration system; increase the scope and capacity of the current government dispute settlement mechanism so that it has the authority to deal with financial disputes as well.
- **Business Administration Services.** Establish a streamlined, integrated one-stop-shop for business administration services. The Government to operationalize the newly renovated one-stop-shop building at least for trade license (MoCI) and investment license (AISA) before the Brussels Conference. The Government to officially declare that it accepts the concept of "one-stop-shop public service hall" and start implementation in 2016.
- **Network Operator Licenses.** The Higher Economic Council has recently approved the open access policy. This will allow mobile network operators to install national and metropolitan fiber optic networks pursuant to the terms of their Licenses. ATRA, the telecom sector regulator, should confirm and uphold terms of Licenses of mobile network operators.
- **Business License Validity.** Make the standard business license validity length three years. The Government committed to this action, which is to be submitted to Cabinet, a reform to increase in the standard length of business licenses, from one year to three years, as part of a larger-scale overhaul of the licensing and registration process.
- **Tax Clearance Requirements.** Eliminate the requirement for a tax clearance letter to renew a business license.
- **Export Tax.** Eliminate the 2% tax on export (which impacts a wide range of export items).
- **Business Visas and Work Permits.** Streamline and fast track visa issuance process and work permits extension for technical personnel for international investors and firms doing business in Afghanistan.
- **Expedite the construction permit reform** (including resolving the outstanding issues between Kabul Municipality and the Ministry of Urban Development, which is a major road block).
- **Expedite approval of National Trade Policy**, which must include a meaningful element for investment incentive package.
- **MoF to implement the approved incentive package for domestic manufacturers.**
- **Mortgage Law.** Action by the President's Office that will makes it possible to include the reform of Art 27 of the Mortgage Law (which deals with foreclosure and the power of sale of collateral in case of default by the borrowers).
- **Public-Private Partnership Law.** The Government is progressing with PPP Law, which is to be enacted. And it will facilitate private sector participation in PPPs.
- **Banking Law.** Expedite the approval of the Banking Law to include the Islamic banking currently under review in Parliament.
- **Mining Contracts.** Expedite a decision on the mining contracts that are currently under review with the Ministry of Mines and Petroleum.

14. Monitoring and Reporting

The monitoring and reporting systems cover:

- **pipeline investment projects;**
- **delivery and performance status;**
- **agreed institutional and policy framework reforms; and**
- **future proposed projects in preparatory stages.**

Improved Monitoring and reporting systems to cover the pipeline investment projects, delivery and performance status. More effective monitoring and reporting (EA/IA action and response to monthly/ quarterly/ half yearly reports), and pro-active mechanisms (high level Government engagement) established to resolve problems with immediate actions. Given the poor performance with the current infrastructure portfolio, there will be higher levels of Government ongoing monitoring of portfolio status. Monitoring project timelines, with a focus on lead times for approvals on key decision steps on procurement, contracts and implementation actions to be jointly monitored by the line ministry and the development partner.

Implement stronger monitoring and reporting systems from line ministries to MOF/ MOE or other agency, or under the Office of the President. A large infrastructure project monitoring unit (largest 10 or 20 projects) is proposed under MOF/ other ministry will result in more pro-active action when required due to procurement and implementation delays. In adopting this approach government will ensure that it is not just be another review layer that could delay decisions and processes.

Monitoring impact of the security environment changes on project implementation and delays. As one of the identified key factors causing project implementation delay, the security management plans and systems developed for each project to be monitored for implementation effectiveness, and in particular on the timeline taken for action, when critical decisions and actions are required at the highest level of government, including the National Security Council, and by the financing partner to enable the contractor to proceed with implementation.

Strengthened audit systems and **third party audit**. Third party audits will be expanded, in particular to large infrastructure projects, and will be undertaken by the government/ development partner to provide additional asset/ quality assurance on the completion of assets/ work. This approach will be applied particularly to projects in less secure areas.

Institutional and Policy Reforms. Agreed institutional and enabling policy reform frameworks will be monitored as will future proposed projects in preparatory stages. This will cover all key actions such as the establishment and operation of the Road Authority and Infrastructure Fund (roads), Afghanistan Services Agency (energy regulatory role).

Results based funding for implementation of planned reforms, achievement of outputs on time. An incentive framework will be prepared by government, with oversight by MOF to encourage pro-active decision making for timely completion of projects.

Strengthening the integrity of the Government financial systems. This will involve the implementation of a number of time bound actions during 2017-2018, as outlined in Section 13.

Monitoring private sector and PPP investment in infrastructure.

Annex 1

National Infrastructure Plan
Investment Pipeline

Introduction

The NIP investment pipeline for 2017-2021 outlines the proposed level of new investments at the sector level that will develop and expand the country's economic base, and deliver the ANPDF vision and NPP outcomes. These investments are outlined below, and presented in summary form in Annex 1 Table 1.

The investment pipeline has a financing constraint. An initial base of $800 million per year was assumed, using the current level of new commitments that consist of approximately $600 million on budget and indicatively $200 million off-budget. The opportunities to increase funding are outlined in Section 4 (low interest loans, PPPs, mobilizing national and other private sector investors), and on that basis the investment pipeline has used an indicative revised figure of approximately $1 billion per year. With some of the investments listed there is the possibility of PPP or leveraged private sector engagement. These opportunities will be pursued. The projects that are listed, including the indicative project costs, are for approval in 2017 to 2021. Ongoing projects (on-budget and off-budget) already have their committed funds, and are listed separately in Annex 3 by ministry and agency.

The indicative pipeline as outlined in Annex 1 Table 1 is for investments totaling in excess of $5 billion over the period. Some potential loan projects, and projects using regional funds are included in Table 1. This pipeline is to be reviewed and discussed, and there may be some adjustment in identified potential investments. The potential funding sources listed in the Table (development partners, government, loans, private investors) is preliminary and requires further consultation to ensure it encompasses all potential financing partners.

1. Energy Sector

The new energy investments will improve energy access and connectivity, by strengthening national grid network integration, and expand national energy generation. The grid network integration will be achieved through synchronizing the separate power supplies and linking the isolated transmission systems and islands, increasing capacity through transmission reinforcement and expansion, and distribution network development. The national energy generation will be achieved by strategic investments in prioritized feasible hydropower, multipurpose dams and in renewable solar energy plants.

1.1 National Grid Network

- **TAP 500 kV TL transmission line and sub-stations.** The Afghanistan leg (Turkmenistan border-Kandahar, approximately 600 km) of a Turkmenistan-Afghanistan-Pakistan line (Mary–Kandahar-Quetta), that would initially move 2000 MV from Turkmenistan to Pakistan via western Afghanistan, and would eventually carry up to 4000 MV. The TAP transmission line will be a key step in integrating the national grid, with the Herat inter-connection and in Kandahar linking into the south east power system (SEPS). Further details are provided under regional connectivity.

1.2 National Energy Generation Projects

- A feasibility study to assess viability hydropower investments in KKRB, to rank the investments, and prepare an investment plan, and for the initially selected investments undertake a detailed design of the initial investments is prioritized for 2017, indicatively $20 million.
- Hydropower schemes, based on the feasibility study there may a number of potential schemes. Indicative investment allocation $400 million.
- Renewables (solar-on-grid/ off-grid), 10 MV plants, Kabul solar rooftop system, combined solar/ wind plants. Indicative investment $200 million.

Project Preparatory Studies/ Other: Feasibility studies required on all new and proposed projects**;** integrated network system with optimization modeling, to fully assess sources and network connectivity.

2. Transport Sector

Integrated transport network infrastructure investments, systematically planned and implemented, are focused on facilitating the country's economic growth and development, through expanding access to domestic and regional markets and social services, increasing employment, and spurring trade and logistics.

2.1 Road Priorities are:

- **Salang Tunnel and its access road** (feasibility and detailed design study funded by ADB (is ongoing to finish in 2018)), with construction estimated at an indicative cost is $1 billion;
- **Completion of the remaining section of the Ring Road**, financing gap of $100 million;
- **Connector roads to border crossing points**, two of the seven crossings have been prioritized for this period (out of Herat-Islam Qala, Herat-Torghondi, Andhkoy-Aqini, with indicative total costing of $150 million;
- **O&M programs for national and tertiary roads**, with the Road Fund, indicative cost $160 million per year.

2.2 Rail Priorities:

- Short rail sections that will feed into the larger system. Iran-Afghanistan-Turkmenistan line covering Herat–Torghondi (which will link Turkmenistan and Afghanistan) feasibility study and design study to be completed December 2016, indicative cost $320 million; and the feasibility study is completed on the extension to the Islam Qala rail link from Joye Now to Herat, (indicative $165 million, awaiting government approval, with a possible option of some international government loan funding);
- Aqina – Andkhoy rail link, proposed project with Turkmenistan Government, indicative $70 million, subject to approval, that is expected in 2016;
- Andkhoy – Sheberghan - Mazir-e-Sharif - Kunduz - Sherkhan Bandar, feasibility study completed, indicative $1.5 billion. Investment based on feasibility assessment with bulk commodity movement. With mining development spurs could be constructed linking into this line;
- The individual components of the railway plan will be assessed as links in a larger system;

- Aqina station to be inaugurated in December 2016, and a dry port facility at Aqina has been assessed, and is under consideration with the private sector, based on a PPP modality.

2.3 Urban Transport Program Priorities: construction of the Kabul Ring Road, urban BRT corridors, public transport, traffic engineering and intelligent transport systems, and public education campaigns to improve compliance with traffic rules and awareness of safety hazards. Indicative costing $200 million.

2.4 Civil Aviation Priorities: Airport O&M funding, MLAT Radar System and other technical equipment O&M funding, indicative cost $30 million.

2.5 Trade facilitation and transport logistics priority projects include improvements to border crossing points (BCPs) and the development of multi-modal hubs and dry ports/ logistics centers. A number of private companies have expressed interest in dry port development, and these proposals have been submitted to government, and are likely to involve a PPP partnership, with Ministry of Commerce and Industry (MOCI) or the Customs Department, MOF. Assessment will need to be undertaken on the feasibility of the dry ports at the various border locations (ie. for example at Hairatan, Torghondi, Aqina, Shir Khan Bandar, Spin Boldak, Torkhan). While investments have yet to be fully specified and their priority determined, indicative estimates of the investment package is $120 million.

3. Water Resources/ Irrigation

These investments cover rehabilitation of existing and new irrigation schemes, irrigation intake canals, water storage reservoirs for rainfed agriculture, and irrigated agriculture. The irrigation investments have been ranked across the five major river systems in the country. The National Irrigation Program (2016 draft), which is a ten-year program, which outlines an investment plan of approximately $1.5 billion, expanding from $145 million in 2016 to $180 million in 2020. Indicative cost for five years is $650 million.

4. Extractive Industry Development

Focus is on private investment with a public sector potential role in provision of supporting infrastructure, and enabling environment.

5. Urban Sector

Housing. In six major cities of Afghanistan (Kabul, Mazar, Herat, Jalalabad, Kandahar, and Kunduz), the Ministry of Urban Development Affairs has prioritized six mega housing projects in each of these cities. The total number of housing apartments will reach up to 10,000 units and will require an estimated budget of $600 million.

Development and Special Economic Zones. An integrated development approach will be used when assessing regional growth strategies and planning, to enable identification of key areas where synergies exist, and there is the potential for market and industry development, with forward and backward linkages, and in the future for

the area to evolve into resource corridors (linked to the extractive industry) or more broadly into development zones (with industry and services). Opportunities to utilize the large air-force bases in Helmand and Kandahar for special economic zone development to be assessed.

Technical support for planning, development and service delivery: municipal institutional capacity to deliver quality services; city and urban development planning; regional development strategies and plans; municipal and rural area planning; development zones, and resource corridor development; and special economic zone potentials.

5. ICT

Digital CASA. The proposed digital CASA in Afghanistan is detailed under regional connectivity, and is part of a regional program. The proposed digital CASA Afghanistan project and Faizabad-Warkhan Corridor-Kashgar fiber optic networks will involve digital connectivity, under PPP frameworks to finance domestic and cross-border fiber optics infrastructure which will increase Afghanistan's and other CASA countries' access and integration into the regional and global economy, with regionally integrated, secure and affordable digital infrastructure, including the expansion of e-Government services and digital job opportunities. Earlier project concepts indicated a potential cost of $90 million this is to be determined. The WB has expressed interest in supporting this project.

6. Regional Connectivity

6.1 Moving Energy

TAP 500 kV Transmission Line-Interconnection. From Turkmenistan-Afghanistan-Pakistan (Mary–Kandahar-Quetta respectively). This line would initially move 2000 MV from Turkmenistan to Pakistan via western Afghanistan, and would eventually carry up to 4000 MV. The transmission line would be in the same corridor as the TAPI gas pipeline. Meetings have been held with the respective countries involved, and positive responses have been achieved. The feasibility study is to start in 2016. At this stage it is anticipated that the project funding for the transmission lines in each country, may use ADB country allocations. The indicative cost of the Afghanistan TAP transmission line, Turkmenistan border to Kandahar (approximately 600km) and sub-stations is $500 million, with financing from ADB and co-financing of $300 million sought.

TAP will be a key step in integrating the national grid, with the Herat inter-connection and in Kandahar linking into the south east power system (SEPS). Further, with the ongoing USAID funded project constructing the Kabul to Ghazni, and now the second leg Ghazni to Kandahar, the national transmission line would link, and the national grid would be integrated.

TAPI. The planned TAPI gas pipeline from Turkmenistan-Afghanistan border to the Pakistan-India border is progressing. It will be 1600 km long, and export up to 33 billion cubic meters of natural gas per year, over a commercial operations period of 30 years. The indicative project cost is $12.5 billion, which will be finalized when

the detailed designs are complete. Key agreements have been signed, covering: the Inter-Governmental Agreement, Gas Pipeline Framework Agreement, Operations Agreement, and the three Gas Sales and Purchase Agreements.

The company "Turkmengas" was appointed as Consortium Leader in August 2015, and the project's joint venture vehicle, TAPI Pipeline Company Limited, has been established. The Shareholders Agreement was signed in December 2015 at the ceremony to commemorate the start of construction of the Turkmen portion of the TAPI pipeline. The Investment Agreement was signed in April 2016, and it commits government member funds for the construction phase. The Investment Agreement includes the initial business plan and budget for activities such as detailed design, environmental and social safeguards due diligence, preparatory procurement, and financing arrangements.

It is expected that the financing will be 60 percent debt and 40 percent equity provided by the four countries. Currently a private equity partner is being sought for the 60 percent, to finance, build and operate TAPI. The current low gas price and the security environment in Afghanistan are constraining factors with potential investment partners. Of the 40 percent equity ($5 billion), Turkmenistan would be responsible for 85 percent ($4.25 billion, and the other three countries would provide 5 percent each ($250 million). For Afghanistan this $250 million will be sought from public financing, either through development partner grant funds, or if required a low interest loan. The Government is to appoint its' representative for Board of Directors.

At this stage the potential Afghanistan gas off-take for TAPI (0.5 billion cubic meters) may not be utilized, so the potential income generated would be from the transit fees, with estimates of $150 million to $200 million per year.

CASA 1000. The CASA-1000 project involves contractual and institutional arrangements, and the transmission infrastructure, to facilitate the export of 1,300 megawatts (MW) of already available surplus electricity in the summer months from Kyrgyz Republic and Tajikistan to Afghanistan and Pakistan. CASA-1000 will be compatible with, and complement, other on-going or planned transmission investments in the four countries. By enabling regional electricity trade it will support the development of a regional energy market (CASAREM).

It will involve construction of transmission lines from Kyrgyz Republic to Tajikistan (477km) and in Tajikistan (2 lines 120 km and 117 km, in Afghanistan (562 km and 71 km in Pakistan; with two converter stations in Tajikistan and Pakistan. Construction period is indicated as three years from the date of contracting the HVDC convertor station package, expected in mid 2017. The project cost is $1.17 billion, and it has seven financiers: the World Bank (through the International Development Association, IDA); the European Investment Bank (EIB); the Afghanistan Reconstruction Trust Fund (ARTF); the Islamic Development Bank (IsDB); the United States Government; the UK Department for International Development (DFID); and the European Bank for Reconstruction and Development (EBRD). For the Afghanistan leg, the WB will be financing source.

For power to be accessed from CASA 1000 in Afghanistan, a separate HVDC back-to-back connector station will be required for synchronizing the power, and will be added into an existing 220 kV AC line between Tajikistan and Afghanistan. This would be an incremental cost to the project, and for a 500 MV connector unit it would be approximately $250 million. This would be an incremental investment cost for the government. Without this connector, the CASA 1000 line would be a transit power source only, with transit fees generated of approximately $40 million per year.

The open access mechanisms being established, will allow other interested exporters (Turkmenistan, Uzbekistan, Kazakhstan or the Russian Federation) to use any available transmission capacity, for example, in the winter months.

6.2 Moving Goods to Market

The NIP transport sector priorities reflect the importance of the regional trade connectivity with Afghanistan's proposed railway linkages connecting to other neighboring countries, that will provide new opportunities. The national priority is completion of the ring road, and the regional connections, Three of the six Central Asian Regional Economic Cooperation (CAREC) corridors have a major link in Afghanistan with the national highways. Trade facilitation and transport logistics are a Government priority.

With railways the initial investment priority is: Aqina to Andkhoy (possible loan project (Turkmenistan Government); extensions of the Islam Qala line Joye Now to Herat (possible loan project) indicative $165 million, and the Torghondi-Herat link (indicative $320 million) connecting Turkmenistan-Afghanistan-Iran; and Andkhoy – Sheberghan - Mazir-e-Sharif - Kunduz - Sherkhan Bandar, feasibility study completed, indicative $1.5 billion. Investment based on feasibility assessment with bulk commodity movement. With mining development spurs could be constructed linking into this line.

Completing the ring road ($100 million), upgrading border connections ($300 million and completing the preparatory work (feasibility and design study) and undertaking the construction on the Salang Tunnel ($1 billion) are key national priorities with regional links.

Trade facilitation and transport logistics. Include improvements to border crossing points (BCPs) and the development of multi-modal hubs and dry ports/ logistics centers. While investments to be fully specified, indicative estimates of the investment package is $120 million.

6.3 Moving Data

Fiber Optics Systems. As part of the TAPI gas pipeline Afghanistan will be installing fiber that will connect India, Pakistan, Afghanistan, and Turkmenistan. Additionally, as part of the TASEM project, the above fiber will be connected under the Caspian Sea to Port of Baku and then to Italy. In other words, Afghanistan can be the pathway to provide a shorter and more reliable data communication route between Europe in Asia that can potentially reduce the transmission time by over 30 milliseconds. Moreover, the route will offer an alternate pathway to Trans-Siberian

fiber. Finally, the recent World Bank project, the Digital CASA, is improving internet connectivity for Afghanistan and the five Central Asian nations namely Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Turkmenistan and provides new horizon for regional data interconnectivity.

The proposed digital CASA Afghanistan project and fiber optic networks will involve digital connectivity, under PPP frameworks to finance domestic and cross-border fiber optics infrastructure which will increase Afghanistan's and other CASA countries' access and integration into the regional and global economy, with regionally integrated, secure and affordable digital infrastructure, including the expansion of e-Government services and digital job opportunities. It was proposed by the WB, as a series of country projects, based on a country's readiness, determined by the presence of an independent regulatory authority, and adhere to open access principles, and liberalization of both domestic and international internet connectivity. The WB has expressed interest in supporting the project in Afghanistan.

The connectivity projects have the potential to generate significant transit revenues, this is particularly the case with the proposed data movement (TASEM and Digital CASA) which could raise several hundred million dollars in the long-term, as could TAP generating amounts of $200 million or more, while CASA 1000 transit fees are indicated to be $40 million.

Annex 1 Table 1: NIP Pipeline (2017-2021) Draft

	2017-2021 ($ Million)	Indicative Funding Source (to be finalized)
1. Energy		
1.1 National Grid Network		
New transmission lines (TL) and sub-station projects:		
TAP 500 kV Transmission Line	500	ADB/ other cofinancers ($300 million)
(Turkmenistan border-Kandahar) with Herat interconnection		
Provincial Network Expansion	250	Utility/ GoA/ Other
(Sub-stations and distribution systems)		
1.2 National Energy Generation Projects		
Hydropower		
Kabul-Kunar River Basin Feasibility and Design Study	20	Unfunded
Initial hydropwer scheme investments (indicative)	400	Unfunded
Renewables (solar-on-grid/ off-grid)	200	Global Climate Fund/
10 MV plants, Kabul solar rooftop system, combined solar/ wind		other development partners
2. Transport		
2.1 Road Network		
Ring Road (Qaisar to Laman-additional funding for completion of remaining road section)	100	Unfunded
Connector Roads to border crossing points (2 included)	150	Unfunded
Salang Tunnel & Access Road	1000	ADB, major cofinancing
(feasibility/ detailed design study ongoing to 2018)		Possible sources JICA/USAID/ Other
O&M (Road Infrastructure Trust Fund)	800	USAID/ ADB /ARTF/ Other
		Largely unfunded
2.2 Rail Network		
Short links		
Aqina - Andkhoy	70	Possible Turkmenistan Gov. loan financing
Joynow extension to Herat Airport	165	Possible internatioanl gov. loan financing
Torgondhi - Herat (ongoing feasibility study - complete Dec 2016	320	Unfunded
Andkhoy-Sherberhgan-Mazir-e-Sharif-Kunduz-Sherkhan Bandar		Indicative $1.5 billion
2.3 Kabul Urban Transport		
(Kabul ring road, BRT, public transport,	200	Unfunded
traffic engineering, intelligent transport systems)		Possible sources ARTF
2.4 Civil Aviation		
Airport, MLAT radar and other technical equipment O&M	30	Unfunded
		(GoA overflight fees)
2.5 Trade facilitation and transport dry ports/ logistics	120	Unfunded
3. Water Resources/ Irrigation		
Irrigation Physical Works/Irrigated Agriculture	650	ADB/WB/ USAID/ Other
(rehabilitation existing/ new schemes/ water reservoir)		DFID/ ARTF/EU
4. Extractive Industry Development		Private Sector
		GoA supporting infrastructure
5. Urban Sector		
Housing	600	PPP Gulf States/ Other
Development zones and special economic zones		
6. ICT		
Digital CASA (initial concept $90 million, cost may be adjusted)	90	Unfunded
		WB expressed interest
7. Regional Connectivity		
TAPI (country equity share)	250	ADB/ other DPs/ loan
CASA 1000	80	$270 million regional (WB to confirm)
CASA 1000 -additional Back to Back convertor station (500 MW)		To discuss priority $250 million
TAP 500 kV Transmission (under 1 above)		
TOTAL ($ million)	**5995**	

Annex 2

Summary of Ministry Proposed Infrastructure Plans

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Introduction

The National Infrastructure Plan is based on a prioritized set of feasible investments, which have been assessed at the national and sector level, to achieve the country's economic and social goals. Given the country's fiscal constraints and implementation capacity, the prioritization has involved intra and inter-sector trade-offs.

The ministries and agencies responsible in each of the infrastructure sectors (transport, energy, water/irrigation, extractive industries urban, and ICT), which can involve from one to five ministries/ agencies in a sector, have prepared ministry infrastructure plans. These were prepared by ministries (dated over the period December 2014 and December 2015).

Executive summaries of these ministry infrastructure plans are included in this Annex, to provide further background on the scale and scope of proposed investments at a ministry/ agency level. These executive summaries follow the plan outlines, which used a standard format, covering goals, strategies, existing situation, constraints and opportunities, and ongoing and planned prioritized projects, costings, and fund resources available and financing gaps.

The ministries infrastructure plans provided details on the ministries ongoing, prioritized planned, and future proposed projects. These project listings have been revised and include the latest updates from the ministries. For this reason in some cases there may be a variation from the totals detailed in the ministries initially submitted infrastructure plans. These ministry project listings, with indicative costs are provided in Annex 3.

A number of the ministries have indicated in their infrastructure plans, that a common selection criteria for prioritizing and inclusion of projects was used in preparing the pipeline. While no quantitative ranking is provided, the indicated selection criteria is based on economic, financial, social, technical and environmental criteria. In the future it is essential that a standardized methodology (quantitative and qualitative) be applied. The selection criteria is summarized below:

- Inherent economic potential from natural resources (minerals and hydrocarbons) along and adjacent to a corridor (direct and indirect impact);
- Regional integration potential and stimulation of local and cross-border trade;
- Potential for micro and SME development;
- Impact on poverty alleviation, especially among disadvantaged communities;
- Connectivity to social centers, remote communities with much-needed humanitarian aid and basic public services;
- Impact on economy (value for money, time and fuel savings);
- Initial request (upgrading or complementary to previously completed project);
- Potential impact on improved security and stability; and
- Environment impacts.

Ministry of Energy and Water

I. Goal:

Energy Sector:

- Establishment of Electricity Regulatory Authority.
- Encourage participation of the private sector in the implementation of investment projects to generate electricity.
- Develop a wide range of electrical networks for access to electricity.
- Create favourable conditions for rational use of energy resources, water and renewable energy for electricity production.
- Provide opportunity for exchange, trade and transit of electricity, as a link between regional and international office.
- Trying to self-generate electricity from domestic sources.

Water sector:

- Access to safe drinking water for healthy people.
- Reliable water supply for agriculture for food security.
- Protect people from the negative effects of droughts and floods income sources.
- Hydro power potential of water resources for towns and villages.
- National Water Supply industry sector and other sectors of the economy.
- Sustainable environmental protection.

II. Strategy:

- Improving access to energy and increasing quantity of energy in Afghanistan.
- Internal capacity for self-sufficiency in power sector, enhance national income, poverty reduction, job creation in areas distant to avoid increasing population within large cities, the growth of domestic electricity, draw, and encourages the private sector to invest in production projects energy, creating electricity regulator.

III. Situation Analysis:

Afghanistan has significant water and hydrocarbon resources that can be developed to increase irrigation area, water resource management, access to water supply, hydro-power, with the hydrocarbon (gas, coal) harnessed for power generation. Currently it is characterized by low levels of power consumption, high levels of imported power (over 70 percent of total), and low levels of domestic power production. Given the country's resources opportunities exist to expand domestic power production. Similarly opportunities exist to expand area and improve irrigation and water resource management,

While there have been significant achievements since 2002 in rehabilitation and establishment of essential water resources and with energy infrastructure (transmission, sub-station and distribution systems and the provision of power (in large part by regional energy purchases), the scale of the required infrastructure work to be completed remains large, as does the management of financial and technically

sustainable systems. The sector master plans and national priority programs have identified the key projects, policy, regulatory and institutional frameworks required. New energy and water laws and policies have been adopted, and the establishment of DABS was a critical step in developing the framework for improved energy service delivery. The funding requirements of the priority investments exceed resources, with new modalities and financing including PPP and private sector required.

IV. Key Constraints and Solutions:

- Funding Projects

V. Prioritized Projects: The Ministry has provided prioritized project listings for the following:

- **Irrigation, flood control, water supply and hydro-power generation projects.** This listing indicates the status in terms of feasibility study and detailed design, and that for all projects funding is sought. The project cost is not included. The project listing does not include ongoing projects.
- **Energy.** The Appendices to the Ministry's Infrastructure Plan provide separate tables listing:
    - Power sub-station projects (funded and unfunded, no project costings are provided)),
    - Power transmission lines (funded and unfunded, with project costings),
    - Planned domestic generation hydro projects, with status of project preparation, and estimated project cost,
    - Planned domestic generation thermal projects (2 gas plants Mazar and Sheberghan) with current preparatory status and cost,
    - Planned domestic generation –renewable energy projects (solar, solar-hydro, wind, geo-thermal and biomass), with current preparatory status and indicative project costing;
    - List of generation projects (renewable and hydro-power) needing feasibility studies (no feasibility study costings provided)

It is important to note that the Ministry energy projects that are currently funded for power transmission, sub-stations and distribution systems and which are included in the above Ministry project listings, are also included and costed in the DABS prioritized pipeline. To minimize the risk of potential overlap in costing it is recommended that use the DABS prioritized listing for current funded power transmission, sub-stations and distribution projects. Detailed listing of the Ministry prioritized projects are provided in Annex 3.

VI. Budgeting/ Costing:

While no summary budget costing is provided for ongoing and prioritized irrigation, water and energy projects over the next five years, they are provided by individual project in the project listings in Annex 3. The funding commitments and shortfalls for the planned projects are not indicated. As noted above, the DABS executive summary and infrastructure budget costing covers all currently funded projects for the power transmission, sub-stations and distribution systems for the next five years.

VII. Expected Results:

Increased domestic energy production and domestic energy self-sufficiency, supporting economic growth and increased per capita income.

Da Afghanistan Breshna Sherkat

I. Goal:
To provide safe and reliable power and reasonable rates to facilitate national economic growth with integrity, transparency and efficiency.

II. Strategy:
- Construction and extension of power Transmission Lines, Substation and Distribution Networks throughout the country.
- Reduce transmission and distribution power Losses and connect more consumers to national grid.

III. Situation Analysis:
None Provided. Refer to Ministry of Energy and Water summary.

IV. Key Constraints and Solutions:
- Security Threats
- Land Acquisition Issues

V. Prioritized Projects:
The listing of DABS ongoing and planned prioritized projects are provided in Annex 3, covering transmission, substation and distribution systems, the project status and planned timelines, with work plans.

VI. Budgeting/ Costing:

Table 1: Budget Summary

Item	**Budget (US$)**
Existing funds for 5 years for the prioritized projects	983.5 million
Remaining Need for the next 5 Years	0 million
Overall Budget	983.5 million

Committed financing is almost all development partner, and predominantly from ADB.

VII. Expected Results:
Increased power supply and access to electricity. The outputs are detailed by each project in the pipeline summary list.

Ministry of Public Works

I. Goal:

To create a safe, efficient and effective Afghanistan Road Network (ARN) that consists of regional highways, national highways, provincial and secondary roads, as a crucial part of the transportation system for the Afghan people.

Consequently, the ministry envisages to create a road transportation system where access within and beyond the community and to the region is available, accidents, delays, and congestion are significantly reduced, and freight moves easily with the lowest cost across towns, districts, provinces and international borders. In addition, the ministry would like to develop a system where roads minimally impact the environment, including air quality, pedestrians and bicyclists are accommodated, and transportation services are restored immediately after disasters and emergencies.

To achieve its vision, the ministry will "develop the MPW's capacity to meet all current and emerging challenges and to perform activities effectively and efficiently in a self-sustaining manner".

II. Strategy:

The MPW pursues an overall road asset management strategy establishing an appropriate management structure, which leads to road investment with focus on physical, economic, social and human connectivity. The key sub-strategies include:

1. MPW to provide a robust structure/environment to meet current and emerging challenges;
2. To upgrade MPW's organizational capacity to effectively and efficiently achieve
   its goal;
3. To work with other government departments to improve the external environment
   in which the MPW operates through creation of the networking system and networking taskforces;
4. To establish a sustainable and effective road development system, which will withstand all the challenges of road sector, with high working standards; and
5. To create viable and an efficient road maintenance system to keep the roads open year-round and allow people and goods to move safely and efficiently within Afghanistan.

III. Situation Analysis:

As a landlocked country and without many viable alternative transport modes, roads (serving 90% of travel demand) are the principal means of transport in Afghanistan serving as links connecting Afghanistan's provinces, cities, towns, and villages. Despite significant investment over the last few years and expansion in the road systems, especially the ring road, Afghanistan's transport sector has chronic operational and institutional bottlenecks, primarily the result of: (i) poor strategic construction and periodic maintenance planning; (ii) authorities with limited institutional capacity and weak sector coordination across agencies, as indicated with infrastructure sharing arrangements; (iii) lack of regulatory enforcement and cost recovery for maintenance funding; (iv) limited numbers of quality contractors and

consultants in the private sector; and (v) unsatisfactory project and contract management capacity. These bottlenecks raise domestic transport costs, constrain regional cooperation and integration opportunities, and undercut the country's competitiveness.

Integrated transport network infrastructure investments, systematically planned and implemented, will reduce user transport costs, expand access to markets and social services, spur trade and logistics, and promote social integration and reconciliation. Afghanistan's strategic location presents a lot of opportunities to serve as a transport nexus providing access to trade along north-south and east-west Asian corridors, throughout the region.

IV. Key Constraints and Solutions:

Policy, Legal & Regulatory Constraints

- Laws to establish new independent authorities need to be developed;
- Lack of policy and regulatory standards/codes for infrastructure governance, management and maintenance;
- Public Private Partnership (PPP) arrangements in Afghanistan covering legal and regulatory requirements to be finalized; and
- Cost-recovery and pricing regimes are insufficiently developed.

Coordination and Management Constraints

- Functional restructuring of executive to redefine regulatory oversight mandates;
- Coordination of donor and government priorities;
- Program management arrangement;
- Sequencing and prioritization, within budget framework, needs strengthening;
- Corridor Agreements would need inter-governmental agreement;
- Regulatory oversight management capacity needs substantial strengthening; and
- Establishment of independent authorities in road will require substantial external
  donor support.

Financing/Supply Constraints

- Highly capital-intensive projects and a limited fiscal envelope at Government's
  disposal.

Maintenance, Governance and Sustainability Constraints

- Maintenance arrangements for large-scale infrastructure requires cost-recovery
  systems to be established, through funds, to guarantee ongoing maintenance and upgrading of corridor infrastructures;
- Inter-ministerial governance arrangements need to be clearly established; and
- Fiscal sustainability must be a core condition of future investments.

The challenges presented above can potentially be addressed as follows:

- Path dependencies from inadequate public sector policies and implementation practices for implementation of major infrastructure programs will be overcome
  through strengthening of the national policy, legislative and regulatory frameworks and organizational development of the MPW.

- Coordination constraints can be addressed through close liaison with NRRCP Secretariat.
-

V. Prioritized Projects:

The priority proposals for construction, rehabilitation and operation and maintenance of regional, national, provincial and secondary (district) roads will underpin an integrated economic initiative linking infrastructure investments with resource corridors including those with high export potential on the extractive industry side. In terms of secondary linkages, the projects will also allow for an integrated approach to national industrial development, impacting growth, employment and market making opportunities in all provinces. The prioritization for the period 2015-20 sequences and focuses on those infrastructure projects, which will have an immediate impact on regional integration and trade, on broad-based equitable development, as well as on improved security and connectivity of major urban centers and disadvantaged communities with a view of the transition process.

VI. Budgeting/Costing:

The priority projects (covering both ongoing and planned projects) are detailed in the project listings in Annex 3, with project costs, funding source and where a financing gap exists for the project.

VII. Expected Results:

Key outputs (by end 2019) will include:

- Complete construction of the ongoing projects including 520 km of regional highways, 700 km of national highways, 681 km of provincial highway and 450 km of secondary roads;
- Potential construction completed for the planned 132 km of regional highway, 1,200 km of national highway, 2,000 km of provincial highway and 2,400 km of secondary roads;
- Generation of circa 20 million labor days;
- Maintenance of circa 21,000 km of roads;
- Enhanced capacity of MPW's engineers and other staff;
- Employment generation and enhanced contribution of the sector towards the GDP;
- Potentially enhanced safety of road users;
- Reduced travel time; and
- Contribution to stabilization and other security objectives.

Afghanistan Railway Authority

I. Goal:

To enhance Afghanistan's economy with a focus on long-term strategic rail development opportunities. Railroad development is expected to increase domestic economic growth, domestic and regional connectivity, and promote a positive economic environment, which will foster private investment.

II. Strategy:

The Afghanistan Railway Authority strategies to achieve the goal involve:

1. Turning Afghanistan into a regional transportation hub;
2. Creating a synergy between mining and railway sector of the country for transporting mining sector products to national and international markets, and for the transport of goods and other commodities;
3. Promoting agricultural industry and enhancing counter narcotics operations;
4. Promoting infrastructure development;
5. Promoting population connectivity and creating jobs on the national level.

III. Situation Analysis:

Despite significant investment over the last few years, Afghanistan's transport sector has chronic operational and institutional bottlenecks, primarily the result of: (i) poor strategic construction and periodic maintenance planning; (ii) weak authorities with limited institutional capacity and sector coordination across agencies (e.g. lack of coordination between the road and ICT contractors is resulting in loss (operational/financial value) of assets even though a MoU has been signed between MPW, MCIT, and MoF on Implementation of Infrastructure Sharing in Afghanistan) ; (iii) lack of regulatory enforcement and cost recovery for maintenance funding; (iv) limited numbers of quality contractors and consultants in the private sector; and (v) unsatisfactory project and contract management capacity. These bottlenecks raise domestic transport costs, constrain regional cooperation and integration opportunities, and undercut the country's competitiveness.

Afghanistan's strategic location presents a lot of opportunities to serve as a transport nexus providing access to trade along north-south and east-west Asian corridors, throughout the region, and connecting Asia and Europe.

To harness these opportunities with integrated transport systems, considerable attention has been given to establishing a national railway network, therefore a comprehensive Afghanistan National Railway Plan has been designed to utilize Afghanistan strategic location and establish the country as a regional transportation hub. The plan addresses the transportation needs of the mining sector, promote infrastructure as well as agricultural development.

IV. Key Constraints and Solutions:

The following are the main constraints for the implementation of the above projects:

1. Railway network is a new initiative in the country therefore AfRA faces technical and administrative gap, which is vital for the construction, maintenance and operation of railway network in Afghanistan;
2. Lack of funding resources for the implementation of ANRP;
3. Lack of security in the country;
4. The challenges that AfRA encounters in acquisition of private land along the path of the railway line networks.

In order to address the above constraints AfRA has adapted the following approaches:

1. To address human capital and technical gap AfRA has designed a comprehensive organisation and human capital development strategy. AfRA has attracted talented, motivated and educated workforce who could eventually address this problem. AfRA has also designed training courses for its employees both inside and outside the country. In order to address the immediate technical gap in the area of feasibility studies, construction, operation and maintenance of the network, AfRA has outsources the services in the mentioned areas until it becomes technically independent.
2. As the government of Afghanistan has limited financial resources, AfRA has been actively engaged with the international donor agencies for attracting funds for its projects.
3. The security situation has not been ideal not only in Afghanistan but also in the region. In order to address this problem, AfRA has had a close coordination with the Afghan security forces in the project area. When required it has hired reliable security firm to provide security for its local employees and international contractors and counterparts.
4. Unlike road networks there is less desire from the local population to cooperate in providing land for railway network in the country. AfRA has utilised the experience of its employees to address this issue by engaging with the local population through their local councils and Jergas in order to attract their support. This methodology has proven very effective in solving these disputes. Although it is still a problem for AfRA but all disputed cases have been resolved effectively and desirable outcomes have been achieved.

V. Prioritized Projects:

The detailed list of ongoing projects and prioritized planned projects, with individual project costs and funding, is provided in Annex 3.

VI. Budgeting/Costing:

The total summary budget, outlining existing funding and the budget financing gap for the next five years is summarised in Table 1.

Table 1: Budget Summary

Item	**Budget (US$)**
Existing funds for 5 years for the prioritized projects	58.21 million
Remaining Need for the next 5 Years	7991.00 million
Overall Budget	8049.21 million

VII. Expected Results:

Increased domestic economic growth, based on improved domestic and regional connectivity, a positive enabling environment, and increased private sector investment.

Ministry of Mines and Petroleum

I. Goal:
To accelerate private sector led development of the minerals and hydrocarbons sectors; and generate state revenue, jobs, economic growth, infrastructure and community development in a sustainable, equitable and transparent manner.

II. Strategy:

- To contribute to the financial independence of Afghanistan through the development of its minerals and hydrocarbon sectors,
- To ensure that mining supports local and regional socio-economic development and contribute to peace and security,
- To ensure extractive industries' compliance with social and environmental requirements in line with international best practice for sustainable development.

III. Situation Analysis:
Afghanistan has a rich endowment of mineral and energy resources. It possesses deposits of copper, gold, and iron ore, among other metals, as well as construction materials, dimensional stone and gemstones, coal, and hydrocarbons. Development of the minerals sector has been identified as the single most important lever to diversify the economy, create employment and raise government revenues. The medium and long term economic development potential of the mineral and hydrocarbon sectors is greater than any other sector in Afghanistan's economy.

To unlock this potential the country has adopted a new market driven policy direction, transferring exploration and mine development of the country's natural resources from the state to the private sector. Large private investments will be required. Government revenue will be derived from mining taxes, royalties and licensing fees. The mining industry is expected to generate employment and accelerate development in rural areas, and integrated cross-sectorial approaches to infrastructure investment will be adopted in the development of resource corridors. New mining legislation based broadly on the government's objective to attract investment into the mining sector, has been passed. Environmental safeguards, social development and local content imperatives, such as support to local service providers, have been included in the legal and policy frameworks to encourage development to proceed in a sustainable and equitable manner. The future Aynak copper mine and the Hajigak iron ore project represent the first major mining projects to have attracted foreign investment into the mining sector in Afghanistan.

A number of constraints still exist in Afghanistan's business and investment environment. Recent reviews of the sector identified a range of institutional reforms that need to be implemented if Afghanistan is to attract the investment necessary to provide economic benefits to the government and the people of the country. A central recommendation contained in these sector analyses is that restructuring and reform of the Ministry of Mines (MoM), as a part of the transition from state led to private sector led development, is necessary.

IV. Key Constraints and Solutions:

A number of key constraints impact on the enabling environment and reduce investment:

- Security issues;
- Lack of investor confidence due to negative international perception of Afghanistan (history of conflict, political instability, state control of mining activities);
- A weak investment climate and lack of predictability that hinders Afghanistan's ability in the highly competitive world of mineral and hydrocarbon exploration;
- An insufficiently developed regulatory framework;
- Lack of regulation or informality of the sector, especially in artisanal and small-scale mining; and
- Lack of community engagement
- In addition, the Ministry of Mines is facing a number of immediate and critical organizational constraints that limit its ability to contribute to economic growth.

V. Prioritized Projects:

The detailed listing of the Ministry's ongoing and planned prioritized projects (awaiting Cabinet approval) are provided in Annex 3.

VI. Budgeting/ Costing:

- While individual project costs are provided for ongoing and planned projects, refer Annex 3, no budget summary is provided that details existing funding and remaining funding shortfall required for the next five years.

VII. Expected Results:

The development of mineral resources and the revenue will provide a major economic growth center for the economy. The initial two large mines (Aynak and Hajigak) when established and operational will generate significant revenue for the Government, and economic growth and employment. The timing and scale of this revenue stream is dependent on investment and resource prices that are currently low. The initial timeframe for construction has slipped and the low resource prices is expected to result in further delay in investment.

Ministry of Agriculture, Irrigation and Livestock (MAIL)

I. Goal:
To improve agricultural sector performance, economic growth and livelihoods, through supporting infrastructure and private sector investment in water resources and management, on-farm management and technical skills, agricultural value chains and processing for value added.

This to be achieved by strengthening and supporting the private sector and entrepreneurs, and providing a effective enabling regulatory environment. The ministry will support improving agricultural products developing agricultural economical infrastructures (cold storages, agricultural products processing and packaging centers, industrial parks and slaughter houses) for development of value chain and prevention of agricultural products wastage through close coordination and PPPs between government and private sector. Also, the Ministry mandate to ensure effective utilization of water for irrigation, will support development of sustainable and affordable economic infrastructures for enhancing agricultural productivity.

II. Strategy:
The National Agriculture Development Framework (NADF) of MAIL outlines the strategic focus of the ministry into the following four programmatic pillars:

1) Agriculture Production and Productivity;
2) Economic Regeneration;
3) Natural Resource Management;
4) Change Management.

All its interventions under these four pillars and it remains the key organizational framework of the Ministry

However, the new National Comprehensive Agricultural Development Priority Program (2016-2021) focuses on 7 strategically important pillars. These are:

1) Wheat;
2) Irrigation;
3) Horticulture;
4) Livestock;
5) Natural Resource Management;
6) Food Security;
7) Institutional Reform.

III. Situation Analysis:
The NADF outlines the current agricultural sector situation, and that of agriculture infrastructure, including irrigation sector and market-based infrastructure and their linkages with agricultural productivity. It focuses on available potentials, challenges and approaches to move from the current to a more sustainable situation. Water resource management and on-farm use as develop horticulture and new cash crops, and strategically support with off-farm agricultural product development. The agriculture development projects' focus has also been in supporting the subsistence farmers, while support to semi-commercial and commercial farmers had a priority. The approach now is one to improve food security, and to develop commercial cash crops and commoditiy value chains. Direct support to private sector investment and public-private partnership has recently been taken into strong consideration by the ministry of agriculture. To efficiently and sustainably achieve these outcomes, MAIL

has undertaken a reform process to increase capacity and presence at the district and community level and improve management capacity at the central level.

IV. Key Constraints and Solutions:

- **Irrigation and On-farm water management.** In Afghanistan water sector governance is complex, and the National Water Law of 2009, has not clearly delineated all responsibilities.
- Commercial and semi-commercial farming support lacking until recently.
- Strategic agri-business technical advice and support.
- Supporting regulatory environment and standards.
- Private Sector Engagement.

V. Prioritized Projects:

The prioritized projects are listed in Annex 3.

VI. Budgeting/Costing:

The summary budget costing is provided in Table 1, for ongoing and prioritized projects over the next five years, it indicates a very large funding shortfall in the pipeline, of approximately $273 million. The projects are listed in Annex 3.

Table 1 Budget Summary

Item	**Budget (US$)**
Existing funds/commitments for 5 years for the prioritized projects	120 Million
Remaining gap for the next 5 Years	273 Million
Overall Budget	393 Million

VII. Expected Results:

Economic growth, improved livelihoods and food security, based on improved natural resource management, increased agricultural productivity and returns, improved physical infrastructure (including irrigation and on-farm management), greater market value added, processing and development of commodity value chains.

Ministry of Urban Development Affairs

I. Goal:
To restore and further human dignity and citizenship through a balanced urbanization and equal services for all Afghan cities and citizens.

II. Strategy:
Urban management arrangement strategies will involve:

- Developing, approval and implementation of the National Urban Policy;
- Developing Urban and regional plans for major urban areas;
- Preparing Plans for the regional development strategy for all the zones;
- Strengthening the capacity of municipalities;
- Improving revenue and capacity building programs in thirty four provinces and major cities;
- Developing Urban development plans, including plans for infrastructure investments for twenty five major cities;
- Develop and enhance institutional capacity supported by educational plans, institutional reforms for effective governance in the country's thirty four provinces and major cities.

Urban Infrastructure and Services strategies will involve:

- Developing water policy and planning;
- To achieve 50 percent access of families to piped water in Kabul;
- To achieve 30 percent access of families to piped water in the provincial cities.

Improvements in the non-plan areas, in land development and housing, strategies will involve:

- To achieve fifty percent increase in the access to urban land for shelter;
- To achieve thirty percent increase in the provision of public land for housing and urban development activities;
- To resume housing projects in 12 provinces.

III. Situation Analysis:
Between 1978 and 2001 (the civil war era), the urban growth rate in Afghanistan was constantly declining. At a point from 1996 to 2001 (the Taliban era), most cities and urban centres were decaying severely and the urbanization process was stagnated. However, after 2001, with the new government in place, the urbanization process had resumed. This process was further accelerated with the influx of refugees from the neighbouring countries and massive inflow of foreign monetary assistance. In 2005, the average annual urban growth rate reached 5.7% (Based on World Bank data). This bold figure put Afghanistan’s urban growth rate at 5th ranking among the world cities.

Unfortunately, this growth was coupled with several problems; lateral and informal growth in the major cities has been one of the main challenges in this regard. Lack of capacity of the Afghan government urban authorities to control and to provide necessary framework for this rapid growth resulted in about 70% informal urban growth, without standard urban service and facilities.

The urban authorities in Afghanistan have been able to develop and update the master plans of cities, as well as some pertaining laws and regulations. In addition, the Ministry of Urban Development Affairs (MUDA) has recently initiated some housing projects in partnership with the private sector. But these efforts are on a smaller scale and would not suffice the vast need at national level. Over (157) private townships and (25) government housing projects have been completed in the last decade. But still the middle and low income groups that constitute majority section of the Afghan population, remains without housing. Based on a survey conducted by MUDA in 2008, an average of 1.9 family lives in one dwelling unit in Kabul city. This figure suggests that Afghanistan needs about twice the number of housing compared to the existing ones. Similarly, the survey shows the following socio-economic groups from occupancy's point of view

- Government employee (27%)
- Non-Government Workers (10%)
- Free-lance workers (10%)
- Skilled & Unskilled labours (38%)
- Jobless Persons (15%)

Groups 2 and 3, which make 20%, are economically well-off and are able to afford the commercial housing constructed by private sector. However, group 1 and 4, which makes about 65%, are the middle income groups who cannot afford such housing; thus requiring low-cost and affordable housing schemes. The 5th group is living in slums or semi-slum areas and need special low-cost housing.

While the housing issue has become a major challenge in Afghanistan, it presents a wide array of opportunities for economic development through private sector partnerships well. If seen from the economic perspective, the housing development sector could be the drive behind the revival of economy and reliance. It will provide a huge market for the Afghan labour and work force. Meanwhile, it will not only provide market for but also stimulate further production of locally produced construction materials. It will also pave the way for the science and engineering graduates to put their learning into practice and experiment with their new ideas and innovations in the construction field. With the introduction of the mortgage system, a worthwhile business for banks and advantage for the poor and middle class will be created.

As mentioned, the government and the private sector have implemented around 180 housing projects in the past decade alone throughout the country. Less than 20 % of these projects have been completed through public-private partnerships. This lesser contribution of the private sector is due to the lack of frameworks and regulations to administer and legalize the role, share and responsibilities of the public-private partnership. The government has prepared PPP legislation, which will facilitate increased private sector involvement in the urban development sector. MUDA is currently undertaking policies and by-laws to regulate public-private partnership (PPP) while investing in the housing projects.

Given the size of Kabul City and its' importance as an urban center, a separate infrastructure plan is attached for Kabul Municipality, to indicate the core issues facing rapidly expanding urban environments, on which MUDA provides support.

IV. Key Constraints and Solutions:

- **Land:** Land disputes and grabbing would be a major challenge in front of our housing projects not only in Kabul but throughout the country. Managing and resolving conflicts and disputes of such nature would require a multi-faceted and joint effort by the majority of the government authorities.
- **Urban Slums:** Dealing with the slums that have mushroomed all around the major cities would prove a major obstacle given the ambiguities and lack of clarity in the laws and regulations regarding destruction/removal and compensation/relocation of such habitats.
- **Technology and methodology:** Taking into consideration the Afghanistan's current climate, global warming/climate change, culture and other aspects, it is necessary that we should come up with designs and building methodologies that are feasible for this part of the world, while keep the prices low at the same time. Such designs are not available at the moment. But we would need to develop these if we want to achieve our overall goal of providing viable and affordable housing for all.
- **Urban Planning Issues:** Currently, Afghanistan's six major cities (Kabul, Kandahar, Jalalabad, Herat, Mazar and Kundoz) have master plans. But sector plans and detailed plans are yet to be developed. These detailed plans would be very instrumental in resuming effective and standard housing schemes and projects.

V. Prioritized Projects:

Given the growing population and demand in the six major cities of Afghanistan (Kabul, Mazar, Herat, Jalalabad, Kandahar, and Kunduz), the Ministry of Urban Development Affairs has prioritized six mega housing projects in each of these cities. The total number of housing apartments will reach up to 10,000 units and will require an estimated budget of USD 670 million. The projects are listed in the Annex 3.

VI. Budgeting/Costing:

Item	**Budget (million US$)**
Existing funds for 5 years for the prioritized projects	$ 670.00
Remaining Need for the next 5 Years	$ 670.00
Overall Budget	**$1,357.70**

VII. Expected Results:

Through housing projects, we envisage that we will be able to address a dire need of over 65 % city dwellers who are without proper shelter and/or housing by offering them affordable housing schemes. In addition, these projects will substantially boost the skilled and non-skilled labor market and increase income generation among the poor segment of the society. A significant number of jobs will also be created through recruitments in the administration and management of these projects around the country. Also, a viable and good home market will be created for the construction materials and goods produced locally.

Kabul Municipality

I. Goal

To develop Kabul City into a modern and sustainable city, with improved access and service delivery and living conditions for the rapidly growing Kabul population.

Strategy:

- Develop and update integrated city and urban plans for Kabul and associated regulations.
- Plan and develop sustainable transport system, with a framework of policies and regulations; and implement systems to support government strategies for socio-economic development.
- Improve access and delivery of city services in Kabul city.
- Plan and develop energy systems, and improve the renewable energy infrastructure in Kabul city.
- Plan and develop surface and subsurface water management systems.
- Improvement in the sustainability of city services in Kabul city.
- Standardize and integrate/ re-plan privately-built townships in Kabul city.
- Establish sound financial business model for municipality operations.
- Managing and standardizing projects implementation.

II. Situation Analysis:

Kabul City has experienced a rapid growth in the past one and half decades. The rapid growth has put a huge burden on the services provided by Kabul Municipality. Such a growth and increased demand for services requires a fundamental organizational change and development inside Kabul Municipality. However, Kabul Municipality has undertaken limited organizational development and change over this period. Outdated municipal laws and regulations have constrained Kabul Municipality's authority in the areas of urban management and revenue generation. This has resulted in a large number of legal complications, and use larges resources and time by senior management at Kabul Municipality seeking solutions.

The lack of capacity in the municipality, poor governance and the inability to enforce regulations has led to large scale unplanned development, and loss of control leading to an urban development catastrophes. This lack of control has reduced revenue generation opportunities, and this has limited Kabul Municipality's capacity in service delivery.

Improving living conditions in Kabul City is a priority, and while many projects have assisted, the problem continues. More recently it has received enormous attention from the country's leadership. The application of two different long-term programs funded by the World Bank has resulted in improved road infrastructure in the city. Also, in recent months, Kabul Municipality has experienced an overhaul of its top management, through appointment of better-educated professional managers in the senior positions. The new management is in a much better position to undertake the institutional reform, to update city management, and to focus on planning and efficient delivery of improved municipal services and city infrastructure.

III. Key Constraints and Solutions:

- Policy, Legal & Regulatory Constraints
- Lack of cooperation from stakeholder organizations
- Financing Constraints

IV. Prioritized Projects:

The list of prioritized projects is provided in Annex 3

V. Budgeting/Costing:

The total summary budget for the city development plan (2017 to 2025) is $278 million. As noted under the Ministry of Urban Development and Affairs, a number of the key programs are included under the Ministry's plans.

VI. Expected Results:

The five years' strategic plan developed by Kabul Municipality is designed to improve the city's infrastructure and services provided by Kabul Municipality. Implementing the planned projects will address existing problems. The expected outcome in the next five years, is that Kabul City will have functional urban transport systems, adequate housing to meet increasing population needs, better city services delivered mainly through private sector, and sound financial administration and revenue collection streams to sustain such growth and services. The city government will also be able to widen its scope of service delivery, by targeting areas such as culture, civic education, and economic development.

Ministry of Information and Communication Technology

I. Goal:

To transform Afghanistan into an information society. The E-Afghanistan National Priority Program aims to fulfill this goal by create a modern and efficient Information and Telecommunications sector and e-government to enhance the effectiveness, efficiency and transparency of the public sector, provide equitable access for social services, develop a vibrant private sector, and create a connected and productive society.

II. Strategy:

The strategies to achieve this will require multi-pronged actions, as follows:

1. Building on Successes of the Past to meet challenges of the Future
2. Building Capacities of the Ministry, Sector Institutions, the private Sector, and the education streams feeding the Sector
3. Provision of latest and value added services
4. Productive and efficient Government and People of Afghanistan

III. Situation Analysis:

When the Transitional Government came into power in 2002 the importance of rebuilding communication systems and giving the nation benefits of latest technologies and advances in the Information Technology for overall growth and reconstruction of the country was immediately realized. Good communication systems and introduction of IT was found necessary for growth in all other sectors, be it security or governance or reconstruction and development or education or trade/business. The efforts for infrastructure building for better communication and use of information technology were initiated.

The Ministry of Communication and Information Technology (MCIT) was given the responsibility to lead the sector to fast growth and development. There has been lot of progress since then. In fact, the communications revolution has been a major success story in the country. The growth of the information and communication technology (ICT) sector has had significant impact on economic growth and development. It has connected the whole country, improved efficiency of the government, and provided impetus to private sector growth.

IV. Key Constraints and Solutions:

- Strengthen of Legal, Regulatory, Policy and Institutional Frameworks to create the enabling environment for the working of the ICT Sector.
- Expanding Telecommunication Network to provide the physical backbone to the ICT Sector by creating the necessary infrastructure.
- E-Government to provide value added service in the government using ICT to increase efficiency, effectiveness and transparency in Government.
- M-Government to provide government services using mobile telephony to increase efficiency and effectiveness of government services.
- Postal Sector Modernization. This component aims to modernize the postal sector to improve its reach and service delivery.
- Strengthening the Ministry so that it can meet the current and future challenges and undertake its role as a facilitator, regulator and policy-maker efficiently and effectively.

- Strengthening the Sector through appropriate interventions.

V. Prioritized Projects:
Two groups of projects have been listed, the ongoing and planned projects for OFC in one group (including estimated costs) and the second group covers all other MICT projects.

VI. Budgeting/Costing:
The projects are listed in Annex 3.

VII. Expected Results:
The expansion in the information and communication technology (ICT) sector will result support economic growth and development, through the country wide connectivity, improved efficiency of the government, and provide an impetus for further private sector growth. The OFC will provide a key output in achieving these results.

Annex 3

Ongoing and Planned Infrastructure Projects by Sector

ANNEX 3: Summary of On-Going and Proposed Infrastructure Projects

PART I: NETWORK INFRASTRUCTURE

ANNEX 1.1: TRANSPORT

		ONGOING PROJECTS				PLANNED PROJECTS				
No	Sub Sector	Project Name	Status	Est. Cost	Duration	Project Name	Status	Est. Cost	Duration	Remarks
1	Roads	Qalai Muradbegh to Bagram Square (2 additional lanes 26.6 km)	On-going	Cost-$11.5m, Potential cost increase possibl	Jul-2015	Baharak – Eshkasham Ring Road Link Project (112 km		Cost-$175m, ADB	Oct-2017	
		Bagram Square to Jabul Seraj (2 additional lanes 25.4 km)		Cost-$25m, GoIRA may fund this; currently it is a gap in fundin	(Jan-2015)-(May-2017)	Balamurgab (Ring Road Link to Turkmenistan Border 21 km)		Cost-$30m, gap in funding		
		Jabel Seraj to Doshi (85 km, New Tunnel)		Cost-$1,000m, WB, ADB,and USAID will fun	(June-2015)-(Sep-2019)	Yakawlang to Kandhar (550 km)		Cost-$200m, for 5 years; $635m, overall, gap in funding	(Oct-2017)-(Oct-2022)	
		Doshi to Polikhomary (52 km)	On-going	Cost-$17.8m, Islamic Development Bank (IDB)	Jun-15	Saripul to Bil Charagh (143 km)		Cost-$80m, for 5 years; $165m, overall gap in funding		
		Qaisar-Bala Marghab-Laman Road Project (233 km)	On-going	Cost-$514m, Asian Development Bank (ADB)	Sep-2016	Bil Charagh to Chegcharan (180 km)		Cost-$100m, for 5 years; $210m, overall gap in funding		
		Laman to Armalek (52 km)	On-going	Cost-50m, Saudi Arabia Fund (SDF), KSA National	May-2016	Chegcharan to Theora (160 km)		Cost-$90m, for 5 years; $185m, overall gap in funding		

		Dar-i-Suf – Yakaowlang Road Project (178 km)		Cost-$205m, ADB will fund	(May-2016)-(Sep-2019)	Theora to Delaram (217 km)		Cost-$125m, for 5 years; $250m, overall gap in funding		
		Yakawlang to Kandhar (550 km)		Cost-$2.1m, ADB (TNDIP,	(Oct-2015)-(Sep-2017)	Heart to Chashat Sharif (155 km)		Cost-$155m, Govt of Italy-Soft Loa	Oct-2017	
		From Garden Dewar towards Chegcharn (40 km)	On-going	Cost-$34.9m, GoIRA	jun-2015	From Chashat Sharif towards Chegcharan (100 km)		Cost-$100m, Saudi Arabia Fund (SDF) and JICA	Oct-2017	
		Besuad towards Garden Dewar (60 km	On-going	Cost-$70m, GoIRA	Jun-2015	71 km further between Chashat Sharif and Chegcharan		Cost-$71m, GoIRA	Oct-2017	
		Faizabad- Baharak Regional Ring Road Link Project (44 km)	On-going	Cost-$67.6m ADB	Sep-2015	From Chegcharn towards Heart (12 km)		Cost-$12m, JICA	Oct-2017	
		Bagrami-Sapari Road Project (50 km)	On-going	Cost-$59.8m, ADB	Jun-15	Cheghcheran-Lalosurjungle (123 km)		Cost-$123m, gap in fundin		
		Sapari- Jalalabad Road Project (100) km	On-going	Cost-$117.7m, ADB	Sep-16	Lalosurjungle - Panjab (90 km)		Cost-$90m, gap in funding		
		Jabal Siraj- Surobi Road Project (50 km)		Cost-$30.4m, ADB	Finish : May-2015	Panjab to Besuad (54 km)		Cost-$54m, gap in funding		
		Lashkargah-Graskhk Road Project (31.6 km)		Cost-$50m, ADB	(Oct-2015)-(Feb-2018)	Doshi to Bamyan (167 km)		Cost-$300m, WB	(Jan-2016)-(Dec-2018)	
		Sharan Angora Ada (50 km)		Cost-$55m, ADB	(Jan-2015)-(Mar-2016)	Nejrab to Surobi (53.7 km)		Cost-$75m, USDoD	Oct-2016	

		Khulm to Kunduz (112 km)	On-going	Cost-$139m, KfW (14.5 km completed, 58.6 km ongoing, 38.9 next) Gardez	July -2017	Feasibility Study of Cheghcheran Gardandewal (300 km)		Cost-$2.1m, ADB	(May-2015)-(Oct-2016)	
		Gardez to Khost (25.0 km)	On-going	Cost-$50m, USAID	Apr-2015	Feasibility Study of Kabul Ring Road (95 km		Cost-$2.1m, ADB	(May-2015)-(Feb2016)	
		Shibar to Bamyan (30.6 km)	On-going	Cost-79.5m, Govt. of Italy	Aug-2015	Kabul Ring Road (50 km)		Cost-$150m, ADB	(Feb2016)-(Dec-2018)	
		Herat Bypass road construction project (45.04 km)	On-going	Cost-$19.7, Govt. of Italy	Dec-2016	Kabul Ring Road (45 km)		Cost-$150m, IDB	(Feb2016)-(Dec-2018)	
		Construction/Up-gradation of Provincial Roads (681 km)	On-going	Cost-$375m, possible funding from GoIRA plus others	Dec-2018	Construction/Up-gradation of Provincial Roads (2,000 km)		Cost-$1000m, gap in funding $300	(Jan-2015)-(Dec-2019)	
		Construction/Up-gradation of Secondary Roads (450 km)	On-going	Cost-$100m, possible funding from GoIRA plus others	Dec-2015	Construction/Up-gradation of Secondary Roads (2,400 km		Cost-$500m, gap in funding $250	(Jan2016)-(Dec-2019)	
		O&M (circa 21,000 km per annum)	On-going	Cost-$450m, for the next 5 years, partial funding from the GoIRA and WB available. Gap in funding of $200m.	Dec-2019	Capacity Building Projects for MPW		Cost-$100m, gap in funding	(Jan-2017)-(Dec-2019)	
		Capacity Building Projects for MPW	On-going	Cost-$170m,	Dec-2019	Rehabilitation of Road from Farah to Lashjawand Ch 8+000 24+000 Km	Sent to Ministry for Design Build			First Priority

						Rehabilitation of Road from Farah to Lashjawand Ch 24+000 Ch 40+000	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Maimana Garziwan to Bilchirag	Sent to Ministry for Design Build			First Priority
						Construction of Kapisa City Road	Under Survey and Design			First Priority
						Rehabilitation of Sanglakh Road in Hasa-eAwal Behsood	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Qalai Kabuli to Emam Shashnoor Ziarat and Sar Asiab Ch. 0+000 to 12+888Km Segment A from Poli Monardar to Tawbar Yan Village Ch. 12+888 to 20+819Km Segment B (Asphalt Surface	Survey Completed Under Design			First Priority
						Rehabilitation of Road from Hazrat-e-Sultan to Khanabad District, Phase 1 from Ch. 0+000 to 11+820 Km Asphalt Surface	Survey and Design Completed (waiting for Budget			First Priority
						Rehabilitation of Road from Hazrat-e-Sultan to Khanabad District, Phase 2 from Ch. 11+820 to 24+085 Km, Asphalt Surface.	Survey and Design Completed (waiting for Budget)			First Priority
						Construction of Abdal Bridge (Waras)	Survey Completed Under Design			TBC
						Rehabilitation of Anardara District Road	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Abdi Bay, Bayan Alya, Mula Yousuf, Dah Qazi, Villget to Toghburdi Village	plan			First Priority
						Rehabilitation of Road from Dara-e-Qasan to Deh Sala District	under Survey			First Priority

	[redacted]					Rehabilitation of Road from Ahmad Khail to Zazi to Pakistan Border and Qasim Khail Phase 1 (Ch 0+000 to Ch 18+000 Km)	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Ahmad Khail to Zazi to Pakistan Border and Qasim Khail Phase 2 (Ch 18+000 to Ch 35+393 Km)	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Ahmad Khail to Zazi to Pakistan Border and Qasim Khail Phase 3 (Ch 0+000 to Ch 16+214 Km)	Sent to Ministry for Design Build			First Priority
						Construction of Bridge in Darqad District	plan			TBC
						Construction of Drish Kaly Bridge	Survey Completed Under Design			TBC
						Constrction of 100 m long RCC Deck Girder bridge on road from Alishir District to Khost Center at Trizay Village (Trizay Bridge	Survey Completed Under Design			TBC
						Rehabilitation of Back Road	plan			First Priority
						Rehabilitation of Road from Shahr-eAndkho to Bagh-e-Bostan (Second Line)	survey Completed Under Design			First Priority
						Rehabilitation of Road from Qala-e-Zal District to Kunduz- Shirkhan Bandir Main Road Phase 1 Ch 0+000 ch 15+000	under Survey			First Priority
						Rehabilitation of Road from Qala-e-Zal District to Kunduz- Shirkhan Bandir Main Road Phase 2 Ch 15+000 ch 30+000	under Survey			First Priority
						Rehabilitation of Road from Qala-e-Zal District to Kunduz- Shirkhan Bandir Main Road Phase 3 Ch 30+000 ch 46+000	under Survey			First Priority

						Rehabilitation of Zakhil Qadim Road	Survey Completed Under Design			First Priority
						Rehabilitation of Road from Kama Nawabad to Sangar Sarai (Segment-1) Km 0+000 to 10+069 (Segment-2) Km 0+000 to 3+882 (Asphalt Surface)	Survey Completed Under Design			First Priority
						Rehabilitation of Road from Angam Village to Kando Bano Shahi	plan			First Priority
						Construction of Sorbi Bridge	Under Survey and Design			TBC
						Rehabilitation of Omarzay Matarlam Baba Road (from Dehziarat Br. To Shamakat Asphalt road and Mehterlam Baba Ziarat)	Sent to Ministry for Design Build			First Priority
						Rehabilitation of Road from Balkh District to Koday Barq	Survey Completed Under Desig			First Priority
						Rehabilitation of Road from Dahn-e-Sang Sango Village to Palan Village	Under Survey			First Priority
						Yakawlang District Ch 0+000 Ch 50+000	under survey			TBC
						Yakawlang District Ch 50+000 Ch 130+000	plan			TBC
						Rehabilitaton of Road from Kabul Gardiz road (Sah-e-Khider) to Pas Kariz Qala-eMahmmod Qala-e-Ahba, Padkhab Shana, to Khoshi Road	plan			First Priority
						Rehabilitation of Road from Dorahi Doshikh to Baraki to Pol-e-Dabar Segment-A (Ch. 0+000 to 15+926) and Segment-B (0+000 to 2+746) Asphalt Surface	survey and Design Completed sent to MoPW			First Priority

	[redacted]					Rehabilitation of Road from Payan Ab to Bashran (West of Injel) Segment 1 0+000 to 11+910 and segment 2 0+000 to 8+749 KM	Sent to Ministry			First Priority
						Construction of Bridge over Hariroad River in Obe District	Survey Completed Under Desig			TBC
						Rehabilitation of Road from Lasa-e-Noman to Charakar, Segment-A (Ch 0+000 to x+xxx) Asphalt Surface and Segment-B (Cha 0+000 to x+xxx) UTRCP Surface	Survey Completed Under Desig			First Priority
						Rehabilitation of Road from Chamkani to Jani Khil	plan			First Priority
						Construction of Singar Gul Bridge	plan			TBC
						Construction of bridge in Shindand over Shindand Road in west	plan			TBC
						Rehabilitation of Road from Markaz Dara-e- Suf Bala to Madan Zoghal	plan			First Priority
						Construction of Bridge in Pajandor and Bazo Bala Villages	plan			TBC
						Dahn-e-Tagab Barg Bridge in Panjab District center	plan			TBC
						Construction of Bridge in Dan-e-Ghar Ghari (Qala-e-Naw Village)	plan			TBC
						Rehabilitation of Maymana city road	Survey Completed Under Desig			First Priority
						Rehabilitation of Sayed Khail Road	plan			First Priority
						Construction of Bridge in Hofyan	plan			
						Rehabilitation of Road From Shibirghan to Darzab Phase 2	plan			first priority

						Construction of Pangaram Bridge (First Bridge) in Road From Chark to Karwar RoaD	Survey and Design Completed (waiting for Budget			TBC
						Construction of Pangaram Bridge (Second Bridge) in Road From Chark to Karwar Road	Survey and Design Completed (waiting for Budget)			TBC
						Rehabilitation of road from Tangi Tarakhil (Fabrika Qir) to Tara Khil, Qala-e-Mir Alam, District Center of Dehsabz, Qala-e-Bala, Dah Yahya, Padsha Sb payminar to Qasaba Main roa	Survey and Design Completed (waiting for Budget)			first priority
						Rehabiliation of Road from Aqtash bridge to Darwaza kan, and Dawlat Yar Bridg	plan			first priority
						Rehabilitation of Road from Badam Ulom to Bazar-e-Shina	plan			first priority
						Rehabilitation of Road from Darqad to Khoja Bahwudin	Under Survey and Design			first priority
						Rehabilitation of Road from Kabul Parwan Highway to Shakardar	plan			first priority
						Rehabilitation of Road from Aqcha to Mangajik	plan			first priority
						Rehabilitation of Road from Nanglam to Wanat (ch- 6+000 - ch - 9+000) (From Shinigal to Pule Doemi)	plan			first priority
						Rehabilitation of Dor Baba District Road (From Ghani khil Ghound to Dorbaba district center	plan			first priority
						Rehabilitation of Road from Gardiz to Zurmat	plan			first priority
						Rehabilitation of Road from Tezin Jerdabi to Sorobi Distric	plan			first priority

	[redacted]					Rehabilitation of Road from Saripul to Sangcharak from Ch - 15+000 to 45+000	plan			first priority
						Rehabilitation of Road from Haskamina to Dara-e-Ohghiz	plan			first priority
						Rehabilitation of Road from Main Road to Balkh district center	plan			first priority
						Rehablitation of Road from Manarha to Noqra Village Lot 2	Survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road from Center of Shahe-Dan to Darwazaha and Ladoha	plan			first priority
						Rehabilitation of Road from Khak-e-Safid to Pol-e-Regi (Charda Shahid) and Construction of Nijat Bridg	plan			first priority
						Construction of Bridge in Niswan Sayad , Almar District	survey Completed Under Desig			TBC
						Rehabilitation of Road from Main Road to Baba Qoshqarwaly	survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road from Furkhar to Warsaj from Change 22+000 to 58+000	Under survey			first priority
						Rehabilitation of Road From Bangi to Ishkamish Phase 3 from Ch 20+800 to Ch 31+191 Km (Asphalt Surface	Survey and Design Completed (waiting for Budget) ID culstar			first priority
						Rehabilitation of Road From Bangi to Ishkamish Phase 4 from Ch 31+191 to Ch 41+431.97 Km (Asphalt Surface)	Survey and Design Completed (waiting for Budget) ID culstar			first priority

						Rehabilitation of Road From Bangi to Ishkamish Phase 5 from Ch 41+431.97 to Ch 51+631.56 Km (Asphalt Surface)	Survey and Design Completed (waiting for Budget) ID culstar			first priority
						Rehabilitation of Road From Nahrin to Khost wa Fring	survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road from Kabul Gardiz road to Alyaskhil - Bala Qala - Qala-e-Malik- Bazar-e-Char Asyab - Qala-e-Rashid - Qala-e-Kakary Ha - Qala-e- Gernail - Qalae-Mohammad Aziz Khan - Khairabad	Survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road Nahreen Road	Survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road from Charahi Qarabagh to Bagram Asphalt Road	Survey and Design Completed (waiting for Budget)			first priority
						Rehabilitation of Road From Dara-e-Suf to Shab Bashak Village	under survey			first priority
						Rehabilitation of Road from Nahwor to Ghazni	plan			first priority
						Rehabilitation of Road from Gelan to Jaghori	plan			first priority
						Rehabilitation of Road from Gulran to Robat Sangi	plan			first priority
						Rehabilitation of Dara-e- Kajab Hasa-eAwal and Dowom Behsod	plan			first priority
						Rehabilitation of Road from Yaftal Payin to Raghistan	plan			first priority

						Rehabilitation of Road from Bazar Jalriz to Dara-e-Sang Lakh and Dara-e-Surkh Parsa	plan			first priority
						Rehabilitation of Baghlan Province City road	plan			first priority
						Rehabilitation of Road from Payan Jamal Agha / Bazar Sayad to Pol-e-Jamal Agha	survey and Desing Completed with Ministry			first priority
						Bridge over Amo River in Shekay Darwaz District	plan			TBC
						Construction of Bridge in Over Shotol river in Bazar Gulabar	Survey and Design Completed (waiting for Budget			TBC
						Rehabilitation of Dara-e-Pochawa	plan			TBC
						Rehabilitation of Road from Aqcha to MardyaN	plan			first priority
						Construction of Bridge in Arghandab District (Khoja Malk Village)	plan			TBC
						Rehabilitation of Road from Zakir Sharif to (Rambasy Village) Panjwai District	plan			first priority
						Rehabilitation of Road from Paryan to Kran wo Manjan	plan			TBC
						Rehabilitation of Road from Karan wa Manjan to Zebak	plan			TBC
						Rehabilitation of Road from Zebak to Ishkashim	plan			TBC
						Rehanilitation of Miramor District Road	plan			first priority
2	**Dry Ports**					Feasibility studies for Naibabad, Jalalabad, Hirat, Aqina and Kabul Multi-Modal Transport/Logistic Hubs	Plan	Budget-$1 m, No Donor	2018-2019	First Priority

3	Aviation	Maintenance and Upkeeping of the Hamid Karzai International Airport	Ongoing	$1,594,565.00		Runway Extenstion, Construction of the ICAO Five Functions (Controld Tower, Fire Station), VIP Lounge, Parking Facility of Farah Airport		$12m,		
		Capacity Building and Procrument of the Technical Equipments	Ongoing	$934,960.00		Construction of New Terminal at Nimroz Airport		$2m,		Nimrooz Airport
		Construction of New Arrival Terminal at Kandahar International Airport	Ongoing	$1,160,454.00		Construction of New Terminal at Khost Airport		$3m,		Khost Airport
		Provision of Aviation Security at Hamid Karzai, Kandahar, Herat and Mazar-e-Sharif International Airports	Ongoing	$17,816,100.00		Runway Pavement, Guard Towers of Ghazni Airport		$3m,	2018	Ghazni Airport
		Maintenance of 35 MLAT Station for Airspace Control	Ongoing	$10,442,128.00		Construction of Terminal Building, Airport Boundry Fence of Maimona Airport		$1.5m,	2019	Maimana Airport
		National Aviation Transition Control System from NATO to the GIRoA	Ongoing	$25,100,000.00		Construction of Terminal Building, Fire Station, Metrology and Access Bridge and Parking Facility of Khost Airport		$2m,	2019	Khost Airport
		Maintenance of the VSAT for the Airspace Control	Ongoing	$2,000,000.00		Construction of the Jowzjan Airport		$15m,	2020	Jozjan Airport
		Construction of Terminal Building at Kunduz Airport	On-going	68.7 مليون	62%	Capacity Building of the Aviation personnel		$822,388.60	2018	
		Construction of the Nimroz Airport (Runway Pavement, Taxiway, Apron)	on-going	652.8 مليون	80%	Upgrading of Kunduz Airport to Internaitonal Standards		$60m,	2019	
		Construction of the Khost Airport (Runway pavement, Taxiway, Apron)	On-going	AFG729.5m,		Construction of the New Civil Aviation Institute by Alokozi Group of Companis		$5m,		Kabul Institute
		Extention of Zabul Airport Runway	On-going	AFG15497533.92m,		New International Terminal Building at Hamid Karzai International Airport		PPP		
		Construction of Terminal Building, Boundry Fence at Zabul Airport	On-going	AF27m,		Cargo Village at Hamid Karzai International Airport		PPP		
		Extention of the International Terminal Building Capacity at Hamid Karzai International Airport	On-going	AFG6m,		Maintainence Repair Workshop for Aircrafts at HKIA		PPP		

	Railways and Services					Upgrading of the Parking Facility at Hamid Karzai International Airport		$400,000.00		HKIA
						Airport Ramp at Kandahar International Airport		$7m,		
						Upgrade of the Herat International Airport		$40m,		
						Feasibility Study and Construction of Logar Airport	Status	Unknown		
4		Feasibility studies of Torghundi-Herat(Air Port) railway line 170km	On-going	1.6m by ADB	(Jun-2016-2015)-(Sep-2016)	Torghundi Station Rehablitation	Plan	5m No Donor	2016-2017	Top Priority
		Feasibility studies of Pishawar - Jalal Abad (150 km)	On-going	Grant by PAK govt	(Dec-2016)-(Oct-2016)	Aqina Road Construction and Operations/Leading to Aqina Railway Station(1.7KM)	Plan	1.816m by AFG Govt	2016	Top Priority
		Construction of platform at Aqina railway station	On-going	AFG23m, by Afg govt	(Apr 2016)-(July2016)	Feasibility study of Andkhoy-Maimana-Qala e Now - Kushk Railway(551km)	Pre Fessibility study completed	Budget-$7m, No Donor	2017-2018	First Priority
		Construction of Khaf – Herat 3rd section railway line (62km)	On-going	75m by IRAN govt	(July-2016)-(Mar-2017)	Feasibility study of Herat-Farah-Delaram- Lashkargha- Kandahar Railway (640km)	Pre Fessibility study completed	Budget-$8 m, No Donor	2017-end of 2018	First Priority
		Management,Operation & Maintenance and Training of Hairatan-Mazari Sharif railway line (106 km)	On-going	19m per year by AFG govt	(Dec14) - (Dec17)	Feasibility study of Kabul-Jalalabad Railway (150km)	Pre Fessibility study completed	Budget-$1.5m, No Donor	2018-2019	First Priority
		Capacity Development	On-going	8.7m by EU	2016-2018	Feasibility study of Kabul- Kandahar Railway (500km)	Pre Fessibility study completed	Budget-$7m, No Donor	2020-2022	First Priority
						Feasibility study of Kunduz- Kabul Railway(400km)	Pre Fessibility study completed	Budget-$5m, No Donor	2018-2020	First Priority
						Pre Feasibility Study of Ghazni-Khost-Gholamkhan Railway (180km)	Plan	Budget-$1 m, No Donor	2020 - 2021	Second Priority
						Pre Feasibility Study of Kabul-Dykundi- Delaram Railway (600km)	Plan	Budget-$4m, No Donor	2022-2023	Second Priority
						Pre Feasibility Study of Lashkargah- Baramcha Railway (300km)	Plan	Budget-$1 m, No Donor	2022-2023	Second Priority
						Pre Feasibility Study of Dykundi - Herat Railway (400km)	Plan	Budget-$1.2m, No	2023-2025	Second Priority

							Donor		
					Pre Feasibility Study of Kunduz-Taleqan - Faizabad -Wakhan Railway (600km)	Plan	Budget-$4m, No Donor	2025-2027	Second Priority
					Feasibility study of Kunduz- Kabul Railway(400km)	Pre Fessibility study completed	Budget-$5m, No Donor	2020-2022	Third Priority
					Detailed design and construction of Aqina- Andkhoy Railway (40km)	Feasibility Study completed	Budget-$68m, Donor Turkmanistan	2016 - 2017	Top Priority
					Detailed design and construction of Andkhoy-Sheberghan - Mazar sharif Railway (220km)	Feasibility Study completed	Budget-$550m, Donor Turkmanistan	2016-2020	First Priority
					Detailed design and construction of Torghondi -Herat Railway (150km)	Feasibility Study completed	Budget - $270m, No Donor	2017-2019	First Priority
					Detailed design and construction of Rozanank-Herat Airport Railway (87km)	Feasibility Study completed	Budget-$162m, No Donor	2017- end of 2018	First Priority
					Detailed design and construction of Kandahar- Spin Boldak Railway (106km)	Feasibility Study completed	Budget-$190m, No Donor	2017- end of 2019	First Priority
					Detailed design and construction of Herat - Farah Railway (254km)	Pre Feasibility Study completed	Budget-$457m, No Donor	2018 - end of 2019	First Priority
					Detailed design and construction of Lashkar Gah - Kandahar Railway (150km)	Pre Feasibility Study completed	Budget-$270m, No Donor	2018 - end of 2019	First Priority
					Detailed design and construction of Farah - Lashkar Gah Railway (238km)	Pre Feasibility Study completed	Budget-$428m, No Donor	2020 - 2023	First Priority
					Detail design and construction of Mazar- Kunduz - Shirkhan Bandar Railway (200km)	Feasibility Study completed	Budget-$360m, No Donor	2018- end of 2020	First Priority

					Detailed design and construction of Andkhoy - Maimana- Qaisar - Balamarghab Railway (263km)	Pre Feasibility Study completed	Budget- $473m, No Donor	2019 - 2021	First Priority
					Detailed design and construction of Balamarghab- Qala e Now -Khushk Railway (237km)	Pre Feasibility Study completed	Budget- $473m, No Donor	2020 - 2022	First Priority
					Detailed design and construction of Kunduz- Kabul Railway(400km)	Pre Feasibility Study completed	Budget-$720 m, AFG govt	2020- 2022	First Priority
					Detailed design and construction of Kabul-Jalalabad Railway (150km)	Pre Feasibility Study completed	Budget- $270m, No Donor	2020- 2022	First Priority
					Detailed design and construction of Kabul- Kandahar Railway (500km)	Pre Feasibility Study completed	Budget- $900m, No Donor	2022- 2025	First Priority
					Detailed design and construction of Ghazni- Khost Railway (180km)	plan	Budget- $324m, No Donor	2022- 2025	Second Priority
					Detailed design and construction of Delaram - Zaranj Railway (200km)	plan	Budget-$360 m, No Donor	2025 -end of 2027	Second Priority
					Detail design and construction of Kabul- Dykundi- Delaram Railway (600km)	plan	Budget- $1080m, No Donor	2026-2030	Second Priority
					Detailed design and construction of Kandahar - Delaram Railway (250km)	plan	Budget- $450m, No Donor	2026-2028	Second Priority
					Detailed design and construction of Greshk- Bahramcha Railway (300km)	plan	Budget- $540m, No Donor	2026-2028	Second Priority
					Detailed design and construction of Dykundi- Herat Railway (400km)	plan	Budget- $720m, No Donor	2026-2028	Second Priority
					Detailed design and construction of Kunduz- Qala -e-Mafushad Railway (600km)	plan	Budget- $1080m, No Donor	2028-2030	Second Priority
					Operation and Maintenance of Aqina Railway Station (3 km)	Construction on going	5m by AFG Govt	2017-2021	Top Priority

					Operation and Maintenance of Shamtegh-Rozanak Railway (62 km)	On-going	25m by AFG Govt	2017-2021	Top Priority
					Operation and Maintenance of Aqeena - Andkhoy Railway(40km)	Feasibility Study completed	Budget-$16m, Afg	2018-2022	First Priority
					Operation and Maintenance of Rozanak- Herat Railway(90km)	Feasibility Study completed	Budget-$30m, Afg	2019-2023	First Priority
					Operation and Maintenance of Andkhoy-Sheberghan-Mazar-e-sharif Railway(220km)	Feasibility Study completed	Budget - $80m, Afg	2020-2025	First Priority
					Operation and Maintenance of Spinbuldak - KandaharRailway(106km)	Feasibility Study completed	Budget-$80m, Afg	2019-2023	First Priority
					Operation and Maintenance of Tourghundi- Herat Railway(150km)	Feasibility Study completed	Budget-$50m, Afg	2019-2023	First Priority
					Institutional Development and Capacity Building	Plan	Budget-$2m, No Donor	2017-2020	First Priority
					Railway Academy/Training Institute	Plan	Budget-$6m, No Donor	2017-2020	First Priority
					Railway Standardazation	Plan	Budget-$0.5m, No Donor	2016-2018	First Priority

ANNEX 1.2: COMMUNICATIONS INFRASTRUCTURE

		ONGOING PROJECTS				PLANNED PROJECTS				
No	**Sub Sector**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Remarks**
1	Telecommunication, IT Development& Postal Services	Optical Fiber Back bone(OFC) 521km	On-going	$9.2m,		Optical Fiber Back bone(OFC)Daykundy,Ghor,Badghas,Farah,Nimroz,Nuristan,Suripul,Uruzganand Pajsher .1600KM	plan	$42m,	2017-2021	
		ICT Sector Development	On-going	$6.35m,		**Regional Connectivity:** Optical Fiber Back bone, 1. Connection to China via Wakhan from Faizabad to China Border) 2. Connection to Iran at 2nd and 3rd point (from Delaram to Zaranj border to Zabul-Zahidan , Nimroz borader to Iran) (from Farah to Sheikh Au Nasr Farahi Border to SoutKhorasan, Frah border to Iran) 3. connect to Kazaqistan via Tajikistan Afghanistan will become as a HUB for Transit of High speed internet to the Neighboring countries 825km	plan	$50m,	2017-2021	
		e-gov(Electronic Government Recourses Project	On-going	$2.9m,		(OFC Back Bon) Back up line From kabul to Torkham ,Kabul to North ,Kundoze to Mazar ,Bamyan to Ghor and Herat , from Faiz Abad to Banjsher to Nuristan	plan	$70m,	2017-2020	
		ANDC Hot Standby	On-going	$0.8 m,		OFC Metro&FTTH	plan	$32m,	2017-2022	
		E-gov, ID Card	On-going	$104 m,		Construction of Buildings	plan	$12m,	2017-2021	
						Expansion of IT Technology (e-governance)	plan	$2m,	2017-2018	
						National Internet Exchange of Afghanistan (NIXA)	plan	$2.5m,	2017-2018	
						Enterprise Solution	plan	$10m,	2017-2020	
						One Stop Shop	plan	$8m,	2017-2020	
						Disaster Recovery-DR	plan	$18m,	2017-2020	

						Upgrading ANDC to cloud infrastructure	plan	$2m,	2017-2018	
						Network Operating Center(NOC)	plan	$2..5m,	2017-2018	
						Expansion of Mobile coverage (GSM BTS in viliged)	plan	$50m,	2017-2021	
						Kabul Addressing system	plan	$30m,	2017-2018	

PART II: UTILITIES

ANNEX 2.1: MINNING

		ONGOING PROJECTS				PLANNED PROJECTS				
No	**Sub Sector**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Remarks**
1		Amu Darya Oil	Ongoing	106 by CNPCI secured fund	1390-1415	Mohammad Jan Dagar& Balkh Oil	under tender	$165m,		
		Aynak copper	Ongoing	3000 by MCC secured	1386-1416	Tooti Maidan Gas	under tender	$90m,		
		Sheberghan Gas	Ongoing			Balkhab Copper	under tender	$31.6m,		
		94.5 km Pipeline from Sheberghan to Mazare Sharif	Ongoing			Zarkashan Copper & Gold	under tender			
		Sultan-Kot Sarak (Road)	Ongoing			Badakhshan Gold	under tender			
		TAPI	Ongoing			Hajigak Iron Ore	under tender	$12B		
						Shaida Copper	under tender	$20.3m,		
						Kuska Siesemic Survey (Heart)				

ANNEX 2.2: ENERGY

		ONGOING PROJECTS	PLANNED PROJECTS	

No	Sub Sector	Project Name	Status	Est. Cost	Duration	Project Name	Status	Est. Cost	Duration	Remarks
1	Renewable Energy (Hydro, Solar, Wind)	Shah-wa-Aros Irrigation & Hydropower Project	Under construction	$48.2m,		Construction of Manugai Small Hydropower Plants Project	DD& construction is under Plan	$10.51m,		
		Machalghu Irrigation & Hydropower Project	Under construction	$30.1m,		Reconstruction of Chak Wardak Hydropower Dam Project	procurement is going on	$10m,		
		Parandeh Hydropower Project	Under Construction	$6m,		Sorubi 2 Hydropower Project	procurement is going on	$500m,	2017-2020	cost is 700 in one doc
		Dahla Dam 3rd Phase Rehabilitation Project		$180m,		Baghdara Hydropower Project		$562m,	2016-2020	
		Shorabak Hydropower Project	DD& construction is under Plan	$31.8m,	(Jul-2016)-(Jul-2021)	Konar A Hydropower Project		$876m,		
		Shah Abdullah Irrigation & Hydropower Project	Design and Built is under procurement	$63.51m,	marked as canceled in one document	Konar (Sagai) Hydropower Project		$610m,		
		Tangi Shadyan Irrigation & Hydropower Project	Design and Built is under procurement	$17.1m,	(Jun-2016)-(Sep-2021)	Konar (Shall) Hydropower Project		$1636m,		
		Dahana Dara Irrigation & Hydropower Project	Design and Built is under procurement	$30m,	(Jun-2016)-(Sep-2021)	Sorwikhola Irrigation Project	DD contract is under procurement	$50m,	(Jun2016)-(Mar2018)	
		Aab-e-Keli Irrigation & Hydropower Project	Design and Built is under procurement	$40.77m,	(Jun-2016)-(Sep-2021)	Gulbahar Irrigation & Hydropower Project		$500m,		
		Khan Aabad 2 Hydropower Project		$28m,	(Jun-2016)-(Sep-2021)	Kama Irrigation & Hydropower Project		$280m,		
		Shahtoot Storage Dam Project	DD is ongoing	$210m,	End Date-(Oct-2016)	Dahan-e-Ghobandak Storage Dam Irrigartion Project	F.S is under procurement	$3.5m,	(Jul2016)-(Sep2017)	

		Gambirri Hydropower Project	DD is ongoing	$551.8m,	End Date-(Mar-2017)	Kalagush Irrigation & Hydropower Project		0		
		Kamal Khan Flood Control 3rd Phase Irrigation & Hydropower Project	Design/Build	$71.9m,	(Jul-2016)-(Feb-2020)	Pul-e-Khomri 2 Hydropower Dam Project	DD& construction is under Plan	$18m,		
						Qalae Momai (Upper Kokcha) Hydropower Project		$1459.3m,		
						Kelagai Irrigation & Hydropower Project		$444.1m,		
						Sooch (Site-1) Hydropower Project		$255.933m,		
						Robat (Site-2)		$300m,		
						Hasantal Irrigation Project		$77.5m,		
						Gazak Storage Dam Irrigartion Project	F.S is under procurement	$50.75m,	(Jul2016)-(Sep2017)	
						Dasht-e-Jum Irrigation & Hydropower Project		$5m,		
						Tagab Ghar Storage Dam Project		$10.81m,		
						Warsaj Irrigation & Hydropower Project		$300m,		
						Shoraba Irrigation & Hydropower Project	Design and Built is under procurement	$61.87m,	(Jul2016)-(Jul2021)	
						Upper Amu Irrigation & Hydropower Project		$1000m,		
						Pozilech Hydropower Project	DD& construction is under Plan	$15.4m,		
						Pashdan Irrigation & Hydropower Project	DD& construction is under Plan	$117.8m,		
						Farah Rud Irrigation & Hydropower Project	DD& is on going	$476m,	(Jun2016)-(Jan2018)	
						Tirpul Storage Dam Irrigartion Project	F.S is under procurement	$30m,	(Jul2016)-(Sep2017)	
						Kajaki Dam 3rd Phase Hydropower Project		$250m,	2016/17/18***	

						Lurah (Arghistan) Storage Dam Irrigation Project	DD contract is under procurement	$30m,	(Jun2016)-(Mar2018)	
						Olambagh Dam	FS done	$400m,	2019/20***	
						Agha Jan Storage Dam Irrigation Project	DD contract is under procurement	$50m,	(Jun2016)-(Mar2018)	
						Nangarhar Industrial Park Solar Project	PFS under process	$200m,-$250m,	2016/17/18***	
						Kabul-Naghlu Solar-Hydro Hybrid Project	FS under process	$180m,-$200m,	2016-2017/18***	
						Herat Wind Project	PFS completed	$75m,-$90m,	2016-2017/18	
						Mazar Wind Project	2-3 year Wind data is available	$35m,-$45m,	2016-2017/18	
						Parwan Wind Project	2 year Wind data is available	$35m,-$45m,	2016-2017/18	
						Farah Solar and Wind Hybrid Project	Satellite Solar and Wind data is available	$20m,-$25m,	2016-2017/18	
						Ghor Solar – Hydro Hybrid Project	Satellite Solar data is available	$18m,-$20m,	2016-2017/18	
						Daykondi Solar Project	Satellite Solar data is available	$20m,-$25m,	2016-2017/18	
						Kabul Solar Rooftop Project	Satellite Solar data and survey is available	$18m,-$20m,	2016-2017/18	
						Paktika Solar Project	Satellite Solar data is available	$20m,-$25m,	2016-2017/18	
						Noristan Solar-Hydro Hybrid Project	Satellite Solar data and Hydro Pre- Feasibility is available	$18m,-$20m,	2016-2017/18	

						Geothermal Project	Two Studies have been conducted in 1969 by Russians and 2004 by US-Kabul University	$15m,-$20m,	2016-2017/18	
						125 Micro Hydro Projects	PF has been done	$20m,-$25m,	2016-2019/20	
						Biomass (Municipality Solid Waste and Agriculture Waste) Projects	Study has been done by NREL in 2011	$20m,-$30m,	2016-2018/19	
						Hissar Shahi Industrial Park solar				
						Governmental Institutions Solar Rooftop solar				
						Nili Solar Mini Grid				
						Shekeban Wind power generation wind				
						Uljato Wind power generation				
						Nuristan MHP				
						Kabul Urban Waste				
						Agriculture waste to energy				
						Afghanistan Geothermal				
2	Coal					Dara –e-suf Coal Mine				
3	Hydrocarbon (Gas, Oil)					Mazar Gas Power Plant	MoU has been signed with IPP	$75m,	2016	
						Sheberghan Gas Power Plant	Feasibility Study will be ready in May 2016	$900m,-$1350m, +	2017	
4	Pipe line	20/0.4 kV Distribution Network at Kunduz and Baghlan		$72m, by ADB	(Oct-2014)-(Apr-2016)	Andkhoi Substation				

		20/0.4 KV Distribution Network at Kabul South-West		$44.8m, by ADB	(Sep-2014)-(Apr-2016)	Dasht Alwan Substation	funded			
		Rehabilitation and Expansion of Gereshk HPP		$38m, by ADB	(Jun -2014)-(Jun-2016)	Estension of Mazar Substation	funded			
		220/20 kV substation at Kabul South-West (Arghandy)		$20m, by ADB	(Jul-2015)-(Dec-2017)	Salang Substation	funded			
		500 kV OHL Aqina to Sheberghan and 220 kV OHL Sheberghan to Mazar		$58.6m, by ADB	(Jun-2016)-(Dec-2018)	Arghandi Substation	funded			
		220/110 kV Substations at Andkhoy, Sheberghan and Expansion of Mazar SS		$33.1m,	(Jun-2016)-(Dec-2018)	FaizAbad Substation	unfunded			
		500/220 kV substation at Dashte Alwan (Pul e Khumri)		$49.2m,	(Jun-2016)-(Dec-2018)	Nili Substation	unfunded			
		500 kV OHL Dasht e Alwan (PeK) to Arghandy (Kabul)		$118.3m,	(Jun-2016)-(Dec-2018)	Sheberghan Substation	funded			
		500 kV substation at Arghandy (Kabul)		$27.6m, by ADB	(Jun-2016)-(Dec-2018)	Bamyan Substation	ADB will fund			
		220kV Transmission Line from Arghandi to Ghazni		$56,311,635 by USAID	(Jul-2014)-(Dec-2016)	Gulbahar Substation	funded			
		Sayedabad and Ghazni Substations		$48,118,617 by USAID	(Jul-2014)-(Dec-2016)	panjshir Substation	unfunded			
						Kunar Substation	unfunded			
						Noorestan Substation	unfunded			
						Faraharoud Substation	unfunded			
						Shindand Substation	funded			
						Logar Substation	funded			
						Sayed Abad Substation	funded			
						Ghazni Substation	funded			
						Paktia Substation	funded			
						Sharand Substation	funded			

						Wazakha Substation	funded			
						Qarabagh Substation	funded			
						Muqor Substation	funded			
						Shajoi Substation	funded			
						Qalat Substation	funded			
						West Kandarha Substation	funded			
						Chesht Sharif Substation	unfunded			
						Pashton Zarghon Substation	unfunded			
						Karokh Substation	unfunded			
						Oba Substation	unfunded			
						Qala Zal SS	unfunded			
						Dasht-e-Archi,SS	unfunded			
						20/0.4 kV Distribution Network at Pul e Alam (Logar)		$17.1m, by ADB	(Oct-2016)-(Mar-2019)	
						20/0.4 kV Distribution Network at Gardez (Paktia)		$17.1m, by ADB	(Oct-2016)-(Mar-2019)	
						20/0.4 kV Distribution Network at Ozy Zadran (Paktia)		$9.1m, by ADB	(Oct-2016)-(Mar-2019)	
						20/0.4 kV Distribution Network at Khost		$17.1m, by ADB	(Oct-2016)-(Mar-2019)	
						500 kV OHL Sheberghan to Dasht e Alwan		$145m, by ADB	(Oct-2017)-(oct-2020)	
						220 kV OHL Sheberghan to Andkhoy		$40m, by ADB	(0ct-2017)-(oct-2020)	
						500 kV back to back convertor station at Dasht e Alwan		$200m, ADB	(0ct-2018)-(oct-2020)	
						Herat Substation 220/110kV		$7m, DABS	(Apr-2016)-(Mar-2018)	

						22km,220kV Herat Transmission Line from Turkmenistan to Noorul Jahad Substation		$8m, DABS	(Apr-2016)-(Mar-2017)	
						Farah Substation 230/20kV		$6.6m, DABS	(Apr-2016)-(Mar-2018)	
						Farah 230kV Transmission Line		$11m, DABS	(Apr-2016)-(Mar-2018)	
						Four Substations in Chesht, Obay, Karukh, and Pashtoon Zerghon District of Herat Province		$8m, DABS	(oct-2016)-(Sep-2017)	
						TAP Transmission line	unfunded	$344m,		
						Andkhoy - Sheberghan	funded	$25.8m,		
						Sheberghan - Dashte Alwan	funded	$129.6m,		
						Dashte Alwan - Arghandai	funded	$55.9m,		
						Andkhoy - Sheberghan	funded	$29.4m,		
						Nili - Tirinkot	unfunded	$28.8m,		
						Tirinkot - kajaki	unfunded	$17.92m,		
						Ghazni - Sharan	funded	$42m,		
						Bamyan - Nili	unfunded	$67.2m,		
						Takhar-faizabad	unfunded	$9.6m,		
						Gulbahar-panjshir	unfunded	$33.75m,		
						Salma-Firuzkuh	unfunded	$36m,		
						Jalalabad-Kunar	unfunded	$28.8m,		
						Kunar-Nuristan	unfunded	$16m,		
						Farahroud-farah	unfunded	$38.4m,		
						Farahroud-Shindand	unfunded	$29.44m,		
						Poshta Surkh- Bamyan	funded	$41.6m,		
						Sheberghan - Mazar sharif	unfunded	$45.12m,		
						Arghandi - ghazni	funded	$51.24m,		
						Ghazni - kandahar	funded	$137.34m,		

						Kabul - Logar	funded	$14.4m,			
						Logar - Paktia	funded	$16m,			
						Paktia - Waza kha district	funded	$11.2m,			
						Waza Kha - khost	funded	$16.32m,			
						Charikar - Gulbahar	funded	$5.76m,			
						Paktia - Sharan	funded	$21.44m,			
						Emam sahib - Dasht Archi	unfunded	$10.75m,			
						Transmission line S.C-110 kV Shir-khan bandar to Qala-e-zal	unfunded	$7.5m,			
						110 kV Transmission line Kajaki to Uruzgan	unfunded	$18m,			
						220 kV HV transmission line from Arghandi SS to Breshna Kot/Kabul SS	unfunded	$3.85m,			
						110 kV Transmission line Mazar-e-Sharif to Jarqduqe	unfunded	$42.3m,			

ANNEX: 2.3: WATER

		ONGOING PROJECTS				PLANNED PROJECTS				
No	**Sub Sector**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Remarks**
	Other agriculture projects	Construction of 5 modern livestock slaughterhouses	On-going		(Sep-2011)-(Mar-2017)	Construction of 10 modern slaughter houses	plan		(Jun-2017)-(De- 2020)	
		Construction of 19 Farm Level Collection Centers (FLCC)	On-going		(Jan-2015)-(Feb-2016)	Construction of 20 agricultural products collection center	plan		(Jun-2017)-(Dec-2020)	
		Construction of eight modern Cold-storages	On-going		(Mar-2014)-(Mar-2017)	Construction of 15 modern cold storage	plan		(Jun-2016)-(Dec-2020)	
						Construction of 7 zonal agriculture industrial parks	plan		(Jun-2016)-(Dec-2020)	
						Construction of 20 processing and packing products agricultural	plan		(Jun-2016)-(Dec-2020)	

2	Water Supply Sewers and Storm drainage									
3		Kamal Khan Flood Control 3rd Phase Irrigation & Hydropower Project	Design/Build	$71.9m,	(Jul-2016)-(Feb-2020)					
4	Irrigation systems	Shah-wa-Aros Irrigation & Hydropower Project	Under Construction	$48.2m,		Sorwikhola Irrigation Project	DD contarct is under procurement	$50m,	(Jun-2016)-(Mar-2018)	
		Machalghu Irrigation & Hydropower Project	Under Construction	$30.1m,		Gulbahar Irrigation & Hydropower Project		$500m,		
		Dahla Dam 3rd Phase Rehabilitation Project		$180m,		Kama Irrigation & Hydropower Project		$280m,		
		Shah Abdullah Irrigation & Hydropower Project	Design and Built is under procurnment	$63.51m,	canceled	Dowamonda Storage Dam Irrigartion Project	F.S is under procurnment	$27.4m,	(Jul-2016)-(Sep-2017)	
		Tangi Shadyan Irrigation & Hydropower Project	Design and Built is under procurnment	$17.1m,	(Jun-2016)-(Sep-2021)	Alinegar Storage Dam Irrigartion Project	F.S is under procurnment	$20m,	(Jul-2016)-(Sep-2017)	

		Aab-e-Keli Irrigation & Hydropower Project	Design and Built is under procurnment	$40.77m,	(Jun-2016)-(Sep-2021)	Paltoee Storage Dam Irrigartion Project	F.S is under procurnment	$22.31 m,	(Jul-2016)-(Sep-2017)	
		Khan Aabad 2 Hydropower Project		$28m,	(Jun-2016)-(Sep-2021)	Aabtik Storage Dam Irrigartion Project	F.S is under procurnment	$6.98m,	(Jul-2016)-(Sep-2017)	
		Shahtoot Storage Dam Project	DD is ongoing	$210m,	Oct-2016	Dahan-e-Ghobandak Storage Dam Irrigartion Project	F.S is under procurnment	$3.5m,	(Jul-2016)-(Sep-2017)	
		Gambirri Hydropower Project	DD is ongoing	$551.8m,	Mar-2017	Wakhi Storage Dam Irrigartion Project	F.S is under procurnment	$10m,	(Jul-2016)-(Sep-2017)	
		Kamal Khan Flood Control 3rd Phase Irrigation & Hydropower Project	Design/Build	$71.9m,	(Jul-2016)-(Feb -2020)	Taron-e-Parak Irrigation Project		$12.66 m,		
		OFWMP		$45m, by WB	(Jun-2010)-(Dec-2015)	Narai Storage Dam Project		$9.2m,		
		CDIS		$3.3m, by JICA	Dec-2015	Kamkai Mazghor Storage Dam Project		$8.5m,		
		Climate Change Management		$5.1m,by UNDP	jun-2015	Dara-e-Shotul Storage Dam Project		0		
		ASPR		0 UNDP	(Feb-2011)-(Aug-2014)	Zama Storage Dam Project		0		
		NVDA		$26m, ADB	(Aug-2009)-(Jun-2018)	Lalpur Storage Dam Project		$0.64m,		
		On Farm Water Management Project (OFWM)	Ongoing	$47m,	(2015)-(2020)	Wazela Irrigation Project		$5.1m,		
						Tangi surobi Irrigation Project		$6.05m,		
						Gurbat Baghak Storage Dam Project		0		
						Owik Storage Dam Project		0		
						Dasht-e-Rewat Storage Dam Project		0		
						Kalagush Irrigation & Hydropower Project		0		
						Qalae Momai (Upper Kokcha) Hydropower Project		$1459.3 m,		

						Kelagai Irrigation & Hydropower Project		$444.1 m,		
						Hasantal Irrigation Project		$77.5m,		
						Gazak Storage Dam Irrigartion Project	F.S is under procurnment	$50.75 m,	(Jul 2016)-(Sep 2017)	
						Chal Storage Dam Irrigartion Project	F.S is under procurnment	$10m,	(Jul 2016) - (Sep 2017)	
						Mohammad Kecha Storage Dam Irrigartion Project		$8.7m,		
						Bom Sangsokhta Storage Dam Irrigartion Project		$3.2m,		
						Dasht-e-Jum Irrigation & Hydropower Project		$5m,		
						Kajdara Storage Dam Project		$4.83m,		
						Tagab Ghar Storage Dam Project		$10.81 m,		
						Korsom Storage Dam Project		$11.4m,		
						Aish Aab Storage Dam Project		$15.5m,		
						Paykatasang Storage Dam Project		0		
						Dahana-e-Ashmel Storage Dam Project		$12.6m,		
						Tangi Nahreen Storage Dam Project		$10.8m,		
						Lang Haye Aabi Choghyan Storage Dam Project		0		
						Zardalo Storage Dam Irrigartion Project		0	(Jul-2016)-(Sep-2017)	
						Selaba Storage Dam Project		$12.3m,		
						Shakhestani Irrigation Project		$8.4m,		
						Warsaj Irrigation & Hydropower Project		$300m,		
						Almar Irrigation Project	Under Construction	$51.3m,		
						Khesh Pul Irrigation Project		$46.39 m,		
						Sultan Ibrahim Irrigation Project		$37m,		

						Shoraba Irrigation & Hydropower Project	Design and Built is under procurnment	$61.87 m,	(Jul-2016)-(Jul-2021)	
						Dahana Dara Irrigation & Hydropower Project	Design and Built is under procurnment	$30m,	(Jun-2016)-(Sep-2021)	
						Khak Safid Storage Dam Project		$20.1m,		
						Upper Amu Irrigation & Hydropower Project		$1000m ,		
						Boreka Storage Dam Project		0		
						Pozilech Hydropower Project	DD& construction is under Plan	$15.4m,		
						Pashdan Irrigation & Hydropower Project	DD& construction is under Plan	$117.8 m,		
						Farah Rud Irrigation & Hydropower Project	DD& is on going	$476m,	(Jun-2016)-(Jan-2018)	
						Bazidkhil Storage Dam Irrigartion Project	F.S is under procurnment	$7.23m,	(Jul-2016)-(Sep-2017)	
						Abshora Storage Dam Irrigartion Project	F.S is under procurnment	$60m,	(Jul-2016)-(Sep-2017)	
						Tirpul Storage Dam Irrigartion Project	F.S is under procurnment	$30m,	(Jul-2016)-(Sep-2017)	
						Dahana Bom Storage Dam Irrigartion Project	F.S is under procurnment	$60m,	(Jul-2016)-(Sep-20170	
						Zaramardan Balabolok Storage Dam Irrigartion Project	F.S is under procurnment	$44m,	(Jul-2016)-(Sep-2017)	
						Kafgan Irrigation Project		$3.5m,		
						Seloqul Irrigation Project		$5.5m,		
						Chahar Taq Irrigation Storage Dam Project		0		
						Amir Hussain Storage Dam Project		$13.8m,		
						Danjak Storage Dam Project		0		
						Pushte Noor Storage Dam Project		$7.19m,		

						Kajaki Dam 3rd Phase Hydropower Project		$250m,	2016/17/18 ***	
						Rehabilitation of Sultan Storage Dam Project		$4m,		
						Lurah (Arghistan) Storage Dam Irrigation Project	DD contarct is under procurement	$30m,	(Jun-2016)-(Mar-2018)	
						Agha Jan Storage Dam Irrigation Project	DD contarct is under procurement	$50m,	(Jun-2016)-(Mar-2018)	
						Zardalo Storage Dam Irrigartion Project	F.S is under procurnment	$7.18m,	(Jul-2016)-(Sep-2017)	
						Ghodara Storage Dam Irrigartion Project	F.S is under procurnment	$10m,	(Jul-2016)-(Sep-2017)	
						Zardsang Storage Dam Irrigartion Project		$8.18m,		
						Petawak Irrigation Project		$10m,		
						Band-e-Ali Irrigation Project		$3.8m,		
						Payomid Storage Dam Project		0		
						Sustak Irrigation Project		$4.98m,		
						Kadni Sheen Narai Irrigation Project		$30m,		
						Saqul Pato Storage Dam Project		0		
						National OFWMP		$720m,	2015-2020	
						Pre-War Major Irrigation infrastructure, assessment, rehabilitation and improvement		$132m,	2015-2020	
						Covering of Additional irrigated area		$225m,	2015-2020	
						(53) Irrigation schemes Baghlan	plan		2016-2018	
						(118) Irrigation schemes Balkh	plan		2016-2018	
						(211) Irrigation schemes Heart	plan		2016-2018	
						(33) Irrigation schemes Jawzjan	plan		2016-2018	
						(4)Irrigation schemes Kabul	plan		2016-2018	
						(253) Irrigation schemes Kandahar	plan		2016-2018	
						(18) Irrigation schemes Kunar	plan		2016-2018	

						(41) Irrigation schemes Kunduz	plan		2016-2018	
						(36) Irrigation schemes Laghman	plan		2016-2018	
						(28) Irrigation schemes Logar	plan		2016-2018	
						(224) Irrigation schemes Nangarhar	plan		2016-2018	
						(63) Irrigation schemes Nimroz	plan		2016-2018	
						(19) Irrigation schemes Takhar	plan		2016-2018	
						(69) Irrigation schemes Uruzgan	plan		2016-2018	
						(7) Irrigation schemes Zabul	plan		2016-2018	
						Panj Amu River Basin Project (APRBP)	plan	77 EU/ADB	2016-2022	
						Rehabilitating Agriculture Irrigation Networks (RAIN)	plan	20 USAID	2017-2020	
						Strengthening Watershed and Irrigation Management (SWIM)	plan	90 USAID	2016-2021	
5	Aquafers									

PART III: PUBLIC FACILITIES

ANNEX: 3.1: GOVERNMENT FACILITIES

		ONGOING PROJECTS				PLANNED PROJECTS				
No	Sub Sector	Project Name	Status	Est. Cost	Duration	Project Name	Status	Est. Cost	Duration	Remarks

1	Government Facilities	Parwan to Bamyan		20% Compeleted		Sheberghan-e- Saripol		1,320,000 $	2015-2016	22,000
		Bamyan to Daikondi				Zaranj- Delaram		6,160,000 $	2015-2016	28,000
		Daikondi to Ghor				Jabulsaraj- Panjshir		1,260,000 $	2015-2016	28,000
		Kunduz to Takhar		80% Compeleted		Farah- Farahroad		1,870,000 $	2015-2016	22,000
		Takhar to Badakhshan				Karukh-Ghormach		7,140,000 $	2015-2016	28,000
						Jabulsaraj- Kapisa		550,000 $	2015-2016	22,000
						Kabul-Kapisa (via Dehsabz)		1,650,000 $	2015-2016	22,000
						Badakhshan- Wakhan- china Boarder		14,400,000 $	2018-2020	30,000
						Jalal Abad- Kunar		2,520,000 $	2015 -2017	28,000
						Kabul-Kapisa		1,640,000 $	2015-2017	22,000
						Mazare -Bamyan		10,640,000 $	2017-2020	28,000
						Kunar- Nooristan		3,000,000 $	2018-2020	30,000
						Kandahar- Trinkokt		5,100,000 $	2018-2020	30,000
						Trinkot- Nili		5,320,000 $	2018-2020	28,000
						Chaghcharan Herat		11,200,000 $	2018-2020	28,000
ANNEX: 3.2: SECURITY										

1	Defence and Security										
ANNEX: 3.3: HEALTHCARE											
1	Health care										
ANNEX: 3.4: EDUCATION											
1	Education										
ANNEX: 3.5:NATIONAL MONNUMENTS AND PARKS											

1	National Monuments and Parks									

ANNEX: 3.6: DISASTER PREPAREDNESS AND RESPONSE										
		ONGOING PROJECTS				PLANNED PROJECTS				
No	Sub Sector	Project Name	Status	Est. Cost	Duration	Project Name	Status	Est. Cost	Duration	Remarks
1	Coastal Protection									

2	Flood Control									
3	Landslide Control									
4	Eearthquake									
5	Fire									
PART IV: URBAN DEVELOPMENT AND HOUSING										
ANNEX: 4.1: PUBLIC HOUSING										
		ONGOING PROJECTS				**PLANNED PROJECTS**				
No	**Sub Sector**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Project Name**	**Status**	**Est. Cost**	**Duration**	**Remarks**
1	Public	Emarat phase one		$167.00m,	(2013) - (2015)	4th MakroriyanPhase 4	Kabul	150 Milions		

		Emarat phoase two		$157.00m,	(2014) ?	KhwajaRawashPhase 2	Kabul	98.70 M		
		Khwajarawash		$99.00m,	(2012)-(2015)	Housing Project	Mazar-e- sharif	67.00 M		
		Khshal mina		$32.80m,	(2012)-(2015)	Housing Project	Jalalabad	67.00 M		
		Memar-e-shahr		$793.00m,	(2013)-(2015)	Housing Project	Kandahar	67.00 M		
		Projetahymaskn		$7.00m,	(2014)-(2015)	Housing Project	Herat	67.00M		
		5th Makroriyan		$28.00m,	(2014) ?	Housing Project	Konduz	67.00 M		
ANNEX: 4.2: PRIVATE HOUSING										
1	**Private**					1. Emirates Phase 3	Kabul	104.00 (M)		

Annex 4

Operations and Maintenance Systems

1. Introduction

To support Afghanistan's growth over the last 15 years there has been a large investment in infrastructure. While this infrastructure investment has improved roads, irrigation, energy and other government services, the responsible line ministries have generally not had O&M systems in place or adequate financial resources allocated in the government budget to maintain these investments. Limited human resource capacity, with inadequate trained skilled staff to manage, supervise and operate ministry maintenance systems, is a further constraint, and a factor in the inadequate performance monitoring and governance of O&M expenditures.

The problem is that this lack of maintenance has resulted in many of these investments degrading, with shortened lifespans than originally planned, and with some now requiring major maintenance expenditures to return them to a sustainable and functioning state. The government in the last few years, with development partner support, has started increasing budget O&M allocations, though they remain significantly less than required. As outlined in the NIP, for infrastructure a conservative estimate is that an O&M budget of $160-$200 million per year is required.

Operations and maintenance is generically defined as keeping an asset in proper condition, involving any and all of the tasks and actions that must taken to prevent any system or component from failing, and repairing normal degradation experienced with system operation. There are a range of industry benchmarks used as a means to assess infrastructure availability and service time.

As noted many government agencies do not expend the necessary resources to maintain the infrastructure system and related equipment in proper working order. The same applies to some private enterprises. This approach of allowing system degradation and failure to occur and then taking remedial action to repair or replace the infrastructure or equipment is a higher cost non-sustainable strategy. All systems and equipment has associated with it some predefined life expectancy or operational life, based on a set of standard operating conditions. Ideally maintenance is performed to keep equipment and systems running efficiently for at least the design lifespan. As such, the practical operation is time-based function. The need for maintenance is predicated on actual or impending failure.

Equipment Failure. When equipment failure occurs, it can be categorized in three distinct stages: infant mortality, useful life, and wear-out periods. The initial infant mortality period is characterized by high failure rate followed by a period of decreasing failure. Many of the failures associated at this stage are linked to poor design manufacturing deficiencies, poor installation, or misapplication. The following period, known as useful life is often characterized by a constant failure rate. Systems and components often fail in this period, due to poor O&M. Also, it is generally acknowledged that exceptional maintenance practices encompassing preventive and predictive elements can extend this period. The wear-out period is characterized by a rapid increasing failure rate with time. In most cases this period encompasses the normal distribution of design life failures. The design life of most infrastructure and equipment requires periodic maintenance. Anytime there is failure to perform

maintenance activities intended by system's designer, the effective operating life is shortened.

2. O&M Systems

Over the last half a century, different approaches on how maintenance is performed to ensure infrastructure reaches or exceeds its design life have been developed and utilized. As technologies, and the cost of sensors and other system component measurement tools for wear and tear, have become available and decreased in cost, industry and government O&M systems have evolved from: reactive to preventive, to predictive and finally to reliability centered maintenance (RCM)

Government in adopting a new O&M approach for sustainable infrastructure maintenance will need to develop appropriate approaches for the different types of infrastructure based on the infrastructure/ equipment age, technical requirements, skilled staffing and contract capacity available, and the financial resources for O&M.

Reactive Maintenance. Currently in Afghanistan the dominant government O&M systems are based on reactive maintenance that is waiting for the infrastructure to fail or break before action is taken. While in the short term it is cost saving in recurrent expenditure, the shortened life span and exponentially higher costs of repair, mean it is overall higher cost, a false economy, and totally non sustainable. These are the problems currently being experienced with the roads that have been totally neglected, and now almost require a new build.

Preventative Maintenance. As a standard approach preventative maintenance programs is one core O&M approach that can be used by government, as it is administratively straightforward. Preventive maintenance is defined as actions performed on a time- or machine-run-based schedule that detect, preclude, or mitigate degradation of a component or system with the aim of sustaining or extending its useful life through controlling degradation to an acceptable level. Studies indicate that the savings range from 12% to18% on the average over a reactive management approach.

While preventive maintenance is not the optimum maintenance program, it does have several advantages over that of a purely reactive program as it will extend the life of the equipment closer to design, and in terms of operational performance there are also savings. Minimizing failures translate into maintenance and capital cost savings and enhancing system availability.

Predictive Maintenance. For more specialized infrastructure, and where sensors and measurement tools can monitor and report on system component status and condition, a condition-based maintenance can be adopted. Predictive maintenance is defined as measurements that detect the onset of system degradation, lower functional state, thereby allowing causal stressors to be eliminated or controlled prior to any significant deterioration in the component physical state.

Basically, predictive maintenance differs from preventive maintenance by basing maintenance need on the actual condition of the machine rather than on some preset

time based schedule. The maintenance task is based on quantified material/equipment condition.

The advantages of predictive maintenance are many. A well-orchestrated predictive maintenance program will all but eliminate catastrophic equipment failures. It will be able to schedule maintenance activities to minimize cost, and will also be able to minimize inventory and order parts, as required, well ahead of time to support the downstream maintenance needs. As such this maintenance approach can optimize the operation of the equipment, saving energy cost and increasing plant reliability. Past studies have estimated that a properly functioning predictive maintenance program can provide a savings of 8% to 12% over a program utilizing preventive maintenance alone. In other words, depending for an infrastructure's reliance on reactive maintenance and material condition, it could easily recognize savings opportunities exceeding 30% to 40%. Surveys indicate that predictive maintenance program can eliminate breakdown cost by 70% to 75%, reduce downtime by 35% to 45% and enhance production by 20% to 25%.

One of the technologies that has greatly assisted predictive maintenance is the lower costs of sensors coupled with developments in using big data. These capabilities allow agencies to gather a plethora of relevant data on a real time basis and identify when systems should be maintained and what particular parts need to be replaced to avoid catastrophic failures.

In an Afghanistan environment, a key constraint to adoption of predictive maintenance is the technology and human resource skills required for such a system to operate efficiently and effectively. On specialized equipment it has application. It is the initial cost of installing sensors, developing the necessary algorithms to program system physical condition training of maintenance personnel to effectively utilize predictive maintenance technologies will require significant expense. Currently it would necessitate the use of external or brand supplier maintenance contracts. Both of which would be relatively high cost in terms of recurrent expenditure, though properly managed would be cost efficient in the medium to long term. In the longer term, it is anticipated that such predictive O&M systems will become more widely adopted in Afghanistan, given the benefits of enhancing infrastructure reliability and availability, improving safety, and reducing operating costs.

Reliability centered maintenance (RCM) is a systematic approach to evaluate a facility's equipment and resources available to best optimize the mix of the two, and result in a high degree of facility reliability and cost-effectiveness. RCM is defined as a process used to determine the maintenance requirements of any physical asset in its operating context. It recognizes that all equipment in a facility is not of equal importance to either the process or facility safety. It recognizes that equipment design and operation differs and that different equipment will have a higher probability to undergo failures from different degradation mechanisms than others. It also approaches the structuring of a maintenance program recognizing that a facility does not have unlimited financial and personnel resources and that the use of both need to be prioritized and optimized.

RCM is highly reliant on predictive maintenance but also recognizes that maintenance activities on equipment that is inexpensive and unimportant to facility reliability may

best be left to a reactive maintenance approach. In other words, it is using predictive maintenance in a strategic fashion based on particular and predetermined reliability criteria. It is important to both define the equipment criticality and cost of down-time when determining the optimal mix of maintenance elements. Once the critical system elements are defined, the equipment can be prioritized in developing a functional RCM program.

3. Afghanistan Infrastructure O&M Framework

In Afghanistan the increased awareness of the O&M problem, and current priority to address this problem, requires the systematic development and adoption of sustainable infrastructure maintenance by government, which is implemented in line ministries, and reported on annually.

Appropriate asset management systems will need to be developed for the different types of infrastructure based on the infrastructure/ equipment age, technical requirements, skilled staffing and contract capacity available, and the financial resources available for O&M.

Actions required are:

- **Asset management inventory**, a master list of all infrastructure and equipment.

- **Corrective maintenance scheduling**, based on prioritized listing of infrastructure status and condition. The selection criteria would cover the listed components based on importance or criticality to operation, process, or mission based on the following: emergency/ critical infrastructure/ equipment, used to support life, health, safety risk-mission; urgent those needed for continuous operation of the infrastructure at risk; priority those needed for mission support/project deadlines; routine that be prioritized based on first come/first served; discretionary that provide desired but not essential services; and deferred covering whose services are not essential and will be accomplished only when time and resources allow.

  Once all infrastructure/ equipment has been clustered, then a ranking and appropriate O&M approach can be adopted. For those in the emergency, urgent, priority and routine categories, determine the type and number of maintenance activities required and periodicity using: manufacturers guidelines/ technical manuals, history of use, root cause analysis on failure, and sound engineering judgment. For those in the discretionary and desired categories a reactive maintenance could be sufficient. This would allow these elements to run to failure and perform repair or replace damaged equipment when obvious problems occur.

- **Human Resource Technical Skills and Capacity.** To determine the resources and skills available in respective line ministries, the requirements (institutional and technical) and training required for effective and efficient O&M systems to be established within the expected ministry fiscal resources. The capacity for government or for contract delivery of O&M services, and the performance and quality assurance systems required to be operating, and

the financial due diligence systems that will need to be in place to ensure good governance that will minimize corruption risk.

The O&M systems established for different infrastructure types, will evolve from corrective to preventative, and for some infrastructure to predictive O&M. In the longer term where appropriate RCM methodologies will be developed, given the infrastructure and equipment type, and operating context. Implementing an effective O&M strategy will provide benefits to Afghanistan though increasing lifetime value of the infrastructure, enhanced utility and availability, and reduced total cost.

Annex 5

Environmental Assessment Related Legislation

Environmental Assessment Related Legislation

The following legislation and policies are applicable in environment impact assessment, land resettlement and cultural heritage when undertaking project appraisal and planning:

- The Environmental Law of Afghanistan (2007)
- The Land Expropriation Law (2000) and its Amendments (2005)
- Law on the Preservation of Afghanistan's Cultural and Historical Artifacts
- Water Law
- National Waste Management Policy
- Air Quality Standards
- Multi-lateral Environmental Agreements (MEA)

The relevant legislation and polices are outlined in summary form below.

1. The Environmental Law of Afghanistan (2007)

Afghanistan enacted an updated Environment Law on January 25, 2007. The Environment Law has five main purposes: 1) improve livelihoods and protect the health of humans, fauna and flora; 2) maintain ecological functions and evolutionary processes; 3) secure the needs and interests of present and future generations; 4) conserve natural and cultural heritage; and 5) facilitate the reconstruction and sustainable development of the national economy.

The implementing agency for the Environment Law is the Afghan National Environmental Protection Agency (ANEPA), which acts as an independent institutional entity, and is responsible for coordinating and monitoring conservation and rehabilitation of the environment.

The Environment law contains a supremacy clause, which states: "where there is inconsistency between the provisions of this Act and any other law that affects the environment, other than the Constitution of Afghanistan, this Act shall prevail." This addition makes the Environment Law a very powerful law when planning projects and activities that could impact the environment.

The Environment Law contains a blanket prohibition on two types of activities. The first is that "no person may undertake an activity or implement a project, plan or policy that is likely to have a significant adverse effect on the environment" unless the provisions of Article 16 are followed. The second is that "no ministry or national authority may grant an authorization for the execution or implementation of a project, plan or policy that is likely to have a significant adverse effect on the environment" unless the provisions of Article 16 are followed.

The language in the Afghan Environment Law is substantially similar to that of the National Environmental Policy Act (hereafter U.S.-NEPA) in the United States and the standard of "significantly affecting the quality of the human environment." Also similar to the U.S. NEPA process, the Afghan Environment Law requires that the person or agency make an informed choice regarding the proposed action, rather than

requiring a specific course of action or no action. The Afghan Environment Law, again similar to U.S.-NEPA, requires that environmental issues be integrated into all national and local land use plans and natural resource management plans developed by relevant ministries and national institutions.

One of the requirements of the process under the Afghan Environment Law is the submission of a preliminary assessment. The preliminary assessment should contain accurate information to allow ANEPA to determine the potential adverse effects and positive impacts of the project, plan, policy or activity.

ANEPA will review the brief and solicit advice from the EIA Board of Experts before making a decision to authorize the project, plan, policy or activity.

ANEPA can also place conditions on the proposed project, plan, policy or activity, without requiring further action by the proposing party. However, if ANEPA considers the adverse effects likely to be significant, it can require the proposing party to submit an Environmental Impact Statement or a Comprehensive Mitigation Plan under the Law.

If ANEPA chooses to require a comprehensive mitigation plan, it must include the following: 1) a description of the mitigation measures that will be implemented in order to prevent, reduce or otherwise manage the environmental impacts of a project, plan, policy or activity; 2) how these measures will be implemented; and 3) any other information prescribed by ANEPA.

The costs incurred in preparing the preliminary assessment, an environmental impact statement, a final record of opinion or a comprehensive mitigation plan are the responsibility of the applicant proposing the project, plan, policy or activity.

On the basis of the preliminary assessment and any required follow–up documentation, such as an Environmental Impact Statement or Comprehensive Mitigation Plan, ANEPA can choose to either grant or refuse to grant the permit for the project, plan, policy or activity. If ANEPA, acting on the advice of the EIA Board of Experts, finds that the environmental impacts and concerns are adequately addressed by the environmental impact statement/preliminary assessment it can grant the permit subject to any conditions recommended by the EIA Board of Experts.

If ANEPA, acting on the advice of the EIA Board of Experts, finds that the implementation of the project would bring about unacceptable significant adverse effects or that the proposed mitigation measures would be inadequate, it can reject the proposed project, plan, policy or activity, and the reasons for rejection must be provided in writing. A permit may also be withdrawn if the applicant fails to comply with any of the terms and conditions of the permit.
PTEC Environmental Scoping Study Permits will lapse if the applicant fails to implement the project, plan or policy or undertake the activity within three years from the date of issuance.

Similar to the U.S. NEPA process, the Environment Law requires that affected persons be given the opportunity to comment on the proposed project, plan, policy or activity, as well as the preliminary assessment, the environmental impact statement,

the final record of opinion and a comprehensive mitigation plan (if one was required) before ANEPA approves the permit.

The applicant must also demonstrate to ANEPA that there has been an appropriate time and meaningful opportunity, in both individual consultations and public hearings, for affected persons to comment on the proposed project, plan, policy or activity. If the proposed project is likely to have "highly significant adverse effects on the environment," affected persons must have the opportunity to participate in each of the phases of approval by ANEPA.

2. The Land Expropriation Law (2000) and its Amendments (2005)

The Law sets out the provisions for governing the expropriation or acquisition of land for public interest purposes, such as the establishment of public infrastructure or for the acquisition of land with cultural or scientific values, land of higher agricultural productivity and large gardens. It declares, inter alia, that: a) acquisition of a plot or portion of a plot of land for public use is decided by the Council of Ministers and is compensated at fair value bases on the current market rates; b) the right of the owner or land user will be terminated three months prior to the start of civil works on the project and after the proper reimbursement to the owner or person using the land has been made.; c) the value of land, value of houses and buildings on the land and value of trees and other assets on the land will be considered for compensation; and f) compensation is determined by the Council of Ministers. The Law however, is silent on resettlement. It makes no special provision for a resettlement plan or indeed and arrangements for resettlement. In addition, the current law does not permit squatters and occupiers of land under customary deeds to receive compensation for the loss of their land.

Given these identified shortcomings, a PTEC Program will follow the World Bank's Operational Policy 4.12 for Involuntary Resettlement, as it is based on international best practice for such issues. This aligns with the other development partners involuntary resettlement operational policy conditions.

3. Law on the Preservation of Afghanistan's Cultural and Historical Artifacts

According to the Law on the Preservation of Afghanistan Historical and Cultural Artifacts, operations which cause destruction or harm to the recorded historical and cultural sites or artifacts is prohibited (Art. 11, Art. 16). The law provides guidelines for how to deal with historical and cultural artifacts if they are discovered. The PTEC Scoping Study shall ensure the Projects compliance with these guidelines.

4. Water Law

The Water Law was enacted on April 26, 2009. The Law was enacted under Article Nine of the Afghan Constitution, which states in relevant part: "Protection, management and proper utilization of public properties as well as natural resources shall be regulated by law." The purpose of the law is "conservation, equitable distribution, and the efficient and sustainable use of water resources." Under the law, water is considered a public property, making the government responsible for its protection and management. The use of water for drinking water and livelihood is

given priority, but water can also be used for industry, public services and energy production. The use of water is free, but service providers can charge for operation and maintenance of water systems.

A permit is required for any use of water except the following: 1) drinking water, livelihood and other needs, if the total daily consumption does not exceed five cubic meters per household; 2) use for navigation as long as no damage is done to either the banks/right-of way or the quality of water; 3) fire extinguishing; 4) existing rights that are pending conversion to permits. Following the implementation of the Water Law, existing water rights will be converted to permits "gradually" and Water User Associations can obtain water permits after proper registration.

An Activity Permit and Usage License is required for: 1) surface and groundwater use for newly established development projects; 2) use of water for commercial and industrial purposes; 3) digging and installation of shallow and deep wells for the commercial, agricultural, industrial and urban water supply purposes; and other purposes (remaining described purposes are not relevant to the proposed IPP transaction). The sale and purchase of an Activity Permit and Usage License is prohibited. The procedure to issue Activity Permits and Usage Licenses is to be prepared by MEW, in coordination with other Ministries. A River Basin Council can cancel or modify a permit under the following conditions: 1) when the water user, without a justified reason, does not utilize or over utilizes the allocated water; 2) when adequate water is not available; or 3) when national interest requires.

The Water Law has a provision for use of water for power generation. According to the Law, water use for generating energy on micro and macro scales, based on a feasibility study, must be managed in accordance with the Water Law. However, this section appears to describe hydropower facilities, but could be interpreted to include other forms of energy as well.

The Water Law has a built in mechanism for resolution of disputes among water users. The dispute resolution process proceeds along a specified path, with a specified number of days for each actor to make a decision before the issue moves to the next actor in the process.

5. National Waste Management Policy

A Draft National Waste Management Policy was prepared in 2008. The policy makes recommendations for the management of medical waste, hazardous waste and municipal solid waste. Although still in draft format a scoping study will seek to adhere to the requirements of the policy where practical, e.g. the requirement to reduce, reuse and recycle waste and to dispose of hazardous waste to international standards.

6. Air Quality Standards

Afghanistan has drafted National Ambient Air Quality Standards PTEC Environmental Scoping Study. The primary objective of Air Quality Standards is to ensure that all citizens should have access to outdoor air without significant risk to

their health, where this is economically and technically feasible. The secondary objectives of Air Quality Standards are:

- To provide the basis for assessing the quality of air
- To act as the foundation for setting control programs
- To assess the new sources of air pollution, and
- To create awareness and alert the public (use of Air Quality Index)

7. Multi-lateral Environmental Agreements (MEA)

According to the UNEP, Afghanistan is signatory to a number of multi-lateral environmental agreements. Exhibit 1 provides a summary of these agreements. PTEC will not be affected by any of these agreements, nor will PTEC affect any of these agreements.

Afghanistan MEAs				
No.	**Title**	**Signed**	**Ratified**	**Comment**
1	Convention on Biological Diversity	1992	2002	
2	Desertification Convention UNCCD	1995	2002	
3	United Nations Framework Convention on Climate Change	1992	2002	
4	Convention on International Trade in Endangered Species of Fauna and Flora	1985	1986	
5	Vienna Convention for the Protection of the Ozone Layer			Acceded to on 17 June 2004