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# SEMI-ANNUAL MONITORING REPORT APRIL 2010 – SEPTEMBER 2010



Clockwise from upper left: TOs 17 and 19 engineering team during site training; Workers building a lined ditch on the Keshim-Faizabad Road; Naiabad switch station measuring panel; Discussion group at Conference on the Management and Financing of Roads.

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## ABBREVIATIONS AND ACRONYMS

ACI	American Concrete Institute
AEIC	Afghanistan Energy Information Center
AIMS	Afghanistan Information Management Services
AISC	American Institute of Steel Construction
ACG	Armed Criminal Group
AOG	Armed Opposition Group
ANSO	Afghanistan NGO Safety Office
CDO	Community Development Organizer
DABM	Da Afghanistan Breshna Moassessa (Afghanistan Electricity Authority)
DABS	Da Afghanistan Breshna Sherkat (Afghanistan Electricity Enterprise)
FDI	Foreign Direct Investment
FTE	Full-Time Equivalent
G-G	Gardez-Ghazni
G-K	Gardez-Khost
GIRoA	Government of the Islamic Republic of Afghanistan
ICE	Inter-Ministerial Commission for Energy
IR	Intermediate Result
IRI	International Roughness Index
IRP	Infrastructure and Rehabilitation Program
K-F	Keshim–Faizabad
K-G	Khost-Gardez
K-K-H	Kabul-Kandahar-Herat
KV	Kilovolt
KVA	Kilovolt-Ampere
KW	Kilowatt
KWh	Kilowatt hour
M&E	Monitoring and Evaluation
MoFA	Ministry of Foreign Affairs
MPW	Ministry of Public Works
MW	Megawatt
MWh	Megawatt hour
NCTC	National Counterterrorism Center
NEPS	North East Power System
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PMP	Performance Management Plan
PPA	Purchase Power Agreement
REFS	Rehabilitation of Economic Facilities and Services
SEPS	South East Power System
SO	Strategic Objective
SSO	USAID’s State Statistical Office (Afghanistan)
TO	Task Order
USEA	United States Energy Association
VOC	Vehicle Operator Cost
WITS	Worldwide Incidents Tracking System
ZOI	Zone of Influence



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## SYNOPSIS OF PERFORMANCE INDICATORS

<b>Energy</b>			
<b>Indicator</b>	<b>Type of Indicator</b>	<b>Data Source</b>	<b>Reporting Frequency</b>
<b>IR 1.2: Increase Incomes through Economic Growth</b>			
FTE Afghan jobs created	Output	TO Manager	Semi-annually
Household income	Outcome	AIRP	Annually
<b>IR 1.3: Expand and Improve Access to Economic Infrastructure</b>			
Number of people trained in technical energy fields	Output	TO Manager	Semi-annually
Number of people trained in management	Output	TO Manager	Semi-annually
Capacity constructed or rehabilitated (MW)	Output	AIRP	Semi-annually
Capacity maintained (MW)	Output	AIRP	Semi-annually
Number of people with increased access to modern energy services	Outcome	DABS	Annually
Average hours of daily electricity service	Outcome	Household/Business Surveys	Post-Project
Weighted average cost of electric energy supplied to the grid	Outcome	AEIC/DABS	Semi-annually
Unique visits to AEIC website <sup>1</sup>	Outcome	AEIC	Not Applicable

<b>Transport</b>			
<b>Indicator</b>	<b>Type of Indicator</b>	<b>Data Source</b>	<b>Reporting Frequency</b>
<b>IR 1.1: Rehabilitate the Rural Economy</b>			
Cost of food staples	Outcome	Business surveys	Pre- and Post-Project
Markets where goods sold	Outcome	Household surveys	Pre- and Post-Project
<b>IR 1.2: Increase Incomes Through Economic Growth</b>			
FTE Afghan jobs created	Output	TO Managers	Semi-annually
Number of businesses	Outcome	Business surveys	Pre- and Post-Project
Shopkeeper monthly sales	Outcome	Business surveys	Pre- and Post-Project
Household income	Outcome	Household surveys	Pre- and Post-Project

<sup>1</sup> Reporting of the Unique visits to AEIC website” has been transferred to the AEIC as this agency is no longer part of the IRP as of August 2009.

Indicator	Type of Indicator	Data Source	Reporting Frequency
<b>IR 1.3: Expand and Improve Access to Economic Infrastructure</b>			
Effective kilometers of transportation infrastructure constructed or rehabilitated	Output	TO Managers	Semi-annually
Kilometers of transportation infrastructure maintained	Output	TO Managers	Semi-annually
Number of people benefitting from transportation infrastructure projects	Output	TO Managers	Semi-annually
Number of people trained in transportation technical fields	Output	TO Managers	Semi-annually
Number of people trained in management	Output	TO Managers	Semi-annually
Travel times	Outcome	Driver/passenger surveys	Pre- and Post-Project
Vehicle operator costs	Outcome	Driver/passenger surveys	Pre- and Post-Project
Annual average daily traffic count	Outcome	Traffic counts	Semi-annually
Passenger fare costs	Outcome	Driver/passenger surveys	Pre- and Post-Project
Cost of freight transport	Outcome	Freight company surveys	Pre- and Post-Project
Volume of freight	Outcome	Freight company surveys	Pre- and Post-Project
Cost of informal payments for road	Outcome	Driver/passenger surveys	Pre- and Post-Project
Number of security incidents	Outcome	TO Managers	Semi-annually
Staff capability with technical equipment	Outcome	TO Managers	Semi-annually
Staff capability in report writing	Outcome	TO Managers	Semi-annually
Kilometers of effectively maintained roads	Outcome	TO Managers	Annually
Roughness of road	Outcome	TO Managers	Annually
<b>IR 3.1: Increase Access of Women and Children to Basic Health Services</b>			
Travel time to health clinics	Outcome	Household surveys	Pre- and Post-Project
Frequency of visits to health clinics	Outcome	Household surveys	Pre- and Post-Project
<b>IR 3.2: Increase Access to Quality Teaching and Suitable Learning Environments</b>			
Rates of school attendance	Outcome	Household surveys	Pre- and Post-Project

The indicators shaded in grey are those addressed in this monitoring report. The other indicators will be addressed in various socio-economic studies conducted by IRP.

## I. INTRODUCTION

The USAID/Afghanistan 2005-2010 Strategic Plan<sup>2</sup> focuses on three primary Strategic Objectives (SO).<sup>3</sup> The purpose of this plan is to encourage activities and programs to promote economic growth, inclusive governance, and improved social institutions.

- SO1: Thriving economy led by the private sector
- SO2: Democratic government with broad citizen participation
- SO3: Better educated and healthier population

USAID is funding a variety of programs to support these objective; ranging from capacity-building in government ministries to infrastructure projects such as construction of power plants, schools, clinics, roads, and a national electric power system.

**Afghanistan Infrastructure Rehabilitation Program (IRP)** is a five-year infrastructure-based program. The primary mission of this program is to not only enhance and improve Afghanistan's infrastructure backbone but also to undertake works that will expand this structure. To accomplish this, IRP has been tasked with energy, transportation, water, and capacity building. IRP's Energy sector is underpinned by the need to assist in providing an Afghan operated sustainable national utility and is devoted to increasing human capacity to operate, maintain and expand power generation capacity; enhance interregional energy trade; and develop domestic energy resources, while improving general technical and managerial control and communications of Afghanistan's power transmission networks. The Transport sector is involved in the extension of roads, as well as the rehabilitation and maintenance operations that are directed toward Afghan ownership and sustainability. Furthermore, each task order brings an institutional element of capacity-building that will support each of USAID's SOs.

IRP seeks to directly benefit targeted populations through the generation of employment during the infrastructure construction/rehabilitation phase (e.g., road and power facility construction) as well as through operation and maintenance works. Capacity building of Afghan nationals in these areas will create both direct and indirect sustainable employment opportunities. As the economic status of Afghans improves, the economy, in general, will grow. The supply of improved transport and energy infrastructure will enhance the quality of life of Afghans while reducing costs for farms and for businesses across multiple industries, bolster demand for affordable public transport thereby increasing access and mobility, and support the steady and robust development throughout all levels of the country's economy. These benefits will increase productivity, create new markets, and attract both local and Foreign Direct Investment in Afghanistan.

**The Performance Management Plan's (PMP)** objective is to measure IRP's progress and, specifically, the outcomes of each task order and how it supports USAID's Strategic Objectives. As part of the PMP implementation, this report is IRP's fourth semi-annual monitoring report. The focus of this report is on measuring project outputs. Where possible, some outcome measurements are included in order to complement these outputs. It should be noted that while every effort was made to obtain the most accurate data, in some cases the data proved to be incomplete. In such cases, the problems in acquiring

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<sup>2</sup> USAID/Afghanistan Strategic Plan, May 2005.

<sup>3</sup> These Strategic Objectives were submitted with the approved Performance Management Plan (Revision 1) of March 2009. Strategic Objective 1 has been changed to Strategic Objective 5; however, for continuity sake, the original SOs have been maintained in this report.



consistent data are explained. Additional data collection and analysis for outcome indicators will be provided over the course of the IRP as socio-economic studies are implemented as required by USAID.

**Organization.** The indicators covered in this report fall under two Intermediate Results (IRs) of Strategic Objective I:

- IR 1.2: Increase incomes through economic growth
- IR 1.3: Expand and improve access to economic infrastructure

The indicators are organized under these two IRs. IR 1.2 has two indicators, “Full-Time Afghan Jobs Created” and “Household Income.” The remaining indicators for both the energy and transport sectors are discussed under IR 1.3.

## II. INCREASES IN INCOMES THROUGH ECONOMIC GROWTH

The infrastructure works undertaken by IRP have been creating both direct and indirect employment in Afghanistan. This has served to increase local incomes and to provide skills and training for Afghan employees. Exhibit I illustrates the number of Afghans that have been hired by IRP since its inception.<sup>4</sup> While interesting, it is a poor indicator of economic impact. What is important is Full-Time Equivalents (FTE) created by IRP. The numbers below merely illustrate the effort that IRP has made to incorporate Afghan labor in carrying out the program’s mission. As seen below, a total of 1,388 Afghans have been employed by IRP. The next section discusses Afghan employment in terms of FTE.

### Exhibit I:

<b>AIRP Jobs Created</b>			
<b>Inception through 30 Sep 2010</b>			
<b>Task Order</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
TO 1	377	34	411
TO 2	15	3	18
TO 3	60	2	62
TO 4	131	1	132
TO 5	4	1	5
TO 6	24	1	25
TO 7	41	1	42
TO 8	203	4	207
TO 9	89	5	94
TO 10	1	0	1
TO 11	20	5	25
TO 12	15	0	15
TO 13	3	1	4
TO 14	111	7	118
TO 15	10	0	10
TO 17	2	2	4
TO 18	68	0	68
TO 19	34	5	39
TO 21	6	1	7
TO 22	22	1	23
TO 23	23	2	25
TO 24	31	2	33
TO 25	13	0	13
TO 26	7	0	7
TO 27	62	2	64
<b>Total</b>	<b>1310</b>	<b>78</b>	<b>1388</b>

<sup>4</sup> The total number of Afghans hired is tracked only for IRP direct hires because this data is not required of sub-contractors, who report in terms of LOE, which is useful in calculating FTE but not in identifying the total number of Afghans employed.

## II.1 FULL-TIME EQUIVALENT AFGHAN JOBS CREATED

This indicator measures employment in terms of Full-Time Equivalent (FTE) jobs. FTE is defined as one person employed for 260 days per year. This is a more meaningful measure of the economic impact of IRP. Exhibit 2 on the following page illustrates the number of Afghan FTE jobs created directly by IRP, by security sub-contractors, and by all other sub-contractors.<sup>5</sup> It disaggregates this data by skilled and unskilled labor and task order. To date, IRP has created a total of 1,619 FTE jobs. Security sub-contractors have created 5,426 FTE jobs, and an additional 8,926 FTEs<sup>6</sup> have been created by all other first-tier sub-contractors. It is worth noting that over 100 FTEs have been filled by 78 Afghan women in IRP positions alone. This is important due to the relative lack of employment opportunities for women in Afghanistan.

Intermediate Result 1.2 is supported by the enhancement and rehabilitation of Afghanistan's infrastructure. The construction and rehabilitation of infrastructure requires both the direct employment of Afghans by IRP as well as the participation of local contractors to carry out much of the work. In the short-term, this will provide employment opportunities for many Afghans in regions where works are underway. Furthermore, it will also increase local contractor capabilities and expand the skill sets of those working on the projects. In addition, it there is also a multiplier effect at work. While the exact multiplier effect cannot be known, Afghan incomes earned by IRP-created jobs enter into the Afghan economy.<sup>7</sup> Therefore, IRP is increasing the amount of money in the general economy of Afghanistan. Some effects may be immediate, such as the increase in trade and consumption of goods or the increase in household expenditures on basic services (e.g., health care, education, etc.).

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<sup>5</sup> The data is easily collected for first-tier sub-contractors; however, due to the informal nature of the Afghan labor force, it is very difficult to track second and third tier sub-contractor labor. Most of this labor is day labor or on-demand labor and many times controlled by village elders so that all households receive some direct monetary benefit from IRP's infrastructure projects. Sub-contractor staffing plans, which report LOE by position in monthly reports, were used as a proxy for employment created by second and third-tier subs.

<sup>6</sup> Due to some changes in the IRP employment tracking system, FTE had to be calculated in a bit different way for this report than in the past. Once all of these changes are fully implemented, this may require adjusting the FTE numbers slightly, but the numbers presented here should offer a fairly accurate account of employment. Also, due to a calculation error in the last report, the sub-contractor numbers were too high and have been adjusted back down in this report.

<sup>7</sup> Due to the widespread poverty affecting Afghanistan and its citizens, it is highly likely that the money earned is spent on consumer goods.



**Exhibit 2:**

**Afghan Jobs Created by Task Order                      Inception - 30 September 2010**

Full-Time Equivalent (FTE)

Task Order	IRP Jobs Created			Security Jobs Created			Sub-Contractor Jobs Created		
	Skilled	Unskilled	Total	Skilled	Unskilled	Total	Skilled	Unskilled	Total
TO 1	431	266	696	60	802	862	108	845	953
TO 2	30	13	43	9	435	444	9	435	444
TO 3	12	8	20	5	134	139	5	134	139
TO 4	183	34	217	18	629	647	390	1657	2047
TO 5	25	4	29	15	173	188	15	173	188
TO 6	9	1	10	5	373	378	5	373	378
TO 7	17	1	18	8	55	62	8	55	62
TO 8	152	24	176	475	1009	1485	283	716	999
TO 9	92	15	107	43	253	296	98	244	342
TO 10	1	0	1	0	0	0	0	0	0
TO 11	13	8	21	0	0	0	0	0	0
TO 12	6	0	6	0	36	36	0	36	36
TO 13	4	4	7	0	0	0	0	0	0
TO 14	96	10	106	8	109	117	393	2349	2742
TO 15	0	0	0	7	99	106	7	99	106
TO 17	8	0	8	1	2	3	6	0	6
TO 18	30	16	46	15	345	360	15	345	360
TO 19	12	11	23	3	10	13	5	1	6
TO 21	3	1	5	1	90	91	0	0	0
TO 22	5	0	5	0	0	0	0	0	0
TO 23	14	8	22	6	56	62	5	30	35
TO 24	30	6	36	1	10	11	13	41	54
TO 25	5	1	6	3	21	24	0	0	0
TO 26	2	0	2	0	40	40	10	17	27
TO 27	7	4	12	3	60	63	2	0	3
<b>Total</b>	<b>1,185</b>	<b>434</b>	<b>1,619</b>	<b>685</b>	<b>4,741</b>	<b>5,426</b>	<b>1,377</b>	<b>7,549</b>	<b>8,926</b>

**Exhibit 3:<sup>8</sup>**

<b>Afghan Jobs Created by Province</b>				
<b>Full-Time Equivalent (FTE)</b>		<b>Inception - 30 September 2010</b>		
<b>Province</b>	<b>IRP</b>	<b>Security</b>	<b>Sub-Contractor</b>	<b>Total</b>
Badakshan	217	647	2047	2911
Baghlan	0	24	54	78
Bamyan	0	40	27	67
Farah	0	6	1614	1620
Ghazni	0	0	132	132
Helmand	52	929	304	1285
Herat	2	1	358	361
Jowzjan	0	34	12	46
Kabul	1077	1391	1703	4171
Kandahar	101	866	804	1771
Khost	78	743	500	1320
Kunar	0	0	14	14
Logar	0	0	13	13
Nangarhar	1	1	79	81
Paktika	0	0	79	79
Paktya	78	743	500	1320
Pansjhir	0	0	39	39
Parwan	0	0	18	18
Puli-Alam	0	0	97	97
Sari Pul	0	0	1	1
Uruzgan	0	2	0	2
Wardak	0	0	125	125
Zabul	4	0	98	102
<b>Total</b>	<b>1619</b>	<b>5426</b>	<b>8615</b>	<b>15661</b>

<sup>8</sup> The Provincial Totals in Exhibit 3 do not match Task Order Totals in Exhibit 2 for security and subcontractor FTEs. This is due to two reasons: 1) TO3 is a Quick Release Task Order, so we could not accurately include the TO 3 data by province; and 2) TO 14 provincial data does not include any data previous to April 2009 as the only provincial records available for TO 14 were from April 2009 to September 2009. Additionally, we had to estimate the distribution of TO 14 Subcontractor FTE jobs by province by basing taking the percentage spread for the period of April 2009 to September 2009 and applying those percentage ratios to the cumulative numbers. This is because the TO 14 Subcontractor FTE data divided by province was not available prior to April 2009. To view total FTE jobs created by TO 3 and TO 14, see Exhibit 2. For the current six-month reporting period, however, all increases in FTEs match with those increases in Exhibit 2.

## II.2 HOUSEHOLD INCOME

The energy produced by the capacity constructed, rehabilitated, operated, maintained, or enabled by USAID through the IRP creates a significant economic impact for Afghanistan. IRP's contributions to increased capacity through plant construction and the facilitation of NEPS imports all occurred before this reporting period, but the economic effects of this increased capacity continue to be experienced as Afghans enjoy the benefits of the energy production made possible by this additional capacity. In addition, IRP continues to manage or support the O&M for several power plants—Tarakhil, Kandahar (KTA-50), Kandahar (QSK-60), Lashkar Gah, Qalat, and Tirin Kot. Taken together, IRP has facilitated the availability of 329.1 MW of operational capacity, which in this reporting period combined to produce 606,018 MWh for Afghanistan. Exhibit 4 provides a breakdown of the capacity, actual production, estimated potential households served, and estimated economic impact. According to the Afghan Energy Information Center (AEIC) and IRP energy economists, the energy capacity is sufficient to potentially supply energy to 231,000 households (1,400,000 – 1,800,000 people).<sup>9</sup>

IRP estimates that the production for this reporting period will have a \$153.7 million impact on Afghanistan's GDP over time. Estimated economic impact is calculated based on the assumption that one MWh produces \$3,043 of GDP over a six-year timeframe.<sup>10</sup> While the initial impetus for these indicators was to identify the effect of increased production on household incomes, this report only provides an aggregate GDP impact figure. Extrapolating the effect on individual households is not a straightforward calculation at this time, since population and income data is inconsistent or unreliable.

The O&M activities are provided under Task Orders 23 and 27, while the power imports are facilitated and enabled by several IRP activities, including the Inter-Ministerial Commission for Energy (TO 13), support for the imported power agreements (TO 11), and reactive power compensation (TO 17). The construction of the 105 MW Tarakhil Power Plant was conducted under TO 9. The installation of Unit 3 at the Kajakai Hydropower Plant was performed under TO 2.

It is important to note that while IRP's role is to expand energy production capacity, IRP is not responsible for procuring fuel for these plants or for paying for the imports, which are necessary for the benefits of this increased capacity to be realized. In fact, since the GIRoA has been unable to supply adequate fuel to the power plants, especially in the south, the output of these plants and the resulting economic impact have been significantly lower than they might otherwise have been.

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<sup>9</sup> The figure for the number of households served was calculated by assuming that 80% of operational capacity is destined for households and that peak daily household energy usage is 1.1 KW. DABS actual figures for 2009 show that 80% of power generations is used by households, while the other 20% is consumed by businesses and government (April 2010). The number of inhabitants in a household is assumed to be between 6 and 8 people.

<sup>10</sup> The figure \$3043 GDP/MWh was calculated based on statistical analysis of a cross-sample of 37 countries similar to Afghanistan in terms of energy usage and economic conditions. This, of course, only establishes correlation and not causation. While this means that this is an imperfect formula, it serves to provide a rough estimate of potential economic impact.

**Exhibit 4:<sup>11</sup>**

**Estimated Economic Impact of Generation Enabled by IRP**

April – September 2010

Plant	Operational Capacity (MW)	Energy Production (MWh)	Households Served*	Estimated Economic Impact (Million USD)**
<b>O&amp;M Support</b>				
Kandahar	11.6	23,084		5.9
Lashkar Gah	0.5	665	400	0.2
Qalat	2.0	1,420	1,500	0.4
Subtotal	14.1	25,169	1,900	6.4
<b>NEPS Imports</b>				
Uzbekistan	150.0	318,943	109,100	80.9
Turkmenistan	22.0	157,307	16,000	39.9
Tajikistan	20.0	47,081	14,500	11.9
Subtotal	192.0	523,331	139,600	132.7
<b>Plant Construction</b>				
Kajakai (Unit 3)	18.0	50,543	13,100	12.8
Tarakhil	105.0	6,975	76,400	1.8
Subtotal	123.0	57,518	89,500	14.6
<b>Total</b>	<b>329.1</b>	<b>606,018</b>	<b>231,000</b>	<b>153.7</b>

\* Based on plant capacity and average household peak load of 1.1 KW

\*\* Impact over period indicated based on calculated energy/GDP ratio of \$3,043 per MWh phased in over six years.

<sup>11</sup> Data for energy production are drawn from both IRP managers and AEIC.

### III. ENERGY SECTOR INDICATORS

The IRP Energy Sector program centers on operating and maintaining existing generation, inclusive of training DABS staff to assume O&M activity, increasing power generation, expanding the quality and capability of transmission infrastructure, and building institutional capacity. The objectives of these IRP projects will continue to be an increase in the access, availability, quality, and reliability of electric power to the household, industrial, commercial, and agricultural sectors at reasonable prices.

IRP is accomplishing this through the rehabilitation of Afghanistan's electricity generation and transmission infrastructure. Specifically, IRP provides O&M support while building capacity for thermal power plants in Kabul, and rehabilitating diesel and hydropower plants in southern Afghanistan. It is also responsible for the upgrades of various substations in the northern part of the country while maintaining and assisting in the expansion of power imports from the country's neighbors. The program increases the accessibility, quality and reliability of electric power to large segments of the Afghan population, which, in turn, spurs both economic growth and human development.

IRP is also involved in advising a variety of government agencies on resolving technical and policy issues and developing sustainable long-term plans and strategies. It is working with the Inter-Ministerial Commission for Energy (ICE) to ensure the most effective implementation of NEPS and SEPS and to support Kabul's electric power supply enhancements. Furthermore, it is working with DABS on technical assistance with the Kandahar Electricity Directorate, including on business planning and energy commercialization strategies. Over its five-year life cycle, the IRP program has continued to undertake a comprehensive approach to address the energy supply constraints on the country's economic growth while initiating training for DABS and Ministry staff.

For the Semi-Annual Monitoring Report, IRP provides data for several output and outcome indicators. Every effort was made to use the best possible data, but, as previously noted, for some indicators IRP relies on data from other sources, including DABS, which do not always provide the most accurate and current data. The indicators included in this report measure project outputs and outcomes in the following areas:

- **Economic:** Household Income;<sup>12</sup>
- **Capacity Building:** Number of People Trained in Energy Technical Fields; Number of People Trained in Energy Management Fields;
- **Generation Capacity:** Capacity Constructed or Rehabilitated (MW); Capacity Maintained (MW);
- **Cost:** Weighted Average Cost of Electricity Supplied to the Grid; and
- **Access:** Number of People with Increased Access to Electricity

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<sup>12</sup> Data on "Household Income" are provided in the first section of this report.

### III.1 ENERGY FIELD TRAINING HIGHLIGHTS

The sustainability of the energy supply expansion, which is one of IRP's primary tasks, depends on the presence of technically capable Afghans for the effective operation and maintenance of the power grid. This indicator measures the number of people that have received formal or on-the-job energy-specific training from IRP in technical and/or topics.

Training highlights from this past monitoring period (Apr. – Sep. 2010) include the following:

- *Solutions for Commercial Loss Reduction (TO 22)*: Seven DABS employees from the Billings and Collection team participated in 2-week training session in Kandahar on 2-5 April on Basic computer programs and understanding Pooyesh System options and how to develop a database. The Kandahar Metering Billing and Collection team participated in formal training in April as well. Eleven meter readers and seven Billing and Collection Data Entry specialists attended at the Kandahar DABS office.
- *Organization and Long-term Restructuring*: IRP provided training in writing business plans (31 August to 2 September) for five male mid- and high-level management from Kandahar at the IRP main office in Kabul.
- *Troubleshooting Symptoms and Fuel Systems (TO 23)*: Eleven subcontractors were trained by senior IRP engineering staff in February and April 2010 on the fundamentals of troubleshooting symptoms and on fuel systems at two power plants in the Kandahar province. Troubleshooting symptoms entailed learning procedures and techniques for resolving problems with equipment such as the alternator, coolant, crankcase gases, and intake manifold in the plant. Fuel system training involved inspection, installation, and servicing of various parts of the system.
- *Industrial Technology Curriculum (TO 27)*: A two-stage training program conducted from 24 Feb to 20 May 2010.
  - Stage 1: In a classroom environment, B&V training professionals provided DABS students a basic understanding of all aspects of a Diesel Engine Run Power Plant.
  - Stage 2: This stage provided practical training through classroom training of 28 DABS employees who were divided into five groups. Each group was allocated one section of the power plant (Power Plant A; Power Plant B; Power Plan C; Treatment Houses; and Tank Farm and Unloading Stations). Each student was assigned a location for one week and had to report to the O&M staff on duty and participate in any O&M tasks performed during their assignment at that location.
- *General Training (TO 17/19)*: Both IRP Employees and DABS employees were trained on a variety of topics, including Basic Safety; Construction Management; Generation, Transmission and Distribution in Afghanistan; Voltage Detection and Maintenance.

Exhibit 5 below illustrates the Afghan provinces in which Technical and Management training occurred during the last reporting period. During this period, a total of 53 individuals underwent training in over 75 different courses held in Kabul and Kandahar.

**Exhibit 5:**

**Number of People Trained in Energy Fields by Province  
Apr – Sept 2010**

Training Type	Province	Trainings
Technical	Balkh	0
	Kabul	28
	Kandahar	25
Management	Balkh	0
	Kabul	0
	Kandahar	5
	Nangarhar	0
<b>Total of Individuals Trained</b>		<b>53</b>

Note: The Total of Individuals Trained is less than the sum of the Trainings column because many individuals received multiple trainings throughout the country.

**III.2 NUMBER OF PEOPLE TRAINED IN ENERGY TECHNICAL FIELDS**

Exhibit 6 provides data for the number of people trained in energy technical fields since the inception of IRP. It includes training of IRP staff as well as of sub-contractors and ministry management and staff. It illustrates both informal and formal training, and it disaggregates this data by gender and task order. During this reporting period, 13 new IRP employees and 28 new Ministry staff have received technical training, whether informally, formally, or both. The cumulative technically trained staff since the inception of the program can be seen in the Grand Totals row.



**Exhibit 6:**<sup>13</sup>

**Number of People Trained in Energy Technical Fields**

**Inception - 30 September 2010**

Training Type	Task Order	IRP Staff			Sub-Contractors			Afghan Ministry Staff			Grand Total
		Male	Female	Total	Male	Female	Total	Male	Female	Total	
Formal	TO 2	0	0	0	0	0	0	0	0	0	0
	TO 5	1	0	1	8	0	8	0	0	0	9
	TO 9	48	1	49	19	1	20	65	0	65	134
	TO 11	0	0	0	0	0	0	0	1	1	1
	TO 13	2	0	2	0	0	0	2	0	2	4
	TO 17	17	0	17	9	0	9	12	0	12	38
	TO 19	0	0	0	6	0	6	120	0	120	126
	TO 22	2	0	2	0	0	0	0	0	0	2
	TO 23	0	0	0	11	0	11	0	0	0	11
	TO 27	19	0	19	0	0	0	28	0	28	47
	<b>Total</b>	89	1	90	53	1	54	227	1	228	372
Informal	TO 2	0	0	0	0	0	0	48	0	48	48
	TO 5	3	0	3	4	0	4	48	0	48	55
	TO 9	43	0	43	1	0	1	28	0	28	72
	TO 11	0	0	0	0	0	0	0	0	0	0
	TO 13	0	0	0	0	0	0	0	0	0	0
	TO 17	0	0	0	0	0	0	0	0	0	0
	TO 19	7	0	7	3	0	3	19	0	19	29
	TO 22	0	0	0	0	0	0	0	0	0	0
	TO 23	0	0	0	0	0	0	0	0	0	0
	TO 27	19	0	19	0	0	0	28	0	28	47
	<b>Total</b>	72	0	72	8	0	8	171	0	171	251
<b>Grand Total</b>		<b>65</b>	<b>1</b>	<b>66</b>	<b>61</b>	<b>1</b>	<b>62</b>	<b>285</b>	<b>1</b>	<b>286</b>	<b>414</b>

<sup>13</sup> A trainee who has taken both formal and informal training is only counted once in the Grand Total row. Therefore, the Grand Total row might be less than the sum of the subtotal rows.



**Exhibit 7:<sup>14</sup>**

**Number of People Trained in Energy Management Fields** **Inception - 30 September 2010**

Training Type	Task Order	IRP Staff			Sub-Contractors			Afghan Ministry Staff			Grand Total
		Male	Female	Total	Male	Female	Total	Male	Female	Total	
Formal	TO 2	0	0	0	0	0	0	0	0	0	0
	TO 3	0	0	0	1	0	1	3	0	3	4
	TO 5	0	0	0	0	0	0	0	0	0	0
	TO 9	5	0	5	0	0	0	37	0	37	42
	TO 11	0	0	0	0	0	0	9	1	10	10
	TO 13	0	0	0	0	0	0	2	0	2	2
	TO 17	1	0	1	9	0	9	0	0	0	10
	TO 19	0	0	0	6	0	6	3	0	3	9
	TO 22	0	1	1	0	0	0	64	2	66	67
	TO 23	0	0	0	0	0	0	0	0	0	0
	TO 27		0		0		0		0		0
<b>Total</b>		6	1	7	16	0	16	118	3	121	144
Informal	TO 2	0	0	0	0	0	0	0	0	0	0
	TO 3	0	0	0	0	0	0	0	0	0	0
	TO 5	0	0	0	1	0	1	0	0	0	1
	TO 9	4	0	4	1	0	1	0	0	0	5
	TO 11	0	0	0	0	0	0	7	1	8	8
	TO 13	0	0	0	0	0	0	1	0	1	1
	TO 17	0	0	0	0	0	0	0	0	0	0
	TO 19	0	0	0	1	0	1	0	0	0	1
	TO 22	0	0	0	0	0	0	0	0	0	0
	TO 23	0	0	0	0	0	0	0	0	0	0
	TO 27			0			0			0	0
<b>Total</b>		4	0	4	3	0	3	8	1	9	16
<b>Grand Total</b>		10	1	11	19	0	19	125	3	128	158

<sup>14</sup> A trainee who has taken both formal and informal training is only counted once in the Grand Total row. Therefore, the Grand Total row might be less than the sum of the subtotal rows.

### III.3 NUMBER OF PEOPLE TRAINED IN ENERGY MANAGEMENT FIELDS

The sustainability of the energy supply expansion and the potential for future expansion depend on a cadre of technically capable Afghans for the energy sector’s effective management. During this reporting period, there has been a dramatic increase in the number of trainees that are DABS employees as well as IRP personnel. For a detailed list of the cumulative number of people trained since the inception of the training programs, see Exhibit 7 on the previous page. Further management training for DABS employees is currently underway for TO 22 and will assist in building a local knowledge base.

### III.4 CAPACITY CONSTRUCTED OR REHABILITATED

In this reporting period, IRP did not build or rehabilitate any new capacity.

### III.5 CAPACITY MAINTAINED

During the reporting period, IRP under TO 27 assumed responsibility for operations and maintenance for the 105 MW Tarakhil Power Plant. IRP also continued direct O&M support for two plants in Kandahar and for the plant in Lashkar Gah, while the plants in Qalat and Tirin Kot received as-needed operational support. The maintenance operations for these five southern plants are covered under TO 23.

Exhibit 8 highlights the O&M works over the last six months. Technical support includes periodic trouble shooting, providing spares and consumables, and training operating staff. The total installed capacity supported by O&M activities was 132.1 MW with an operating capacity of 119.4 MW.

#### Exhibit 8:

#### Summary of Generating Capacity Operated and Maintained

Apr – Sept 2010

Plant	IRP Role	Installed Capacity (MW)	Operating Capacity (MW)	Activities
Kandahar–KTA-50	Direct O&M	11.9	6.6	3 alternators were repaired and installed. 3 more are in need of repair. Engines 1 & 6 are in need of a complete overhaul.
Kandahar–QSK-60	Direct O&M	8.8	5.0	
Lashkar Gah	Direct O&M	3.6	0.5	1 generator was repaired and will soon be installed. Another generator will be repaired over the next few months.
Qalat	As-Needed O&M	2.8	2.0	
Tirin Kot	As-Needed O&M	Not Known	0.3	
Tarakhil	Direct O&M	105.0	105.0	
<b>Total</b>		<b>132.1</b>	<b>119.4</b>	

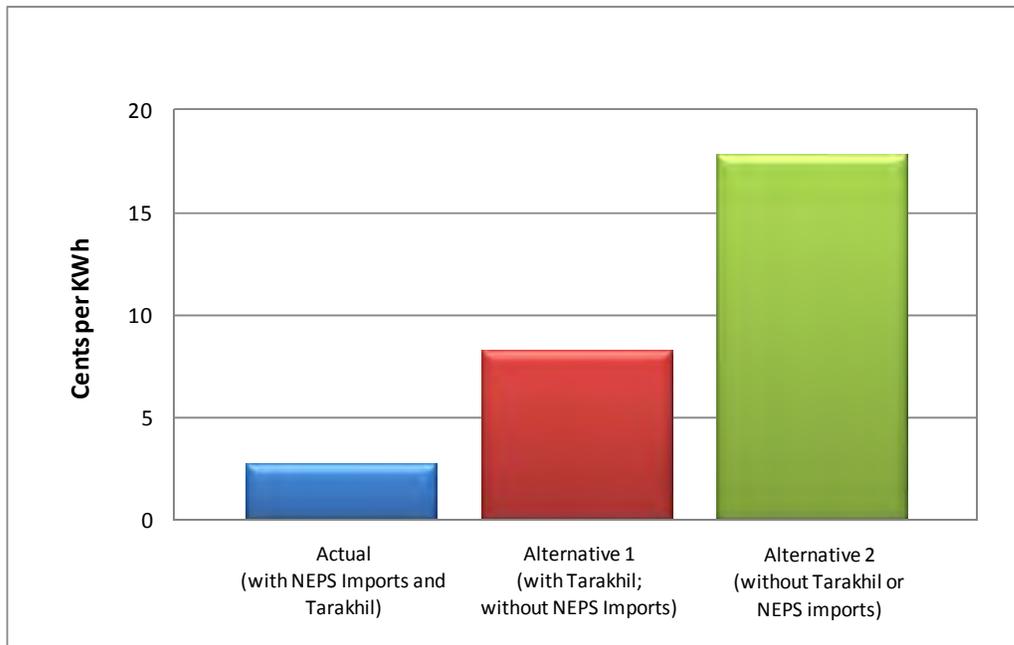
### III.6 WEIGHTED AVERAGE COST OF ELECTRIC ENERGY SUPPLIED TO THE GRID

The weighted average cost of power is an important indicator of the prospect for DABS becoming financially sustainable over time. DABS’ current cost of power is significantly greater than its average revenue collected per KWh. If DABS is to become a viable commercial entity, it must both increase its revenue collection and reduce its cost of power.

During this reporting period, IRP projects contributed significantly to lowering the average cost of power in Kabul by facilitating increased capacity though the NEPS imports from Uzbekistan and by building and

then conducting O&M at the Tarakhil Power Plant outside Kabul. During this period, bulk power sourced for Kabul and the region south of the Salang Pass totaled 530,017 MWh. This included 214,657 MWh imported from Uzbekistan through NEPS at a cost of 6 cents/KWh. Since NEPS power has made it possible to virtually never use the NW Kabul Power Plant, which involves a cost of power at 42.5 cents/KWh, this results in a much lower weighted average cost of power for Kabul of 2.73 cents/KWh. If NEPS imported power had not been available and if Tarakhil were to have substituted the NEPS' production load, then the weighted average cost of power (at \$0.85/liter for distillate fuel oil delivered to Kabul) would have risen to 8.24 cents/KWh. If neither NEPS imports nor Tarakhil had been available, and if the entire requirement in excess of the available hydropower could have been covered by the NW Kabul plants, then the weighted cost of power would have risen to 17.8 cents/KWh.<sup>15</sup> As a measure of the impact of the NEPS imports, if NEPS' production load were to be covered by Tarakhil and the NW Kabul power plants, then generation costs would have increased by \$29.2 million for the six-month period.

**Exhibit 9: Impact of NEPS Imports on Kabul Cost of Power**



NEPS imports provide significant benefits and have been facilitated by several IRP activities, including IRP's support of the Inter-Ministerial Commission for Energy (TO 13), as well as its role with the imported power agreements (TO 11), and reactive power compensation (TO 17).

<sup>15</sup> In reality, the NW Kabul plant could not have generated this much power due to capacity constraints; the system would have been sent back to an operational regime, which would have required extensive load shedding.

#### **IV. TRANSPORT SECTOR INDICATORS**

Under IRP, USAID selected roads for reconstruction/rehabilitation and for the conducting of operations and maintenance. These road projects were selected based on various criteria including the projects' roles in meeting the country's needs for increased physical access to markets, improved import and export of goods, enhanced access to education and health facilities, improved security, and better connectivity between districts. In addition, IRP has a capacity-building component tasked with strengthening Afghanistan's capabilities to carry out future operations and maintenance works.

Basic project outputs and selected outcomes for each road are reported in this section. These outputs are:

1. Equivalent Kilometers of Transportation Infrastructure Constructed or Rehabilitated;
2. Kilometers of Transportation Infrastructure Maintained;
3. Kilometers of Road Effectively Maintained;
4. Roughness of Road;
5. Number of People Trained in Transport Technical Fields;
6. Number of People Trained in Transport Management Fields;
7. Staff Capability with Technical Equipment;
8. Staff Capability on Report Writing;
9. Number of People Benefitting from Transportation Infrastructure Projects;
10. Security Incidents; and
11. Annual Average Daily Traffic Count.

Indicators 1-4 above directly relate to the completion of constructed roads and to the O&M of completed or existing roads. Indicators 5-8 directly measure IRP's capacity-building efforts in the transport sector. While indicators 5-8 are a primary component of TO 14, each TO engages in capacity building. The number of people benefitting from transportation infrastructure projects identifies the number of people in the ZOI for the segments of road completed. The last two indicators measure the effects of transport infrastructure projects as outcomes within the Zones of Influence (ZOI) for each road segment completed. The rationale for measuring the number of security incidents is to see how the rehabilitation of a road affects the security environment. Annual Average Daily Traffic Count measures how improvements to roads affect traffic volume over time and serves as a good proxy for the road's economic and social impact.

While the indicators presented in the Semi-Annual Monitoring Reports provide a broad understanding of project outputs and performance indicators, a deeper understanding of IRP's economic and social impacts is necessary. To further assess such impacts, IRP is conducting socio-economic studies over the course of the program's life-cycle. In winter 2009/10 and spring 2010, IRP managed the process of extensive data collection along the Gardez-Khost (TO 8) and Keshim-Faizabad (TO 4) roads for the purpose of more fully measuring the social and economic impact of these roads over time. The data analysis has been completed and Draft Final reports for both TO 8 and TO 4 have been submitted to USAID for review. Data collection for post-project conditions on the Keshim-Faizabad Road will be conducted in November and December of this year.

#### IV.1 EQUIVALENT KILOMETERS OF TRANSPORTATION INFRASTRUCTURE CONSTRUCTED OR REHABILITATED

This indicator measures the equivalent kilometers of road that have been rehabilitated or constructed for each task order involved. It is calculated by multiplying the percentage of the road that is physically complete by the total length of the road project. Exhibit 10 provides cumulative data which is broken down by task order.

**Exhibit 10:**

<b>EQUIVALENT KMs of TRANSPORTATION INFRASTRUCTURE CONSTRUCTED OR REHABILITATED</b>		
<b>Task Order</b>	<b>Percent Physically Complete</b>	<b>Equivalent KMs Constructed or Rehabilitated</b>
3.15	100%	10.0
4	93.5%	96.3
8	50.9%	51.4
18	100.0%	21.0
<b>Total</b>		<b>178.7</b>

#### IV.2 KILOMETERS OF TRANSPORTATION INFRASTRUCTURE MAINTAINED

This indicator is a basic output measure designed to track the kilometers of road that IRP is responsible to maintain. Exhibit 11 provides data for this period (Apr – Sept 2010) disaggregated by task order.

**Exhibit 11:**

<b>KILOMETERS OF TRANSPORTATION INFRASTRUCTURE MAINTAINED</b>	
<b>Apr – Sept 2010</b>	
<b>Task Order</b>	<b>KMs</b>
<b>TO 4</b>	103
<b>TO 8</b>	101
<b>TO 14</b>	1673
<b>TO 24</b>	164
<b>Total</b>	<b>2041</b>

In August, the scope of TO 14’s maintenance work expanded to include all the engineered roads of Parwan and Paktya provinces. This added an additional 250 km of road to the network that TO 14 is already maintaining. The intent of this expansion is to pilot a model for road management that extends beyond major highways and roads. Once the model is established, USAID, in coordination with other donors, plans to scale this up to include other provinces across Afghanistan. There are also still plans for TO 14 eventually to be responsible for monitoring and oversight of an additional 1940 km of roads built through ADB funding, but currently the project is on hold due to funding problems.

For those TOs focusing on road construction (TO 4 and TO 8), IRP has been responsible for maintaining bypasses and diversions and for activities such as conducting snow removal, debris removal, and bridge repair. This is to ensure that the flow of traffic is uninterrupted during the course of the project. TO 24 was responsible for the winter maintenance and for basic road grading of the Bamyan–Dushi Road.

### IV.3 KILOMETERS OF EFFECTIVELY MAINTAINED ROADS

Applying its performance-based management system, TO 14 (Roads O&M/Capacity Building Program) regularly monitors the roads under its supervision in order to measure the ability of local sub-contractors to maintain the roads. As defined in the PMP (March 2009), this indicator will measure how many kilometers of road are being effectively maintained by applying the criteria established by the TO 14 management team. These criteria serve as the basis for sub-contractor compensation.

The success of sub-contractors and MPW staff in effectively maintaining the road is a function of both their internal capacity as well as external factors (e.g., weather, insurgent activities) affecting the condition of the road. Phase II of TO 14 began in November 2008. During the first monitoring report period (October 2008 – March 2009), the percentage of roads effectively maintained averaged 83.0%. In the second monitoring report period (April 2009 – September 2009), this percentage averaged 89.6%. In the third monitoring report period (October 2009 – March 2010), the percentage of roads effectively maintained averaged 90.9%. During the current reporting period, the percentage of roads effectively maintained rose to an average of 93.6%. As the table below shows, the kilometers of road measured for effectiveness during this period fluctuated quite a bit each month. This was due to security situations that prevented TO 14 from monitoring certain road segments in a given month. Thus, this measure of effectiveness only applies to those roads where monitoring was possible.

**Exhibit 12:**

### KILOMETERS OF EFFECTIVELY MAINTAINED ROADS (TO 14)

**Apr – Sept 2010**

Year	Month	Kilometers of Road Maintained	Kilometers of Road Effectively Maintained	Percentage of Road Effectively Maintained
2010	April	1444	1392	96.4%
	May	1480	1410	95.3%
	June	1231	1163	94.4%
	July	1523	1436	94.3%
	August	1651	1487	90.0%
	September	1394	1273	91.3%
<b>Average</b>				<b>93.6%</b>

Note: A kilometer is not considered effectively maintained if it does not meet TO 14's minimum maintenance standards.

#### IV.4 ROUGHNESS OF ROAD

TO 14 focuses on both maintaining rehabilitated roads and developing the local capacity to maintain these roads. Successful O&M of rehabilitated roads will ensure that roads are maintained to a specific level of quality over time. This indicator is designed to provide an objective measure to test whether maintenance efforts are resulting in well-maintained roads. To report this indicator, TO 14 uses the International Roughness Index (IRI) to measure riding conditions. From June through August 2010, TO 14 conducted road roughness tests on 987 lane-kilometers of its network of USAID-rehabilitated.<sup>16</sup> Segments included most of the Kandahar–Herat Road; the spur from the K-H Road to Farah; and the Sheberghan–Sari Pul Road. The indicator is qualitatively expressed as one of three road condition types. A poor condition is when the IRI is above 5.0; a fair condition is granted if the IRI of the selected road is between 3.0 and 5.0, inclusively; and a good condition is awarded if the IRI is below 3.0. As a whole, these roads scored an IRI score of 2.1 with 90 percent of the roads found to be in good condition, indicating a strong degree of success in the maintenance work currently being carried out by Afghan sub-contractors. Exhibit 13 below displays the number of lane-kilometers attributed to each road condition type.

**Exhibit 13:**

<b>ROAD ROUGHNESS RESULTS OF REHABILITATED TRANSPORTATION INFRASTRUCTURE (Apr – Sept 2010)</b>		
<b>Condition</b>	<b>Lane-Kilometers Analyzed</b>	<b>Percentage of Total</b>
<b>Poor</b>	0	0%
<b>Fair</b>	104	10%
<b>Good</b>	883	90%
<b>Total</b>	<b>987</b>	

This past year USAID began to expand the road network that TO 14 is managing. In the summer, in order to pilot a model for provincial road management, USAID gave TO 14 responsibility for management of the entire engineered road network of two provinces—Parwan and Paktya. These roads were in various levels of condition. In order to provide baseline information about these roads, TO 14 conducted roughness tests of 164 lane-kilometers of asphalt and DBST roads in Parwan Province. In addition, TO 14 also anticipates expanding its maintenance management to include 2040 km of ADB roads in the next year. In preparation for this, it conducted baseline tests of 1048 lane-kilometers of ADB roads in the north and west.

#### IV.5 NUMBER OF PEOPLE TRAINED IN TRANSPORTATION TECHNICAL FIELDS

A sustainable transport sector depends on a cadre of effective technical staff. In order to build capacity, the IRP Transport Sector Program provides various formal and informal training opportunities. Since its inception IRP has trained a total of 346 people in transport technical fields, including 223 of its own staff, 47 sub-contractors, and 76 Afghan MPW staff. Of the IRP staff who have been trained since the inception of the program, 101 were Afghan university students who have participated in and successfully completed IRP’s 4 to 6-month internship program. The students come primarily from four universities—Kabul, Jalalabad, Kandahar, and Herat. There are two internship tracks within IRP—the first has a focus on design

<sup>16</sup> Lane-kilometer is a unit referring to the number of kilometers measured per each lane of a roadway.

and lab work in Kabul, and the second involves on-site informal training. Twenty-eight interns have participated in both internship tracks either simultaneously or consecutively. Of these 101 students who have completed their internship, thirteen have joined IRP as full-time employees.

Since TO 14 has a specific requirement directed towards capacity building, a more in-depth look at the kinds of training it provides will be discussed later in the report along with indicators that are being used to measure the effectiveness of its capacity building program. Highlights during the past monitoring period (April - September 2010) include the following:

- **Conference on the Management and Financing of Roads (TO 14):** From 14 to 17 June, 23 senior level officials from the Afghan government and leaders from the private sector gathered in New Delhi to hear innovative practitioners from around the world discuss best practices in both road management and road finance. Presentations by experts from the United Kingdom, New Zealand, South Africa, Zambia, Nepal, India, and the US spurred discussion among Afghan stakeholders about how reforms could best move forward in Afghanistan. The conference was chaired by H.E. Wahidullah Shahrani, Afghanistan's Minister of Mines and the Head of the Economic and Infrastructure Development cluster. It concluded with a set of resolutions and an Action Plan.
- **On-Site Informal Training:** Under TO 4 and TO 8, informal trainings for on-site engineers have taken place. Within TO 8, 23 engineers, surveyors, and lab technicians participated in in-field training focusing primarily on QA/QC and safety issues. While all trainees were introduced to topics such as design engineering, QA/QC, and roadway operations and maintenance, the 18 interns received additional specialized training in three fields: Earthworks, Structures, and Pavement. Earthworks training covered basic survey alignment, embankment, and cutting/filling skills. Structures training probed the design and construction of bridges, causeways, and culverts along the road. Pavement training involved asphalt and condition repair. The interns also received on-the-job training in CAD and other computer software.
- **Business Writing:** TO 4 held two formal trainings. The first was on Microsoft Outlook, which was attended by five subcontractors and 20 IRP employees, including field engineers, lab personnel, surveyors, and interns. The second training session was on Basic Business Writing, where eighteen IRP employees and two subcontractors attended.
- **Laboratory Training:** In this reporting period, eleven university student interns completed the IRP laboratory internship program and two are continuing on through the next reporting period. Each training group attended lectures related to materials testing procedures and QA/QC implementation, as well as performed actual laboratory testing on different materials such as soil, aggregate, asphaltic concrete, mortar, and Portland cement concrete. Their practical training also included developing actual mix-designs and conducting trials on asphaltic concrete, mortar, and Portland cement concrete. Lab interns also participated in field assignments to gain experience in on-site technical investigations, such as geotechnical investigations, pavement investigations, in-situ concrete testing, and pavement investigations.

Exhibit 14 provides data for the number of people trained in transportation technical fields since the inception of IRP. It disaggregates this data by training type, gender, and task order. Exhibit 15 below disaggregates training by province for the last reporting period. Many of these 418 individuals received informal training in multiple provinces.



Exhibit 14:<sup>17</sup>

Number of People Trained in Transport Technical Fields											Inception -- 30 Sep 2010
		IRP Staff			Sub-Contractors			Afghan Ministry Staff			
Training Type	Task Order	Male	Female	Total	Male	Female	Total	Male	Female	Total	Grand Total
Formal	TO 1	40	5	45	0	0	0	0	0	0	45
	TO 3	6	0	6	0	0	0	0	0	0	6
	TO 4	30	0	30	3	0	3	3	0	3	36
	TO 7	8	1	9	0	0	0	0	0	0	9
	TO 8	35	0	35	0	0	0	0	0	0	35
	TO 14	43	2	45	27	0	27	71	0	71	143
	TO 18	7	0	7	0	0	0	0	0	0	7
	TO 24	8	0	8	0	0	0	0	0	0	8
	TO 25	2	0	2	0	0	0	0	0	0	2
		<b>Total</b>	179	8	187	30	0	30	74	0	74
Informal	TO 1	12	1	13	0	0	0	0	0	0	13
	TO 3	3	0	3	0	0	0	0	0	0	3
	TO 4	40	0	40	0	0	0	0	0	0	40
	TO 7	6	1	7	0	0	0	0	0	0	7
	TO 8	67	1	68	17	0	17	0	0	0	85
	TO 14	37	0	37	0	0	0	73	0	73	110
	TO 18	1	0	1	0	0	0	0	0	0	1
	TO 24	15	0	15	0	0	0	0	0	0	15
	TO 25	2	0	2	0	0	0	0	0	0	2
		<b>Total</b>	183	3	186	17	0	17	76	0	76
<b>Grand Total</b>		<b>214</b>	<b>9</b>	<b>223</b>	<b>47</b>	<b>0</b>	<b>47</b>	<b>76</b>	<b>0</b>	<b>76</b>	<b>346</b>

<sup>17</sup> Some of the numbers for TO 14 are lower in this report due to a improved training tracking system which eliminated some double counting.

**Exhibit 15:**

**Number of People Trained in Transport  
Technical Fields by Province**

Apr – Sept 2010

Training Type	Province	Total Trainings
Formal	Herat	6
	Kabul	377
Informal	Badakshan	4
	Baghlan	12
	Balkh	5
	Bamyan	13
	Farah	7
	Ghazni	12
	Helmand	5
	Herat	10
	Jawzjan	10
	Kabul	28
	Kandahar	9
	Khost	23
	Kunar	9
	Kunduz	2
	Logar	22
	Maidan	7
	Nangarhar	12
	Nimruz	1
	Oruzgan	1
	Paktika	6
	Paktya	20
	Panjsher	12
	Parwan	20
	Sari Pul	10
	Takhar	2
	Zabul	10
<b>Grand Total of Individuals Trained</b>		<b>418</b>

**IV.6 NUMBER OF PEOPLE TRAINED IN TRANSPORT MANAGEMENT**

A sustainable transport sector depends on an effective and skilled workforce that can effectively manage it. To help build capacity, the IRP Transport Sector Program provides various formal and informal training opportunities. TO 14 (Road O&M/Capacity Building Program) has been the primary vehicle through which IRP has offered management training in the transport sector. Since its inception, IRP has trained 484 people in transport management fields, including 90 of its own staff, 322 subcontractors, and 72 MPW staff. Highlights of management training that are specific to TO 14 will be covered in the next section.



Exhibit 16:<sup>18</sup>

**Number of People Trained in Transport Management Fields** **Inception -- 30 Sept 2010**

		IRP Staff			Sub-Contractors			Afghan Ministry Staff			
Training Type	Task Order	Male	Female	Total	Male	Female	Total	Male	Female	Total	Grand Total
Formal	TO 1	28	2	30	0	0	0	0	0	0	30
	TO 7	0	1	1	0	0	0	0	0	0	1
	TO 8	3	0	3	0	0	0	0	0	0	3
	TO 14	51	5	56	319	3	322	72	0	72	450
	<b>Total</b>		82	8	90	319	3	322	72	0	72
Informal	TO 14	8	3	11	0	0	0	0	0	0	11
	<b>Total</b>	8	3	11	0	0	0	0	0	0	11
<b>Grand Total</b>		<b>82</b>	<b>8</b>	<b>90</b>	<b>319</b>	<b>3</b>	<b>322</b>	<b>72</b>	<b>0</b>	<b>72</b>	<b>484</b>

<sup>18</sup> The number for Afghan ministry staff trained has been reduced since the last report due to an improved training tracking system that eliminated some double counting.

## IV.7 OUTCOME INDICATORS FOR TASK ORDER 14

As stated earlier, TO 14 has a special focus on capacity building, and this section provides more detail as to the types of training that have taken place with this task order. TO 14's training offers very extensive array of formal courses as well as provides a diverse set of on-the-job training opportunities. The numbers in table above just count individuals, no matter how many times they have been trained. Given the progressive nature of TO 14 training, many attend successive courses. In fact, if each time a person participates in a formal course is counted as one training, TO 14 has conducted over five thousand trainings since its inception and close to two thousand trainings in this last reporting period alone.

IRP, under TO 14, conducts training specifically measured by three outcome indicators, Number of People Trained in Transport Management; Staff Capability with Technical Equipment; and Staff Capability in Report Writing. As the program continues to expand, further measures will be employed to test the effectiveness of the training. Training highlights under TO 14 during the past monitoring period (April – September 2010) include the following:

- **Preparation of a Bid Proposal:** In an effort to strengthen local contractor capacity, two Request for Proposal seminars were held in Kabul at which 221 contractors participated in training designed to help them prepare a competitive bid package. Topics included the following: the project scope of services, how to submit a bid price proposal, what information to include in a technical proposal, and what additional certifications and forms are required for a proposal submission.
- **GPS Device Training:** Thirty-seven IRP staff, 4 subcontractors, and 48 ministry staff were trained on the use of GPS devices, which are used as a tool for recording and reporting accurate location coordinates.
- **Road Planning:** Road planning trainings took place in twenty-one provinces and accommodated 69 IRP staff as well as ministry staff. The formal presentations and on-the-job training included how to do the following: collect axle load data using weigh scales, collect pavement deflection data using a Falling Weight Deflectometer (FWD), collect road roughness data using a roughometer, collect pavement core samples using a core drill, and collect manual and windshield traffic count data. All of this data collection will be used to prepare a Multi-Year Investment Plan for periodic and routine maintenance and rehabilitation using the World Bank's Road Economic Development Model (RED) and Highway Development Model (HDM-4) to create goals and estimate budget requirements. Three of the IRP staff attended an HDM-4 two-week training conference in New Delhi where they learned how to use the program.
- **Road Monitoring:** Road monitoring is a critical quality assurance requirement of O&M of a completed roadway. One hundred and ten IRP staff, ministry staff, and subcontractors participated in routine roadway monitoring on-the-job training which entailed conducting site visits and producing field mission reports, strip maps, and photo documentation required for determining whether subcontractors were meeting the level of service required by their performance-based O&M contracts. Additional training included emergency event reporting, estimating, and processing necessary for acting on emergency maintenance needs.
- **Road Maintenance:** Formal trainings were held in Kabul for a variety of road maintenance topics. The trainings were technical in nature and included crack sealing, DBST repair, pothole

patching, reshaping earth and gravel shoulders, and traffic control during maintenance. In all, 56 Ministry staff and subcontractors attended these formal classroom trainings.

- **Planning and Scheduling Processes:** Formal training for 66 IRP staff and subcontractors was conducted on planning and scheduling processes, which included content on how to create a project activities list, estimate activity duration, create a Gantt Chart, create a logic diagram, create a Critical Path Method diagram, calculate float, and create an Early Start Schedule.

#### **IV.7.1 STAFF CAPABILITY WITH TECHNICAL EQUIPMENT**

Successful O&M of rehabilitated roads depends on the existence of effective technical professionals. Because one of the components of the Road O&M / Capacity Building Program is to train personnel in the use of various kinds of technical equipment (laptops, GPS devices, digital cameras, etc.), this performance indicator measures the degree to which this formal training component has been effective by monitoring the success rate of equipment use in the field by IRP staff, MPW personnel, and local contractors. In this reporting period, GPS usage was tested both in exam and reporting format. The MPW staff were given the exam twice, so their scores were higher than IRP staff and subcontractors, although in practical application, they continued to make mistakes. At times, they submitted inaccurate location data as a result of hasty checking, not giving enough time for obtaining correct satellite readings. The IRP staff and subcontractors have learned to be more attuned to the GPS and therefore fared very well on practical use. Meanwhile, in regards to road planning, four IRP staff were exposed to practical usage of the falling weight deflectometer and eight on the roughometer.

#### **IV.7.2 STAFF CAPABILITY IN REPORT WRITING**

For this reporting period, 18 IRP staff, 54 Ministry staff, and 29 subcontractors partook in report submissions which include filling out a strip map and field mission report and documenting photos and GPS coordinates.

Everyone scored relatively the same on filling out strip maps. Of the four reporting categories, IRP staff scored lowest on this by not including enough detailed notes or filling out legend codes. It was found that MPW staff were reporting asset failures on their strip maps at about 87% precision when compared to the IRP O&M engineers. Subcontractors, who scored lowest of the three target training groups, did so due to lack of descriptions in the notes section of the strip map. Regarding Field Mission Reports, subcontractors scored the lowest again because they were not filling out enough details for particular sections. IRP staff and MPW scored about the same with deficiencies primarily related to action points and recommendations. Only the MPW staff struggled with proper photo documentation and correct GPS coordinates. They were not taking enough photos and those they were taking were done in haste so that the asset failures were not clear or taken from good angles. They were also incorrectly labeling the locations which relates to their haste using their GPS.

Overall reporting assessments were similar across all three target training groups, but as mentioned above, each target group had different weaknesses. Typical deficiencies across the board related to amount of details in the reports. MPW also faced some issues with precision on asset failure assessments and accuracy with GPS coordinates.

Exhibit 17 below displays the staff capability results of TO 14 trainings over the six-month reporting period.



Exhibit I7:

**AFGHAN TECHNICAL CAPACITY RESULTS**

**Apr -- Sept 2010**

Topic	IRP		Subcontractors		MPW		Style
	Number Trained	Success Rate (%)	Number Trained	Success Rate (%)	Number Trained	Success Rate (%)	
<b>Administration/Management</b>							
Personnel and Staffing	8	92	0	n/a	0	n/a	Test
Budgeting	9	89	0	n/a	0	n/a	Test
Logistics and Security	8	88	0	n/a	0	n/a	Test
Leadership	15	89	0	n/a	0	n/a	Test
Planning and Scheduling	28	84	38	82	0	n/a	Test
<b>Road Monitoring</b>							
Road Assets	19	66	4	92	48	82	Test
Road Inventory	19	83	0	n/a	0	n/a	Test
Condition Assessment Procedures	14	84	0	n/a	0	n/a	Test
General Guidelines for All Monitoring Missions	18	87	0	n/a	22	68	Test
Routine vs. Emergency Maintenance	19	44	4	68	48	77	Test
Emergency Event Reporting, Estimation and Processing	19	73	4	83	48	85	Test
Field Mission Report	19	61 / 94	4	64 / 86	48	82 / 96	Test / Report
Strip Map	19	71 / 91	4	73 / 88	48	85 / 91	Test / Report
Global Positioning System (GPS)	37	69 / 100	4	71 / 100	48	83 / 94	Test / Report
Roadway Monitoring Mission / Reporting	18	94	29	91	54	93	Report
<b>Road Maintenance</b>							
Crack Sealing	19	62	4	83	48	81	Test
DBST Repair	19	60	4	55	48	72	Test
Pothole Patching	19	53	4	47	48	68	Test

Note: IRP staff test scores are lower than MPW scores in certain cases because IRP scores are only for the initial exam, whereas IRP administered the test twice for MPW, and the score reflects the second exam average. Also, TO I4 had several new hires during this training period.

## **IV.8 NUMBER OF PEOPLE BENEFITTING FROM TRANSPORTATION INFRASTRUCTURE PROJECTS**

The purpose of expanding transport infrastructure is to increase access to markets and social services for the population within the road's Zone of Influence (ZOI), which the IRP Study Team has defined as 15 km on either side of the center line of the road as well as the area lying within a 15-km radius from the terminal points of the road. For reporting purposes, IRP begins including the percentage of the road's ZOI population in the calculation of this indicator once the population in that area lies within 15 km of where at least an initial layer of asphalt has been laid.

This indicator measures the number of people most directly benefitting from the road's rehabilitation or construction. There are obviously many other beneficiaries. For example, in the case of the Gardez–Khost Road, there are many who use this road who do not live in the ZOI but use it to ship goods between Pakistan and other parts of Afghanistan. The IRP Team calculates the population benefitting from the road by using the 2009-10 CSO data combined with a map that the AEIC produced using a USDMA topographic map and AIMS district boundary data, which outlines the road's ZOI.

Since the last reporting period, all of the Keshim–Faizabad Road (TO 4) had been paved with at least the first layer of asphalt. Based on the above definitions, IRP estimates the number of people benefitting from the Keshim–Faizabad Road as 265,000 people, which represents all of the people living within the ZOI.

The Gardez–Khost Road (TO 8) now has 59 km of road that is paved with 22 km on the Gardez side and 36 km on the Khost side. IRP estimates the number of people benefitting from the Gardez–Khost Road as 408,000 people. This too represents all of the people living within the road's ZOI. Given that Gardez and Khost are the most densely populated areas on the road, essentially all settlements lie within 15 km of the parts of the road that are currently paved.

Afghan CSO population data is notoriously inaccurate since it is merely an extrapolation based on census data from the 1970s. Consequently, the data IRP provides for the number of people benefitting from the road must be taken as rough estimates based on the best data available. This past year IRP conducted two in-depth socio-economic studies, one on the Keshim–Faizabad Road and one on the Gardez–Khost Road. In order to create an adequate sampling frame, it used satellite imagery to identify and geo-tag all of the household structures in the ZOI for each road. Using the household surveys it conducted, which gathered household size information, the Study Team was able to generate its own population estimates for these ZOIs. The IRP Team estimates that the actual number of beneficiaries in the Gardez–Khost Road ZOI is 820,000 and in the Keshim–Faizabad Road ZOI is 629,000. Both of these numbers are more than double of the CSO-based estimates.

Exhibit 18 below provides cumulative beneficiary estimates for the roads IRP has worked on since its inception. It includes both the estimates based on CSO data as well as those based on IRP's research.<sup>19</sup>

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<sup>19</sup> The total figure for the column that provides estimates based on IRP's research uses the CSO estimates in the case of the Southern Strategy Road, since IRP did not conduct a socio-economic study on this road.

**Exhibit 18:**

**Number of People Benefitting from Transportation Infrastructure Projects  
Inception – 30 Sept 2010**

Task Order	Road	Estimated Beneficiaries	
		CSO Data	IRP Research
TO 4	Keshim–Faizabad Road	265,000	629,000
TO 8	Gardez–Khost Road	408,000	820,000
TO 18	Southern Strategy Road	16,000	NA
<b>Total</b>		<b>689,000</b>	<b>1,465,000</b>

**IV.9 NUMBER OF SECURITY INCIDENTS**

This indicator measures the number of security incidents occurring from a task order’s initiation through its completion. It should illuminate the security situation within the zone of influence (ZOI). Additionally, this data helps USAID to differentiate between perceived risks and actual threats that the ZOI’s beneficiaries experience during the road’s construction or rehabilitation. IRP has made every effort to obtain security incident data from as many sources as possible. Requests for data retrieval were made from multiple organizations, but information was successfully obtained from the National Counter Terrorism Center’s (NCTC) Worldwide Incidents Tracking System (WITS) and the Afghanistan Research and Evaluation Unit (AREU).

In the case of Afghanistan, it is particularly difficult to gather comprehensive information about all attacks and to distinguish terrorism from the numerous other forms of violence, including crime and sectarian violence.<sup>20</sup> The WITS data tracks “terrorist incidents,” defined as occurring when “groups or individuals acting on political motivation deliberately or recklessly attack civilians/non-combatants or their property and the attack does not fall into another special category of political violence, such as crime, rioting, or tribal violence.” Since it only tracks incidents at the provincial level, the data is somewhat limited in its usefulness for this indicator, given that each IRP road only transects a part of a province.

Overall, Afghanistan has experienced a decrease in security. According to the 2009 National Counterterrorism Center Country Report on Terrorism, Afghanistan insecurity had the following characteristics:

- Attacks increased by 75 percent;
- IEDs became the weapon of choice; and
- Attacks have become increasingly sophisticated.<sup>21</sup>

The number of attacks has increased and the source of this lack in security originates from multiple sources. The general public is not immune to this violence that surrounds its villages and conflicts between individuals, families, and communities over land, water, business or marriage have become more violent. The pervasive use of guns and other weapons coupled with a lack of competent security forces and a

<sup>20</sup> National Counterterrorism Center, “2009 Report of Terrorism,” 30 April 2010.

[http://www.nctc.gov/witsbanner/docs/2009\\_report\\_on\\_terrorism.pdf](http://www.nctc.gov/witsbanner/docs/2009_report_on_terrorism.pdf). Accessed October 25, 2010.

<sup>21</sup> “Terrorism Incident Data: Country Reports on Terrorism for 2009.” Accessed 25 October 2010.

corruption-laden judicial system further fuel these different causes of insecurity and can create or reinforce multiple threats.<sup>22</sup>

Noting these limitations, the data still provides some useful insights into security situation in the areas where IRP road projects are being carried out. As illustrated in

Exhibit 19, the security situation in the different provinces where road works have been carried out is quite diverse. Bamyān Province has had five recorded security incidents since the inception of the road project in September 2009. Badakhshan Province has had 90 total incidents since its inception in 2007. These provinces are located in areas where the population is largely non-Sunni. The Pashto population residing in these areas is generally nomadic Kuchi tribesmen. In contrast, in Kandahar, Paktya, and Khost 42 percent of the population is Pashto, and they practice a strict form of Islam in addition to Pashtunwali a “code of life.” The Taliban insurgency today is largely made up of ethnic Pashtuns from these areas. Thus, the number of attacks recorded in these areas is much higher—425 in Paktya and Khost and 127 in Kandahar.

### Exhibit 19: Security Incidents and Victims by Task Order Province

WITS Security Report				Inception thru 30 Sep 2010				
Task Order	Province	Commencement	TO Status	Incidents	Dead	Wounded	Hostages	Total
TO 4 Keshim - Faizabad Road	Badakhshan	Feb-07	Ongoing	24	27	53	10	90
TO 3.15 Southern Strategy Road	Kandahar	Jun-08	Completed 08/2008	37	100	73	9	182
TO 8 Gardez-Khost Road	Paktya and Khost	May-07	Ongoing	424	549	857	149	1555
TO 18 Southern Strategy Road	Kandahar	Sep-08	Completed 06/2009	127	310	396	12	818
TO 26 Initial Cons. Bamyān-Dushi Road	Bamyān	Sep-09	Ongoing	9	1	3	0	5
<b>Total</b>				<b>612</b>	<b>986</b>	<b>1379</b>	<b>180</b>	<b>2645</b>

Source: NCTC Worldwide Incidents Tracking System, as of 30 September 2010.

There are a few additional general provisos to make with respect to the data. IRP does caution against placing too much emphasis on this data when assessing the security situation for each project because it simply cannot tell the whole story. The data collection process relies upon incomplete, ambiguous information that is difficult to obtain and highly subjective in nature. Also, the data may not capture how various factors are weighted differently. For example, though an attack that kills 100 people may be more severe than an attack that merely damages a pipeline, both are given equal statistical weight as one incident each. The data for districts was not available for this reporting period; therefore, no comparisons can be made between this set of data and previous data sets.

## IV.10 ANNUAL AVERAGE DAILY TRAFFIC COUNTS

On selected IRP project roads, IRP is conducting quarterly 7-day traffic. Exhibit 20 displays the results of the traffic counts on the Keshim–Faizabad Road. Unfortunately, the Study Team was not able to conduct traffic counts in the two quarters that fell in this reporting period. As of this writing, the road is nearing completion. While it has already experienced large increases in traffic volumes, the full magnitude of the

<sup>22</sup> “Minimal Investments, Minimal Results: The Failure of Security Policy in Afghanistan.” Michael Bhatia, Kevin Lanigan and Philip Wilkinson. Accessed 25 October 2010.



changes in traffic volume will be seen more clearly in future traffic counts when the road is fully paved and when construction activity no longer creates travel impediments.

Exhibit 21 provides the traffic counts for the Gardez–Khost Road. While it is too early to draw conclusions regarding the impact of this road on traffic volume, a few observations are in order. Comparisons are best done between traffic counts conducted during similar seasons of the year, so the July 2009 and August 2010 counts provide the best option for a simple analysis. Unfortunately, the July 2009 count only provided data for the Gardez end of the road. If we compare counts between these two periods for Gardez, we see a 52 percent decline in motorcycles, a 21 percent decline in 2-axle trucks, and a 31 percent decline in trucks with three or more axles. On the other hand, there is a 9 percent increase in cars, a 64 percent increase in minibuses, and a 45 percent increase in large bus traffic volume. Thus, the results at this point are a bit ambiguous. Given that there was a high degree of construction activity on the Gardez end during this period and that the counts partly coincided with Ramadan, it is likely that this has confounded the results a bit. Future traffic counts should provide greater clarity.



**Exhibit 20: Keshim–Faizabad Road Traffic Counts**

Vehicle Type	Passenger Vehicles								Freight Vehicles			
	Motorcycle		Car		Minibus		Large Bus		2-Axle Truck		3+ -Axle Truck	
Count Location	Keshim	Faizabad	Keshim	Faizabad	Keshim	Faizabad	Keshim	Faizabad	Keshim	Faizabad	Keshim	Faizabad
<b>Traffic Counts (Two Way)</b>												
April 2009 (12 hr)	17	81	198	426	NA	NA	0	1	5	34	89	100
July 2009 (24 hr)	29	24	158	196	65	82	1	0	26	17	112	163
October 2009 (24 hr)	70	83	293	380	70	121	0	9	26	35	169	266
January 2010 (24 hr)	52	105	319	662	54	156	1	4	38	52	101	166

**Exhibit 21: Gardez–Khost Road Traffic Counts**

Vehicle Type	Passenger Vehicles								Freight Vehicles			
	Motorcycle		Car		Minibus		Large Bus		2-Axle Truck		3+ -Axle Truck	
Count Location	Gardez	Khost	Gardez	Khost	Gardez	Khost	Gardez	Khost	Gardez	Khost	Gardez	Khost
<b>Traffic Counts (Two Way)</b>												
October 2007 (12 hr)	137	77	748	917	N/A	N/A	21	19	394	242	145	117
July 2009 (24 hr)	160	N/A	738	N/A	122	N/A	22	N/A	402	N/A	228	N/A
February 2010 (24 hr)	16	61	405	559	77	69	9	51	168	117	105	199
April/May 2010 (24 hr)	103	111	1044	1580	262	177	40	36	277	231	198	194
August 2010 (24 hr)	77	131	803	1489	200	194	32	26	316	215	157	248

Exhibit 22:

